BMJ Open

The effect of leadership on public service motivation: A multiple embedded case study in Morocco

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2019-033010
Article Type:	Research
Date Submitted by the Author:	16-Jul-2019
Complete List of Authors:	Belrhiti, Zakaria; Ecole Nationale de Sante Publique, ; Institute of Tropical Medicine, Public Health Van Damme, Wim; Institute of Tropical Medicine, Public Health; Vrije Universiteit Brussel, Gerontology Belalia, Abdelmounim; Ecole Nationale de Santé Publique Marchal, Bruno; Institute of Tropical Medicine, Department of Public Health
Keywords:	Human resource management < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Leadership, Public Service Motivation, Complex leadership, Basic Psychological Needs, Health workers

The effect of leadership on public service motivation: A multiple embedded case study in Morocco

Zakaria Belrhiti [1,2,3], Wim Van Damme[2,3], Abdelmounim Belalia[1], Bruno Marchal[2]

Authors' information

1 National School of Public Health, Rabat, Morocco.

2 Department of Public Health, Institute of Tropical Medicine, Antwerpen, Belgium.

3 Vrije Universiteit Brussel, Brussels, Belgium.

Word count : 7331 word

Correspondance to : Dr Zakaria Belrhiti, Ecole Nationale de Santé Publique, Rabat, Morocco drbelrhiti@gmail.com, (Phone number : 00212661631966)

Abstract

Objectives: We aimed at exploring the underlying mechanisms and contextual conditions by which leadership may influence (public service) motivation of health providers in Moroccan hospitals.

Design: We used the realist evaluation (RE) approach in the following steps : eliciting the initial programme theory, designing the study, carrying out the data collection, doing the data analysis and synthesis. In practice, we adopted a multiple embedded case study design.

Settings: We used purposive sampling to select hospitals representing extreme cases displaying contrasting leadership practices and organisational performance scores using data from the Ministry of Health quality assurance programs from 2011 to 2016.

Participants: We carried out on average 17 individual in-depth interviews in 4 hospitals as well as 7 focus group discussions and 8 group discussions with different cadres (administrators, nurses and doctors)**.** We collected relevant documents (e.g. performance audit, human resource availability, etc.) and carried out observations.

Results: Comparing the Intervention-Context-Actor-Mechanism-Outcome configurations across the hospitals allowed us to confirm and refine our following programme theory: "*Complex leaders, applying an appropriate mix of transactional, transformational and distributed leadership styles that fit organisational and individuals characteristics [I] can increase public service motivation, organisational commitment and extra role behaviours [O] by increasing perceived supervisor support and perceived organizational support and satisfying staff basic psychological needs [M], if the organisational culture is conducive and in the absence of perceived organisational politics [C]".*

Conclusions: In hospitals, the archetype of complex professional bureaucracies, leaders need to be able to balance between different leadership styles according to the staff's profile, the nature of tasks and the organisational culture if they want to enhance public service motivation, intrinsic motivation and organisational commitment.

Strengths and limitations of this study

Realist evaluation (RE) is useful in explaining how, why and under which conditions an intervention or a social phenomenon (leadership in our study) generates a particular outcome (*in casu* public service motivation).

Continous refinement of programme theories through RE cycles allows for a cumulative process of knowledge creation by constant shuttling across cases from theory to empirical data and back.

The time and resource constraints of the PhD research project, of which this study is a part, precludes testing and validating existing measurement scales of concepts such as PSM, perceived organisational support and organisational commitment.

Keywords : Leadership, Complex leadership, Public Service Motivation, Health workers,Basic Psychological Needs, Realist Evaluation, Morocco, Hospital, Human Resource Management

Introduction

In low- and middle-income countries (LMIC), poor performance of health workers is a critical barrier to quality of care and to the implementation of health policies in general(2, 3). This often stems from a lack of motivation and to negative attitudes of health workers in the provision of care (4-8).

In the public sector, performance management reforms inspired from New Public Management, including pay for performance and contracting out focus on extrinsic motivation of health providers, risking to crowd out intrinsic motivation (9). Such strategies may also generate negative self-interested behaviours, goal displacement and mistrust (9-15).

Since 1990, scholars have been developping the concept of "*Public Service Motivation (PSM),* defined as *"an individual's predisposition to respond to motives grounded primarily or uniquely in public institutions and organizations*." (16). PSM involves a set of "*beliefs, values and attitudes that go beyond self-interest and organizational interest, that concern the interest of a larger political entity, and that motivate individuals to act accordingly whenever appropriate*" (17). From this perspective, health workers can be driven by an altruistic desire to serve the public interest and the population (9, 18-21). Research in public sector settings and in healthcare produced evidence on the effect of PSM on job satisfaction, reduced turn-over and individual performance, (20-25).

Within the field of PSM, research has focused on how managers and leaders can enhance PSM among public servants (20, 26-30). Complex processes underlie the effect of leadership on PSM, conditioned by contextual factors (professionalism, religion and family education) (31-37) and organisational factors (organisational culture (38, 39) and job characteristics (20, 21). Little attention has been paid to the mechanisms underlying the effect of leadership on PSM in healthcare and public administration settings (22, 24, 26, 28, 30, 40-42) and the existing studies often display methodologies challenges (43, 44).

In response, we set out to explore the causal processes through which leadership, context and organisational attributes influence public service motivation of health workers in Moroccan hospitals. The research questions we address are: 1) How does leadership influence public service motivation of health workers? and 2) Which organisational or contextual conditions underlie the effect of leadership on PSM? This study is part of a larger study on the nature and effects of leadership practices on health workers in 4 Moroccan hospitals.

Methods

We adopted the realist evaluation (RE) approach (45). RE aims at identifying causal mechanisms that explain how, why and under which conditions an intervention or a social phenomenon (leadership in our study) generates a particular outcome (*in casu* PSM)(45). Realists posit that causal mechanisms are generative in nature and embedded in a stratified social reality; they reside in the interplay between individuals, institutional and structural factors (46, 47).

We applied the steps of the realist research cycle (46, 48) to structure our study: 1) eliciting the initial programme theory, 2) designing the study, 3) carrying out the data collection, 4) doing the data analysis and 5) synthesis. We refer to our paper reporting on a case study of leaderhip for more details on the realist approach ((49) in press).

Step 1 - Eliciting the initial programme theory

Our scoping review of complex leadership (50) allowed us to elicit an initial programme theory (PT) on the relationship between leadership and motivation. It was further developed through a first exploratory case study (coded NHMH) (see Belrhiti,2019 (49) in press) and this led to the initial PT that is the starting point of this study:

> "Complex leaders adopt an appropriate mix of transactional, transformational and distributed leadership styles that fit the mission, goals, organisational culture, nature of the tasks of the organisation and the individual characteristics of the personnel. This adaptation of leadership style enhances staff perceived supervisor support and perceived organizational support, and contributes to the satisfaction of basic psychological needs of the staff. (See box 1)"

Box 1 Definition of Basic Psychological Needs

According to self determination theory (1), every individual thrive to satisfy three basic psychological needs (autonomy, competence, relatedness). *Autonomy* corresponds to the sense of volition and willingness ones feel when undertaking specific behaviours. This allow staff to self endorse their actions. *Competence needs* means the feeling self efficacy when experiencing work opportunities that allow individuals to express and use their abilities and skills. *Relatedness* means that staff need to feel mutual respect, consideration from others, connectedness and a sense of belonging to a social group.

More specifically, we identified four causal configurations (Figure 1):

Configuration 1

- Laisser faire leadership decreases the levels of perceived organisational support and staff motivation by being less responsive to their basic psychological needs of autonomy, competence and relatedness. Lack of vision and goal setting contributes to a climate of ambiguity and role conflict. The inadequate enforcement of the hierarchical structure and high job pressure can contribute to mistrust between administration and staff.

Configuration 2

- Transactional leaders can improve extrinsic motivation of staff if they offer the necessary support and ensure adequate working conditions. By improving the latter, transactional leaders reduce job pressure and by implementing a clear hierarchical line they reduce role conflicts.

Configuration 3

- By showing individual consideration and communicating clearly about mission valence, transformational leaders enhance self-esteem of staff, perceived supervisor support, and satisfaction of their autonomy needs. This in turn contributes to staff commitment, mutual trust and respect between the management team and staff.

Configuration 4

- Distributed leadership can contribute to improved communication and interaction between staff from different units, to problem solving and a reinforced clan culture. Distributing leadership roles and embedding them throughout the organisation, combined with engaging staff in decision making, contributes to staff's perceived autonomy and organisational commitment, which in turn leads to extra role activities.

In this study, we zoom in on the role of public service motivation. We assume that leaders who stimulate staff's awareness of the value of their work to society and its contribution to the public good may enhance PSM and intrinsic motivation. Leaders who are responsive to the basic psychological needs of their staff are likely to stimulate the internalisation of public values and may shift the locus of individual motivation from extrinsic to more autonomous forms of motivation (51). This requires a conducive organisational culture and absence of conflicts between individual and organisational values. We hypothesise that the specific attributes of the Moroccan health system, and specifically its hierarchical organisational culture, may impede the emergence of PSM.

Figure 1 Program theories

Step 2 - Study design: a multiple embedded case study design

We adopted a multiple case study design (52) because it fits the exploration of multifaceted complex phenomena, such as PSM, in real world settings (in our case in 4 hospitals). We defined the case as the relationship between leadership and (public service) motivation. We took a hospital as the unit of analysis. Purposive sampling allowed us to select hospitals that would allow us to test the programme theory. We selected hospitals representing extreme cases, displaying contrasting organisational performance and leadership practices (53, 54). To select hospitals, we used data from the Ministry of Health's quality assurance programme called "concours qualité" from 2011 to 2016 (55, 56). More specifically, we used the leadership scores and the overall organisational quality performance scores (table 1). We refer to (Sahel,2015) (57) for a discussion of the "concours qualité".

We purposefully selected two well-performing hospitals with high leadership scores (NHMH and EJMH) and two poor-performing facilities with low leadership scores (RKMH and SMBA) (Table 1). This selection was informed by independence of cases, variation in hospitals size (seeking to have 1 large and 1 small sized hospital in each category), variation in location (urban, periurban, rural) and accessibility to the first author.

Table 1 : List of high and low-performing hospitals (Ministère de la santé du Maroc, 2011 and 2016 report)

Hospital	Size (number of beds)	Performance scores %		Leadership score (2016)
		2011	2016	
NHMH	<120	65	80.33	75.76
EJMH	>240	46	65.98	57,61
SMBA	>240	44	20.01	14.54

RKMH	<120	44	18.91	6.97

Realist evaluation seeks to refine programme theories through a process of specification: the PT is gradually refined by testing it in different settings or in different cases. For this study, we started the data collection in NHMH and developed a first refined PT. This was then tested in EJMH and the poor-performing hospitals RKMH and SMBA. The analysis of each site led to successive refinement, confirmation or disconfirmation of the elements of the initial PT.

Figure 2 - Cases studies and data collection, Morocco, January-June 2018

Step 3 - Data collection

We based the choice of the data collection methods on our programme theory (Figure 1) to ensure that data would allow us to test the initial PT. We used interviews, focus group discussions and document review (see figure 2). We collected data during the period January-June 2018

Interviews

In each hospital, we interviewed health professionals, and senior, middle and operational managers. We explored the antecedents of PSM, its expression and the relationship with leadership and management practices, organisational structure, and cultural context. We used open-ended interview guides tailored to each category of respondents (supplementary file 2). We collected data until saturation was attained. In the first site (NHMH), we carried out 18 individual in-depth interviews (IDI). Subsequently, we carried out 17, 16 and 17 IDI in EJMH, RKMH and SMBA respectively. Each respondent was anonymised and given a unique identifier. Sociodemographic characteristics of the respondents are summarised in table 2 and detailed in supplementary files 3 to 6.

Focus group discussions

To further explore the key constructs used by interviewees in relation to (public service) motivation, we carried out 7 focus group discussions and 8 group discussions with different cadres (administrators, nurses and doctors). This allowed us to deepen the analysis across the different categories of health workers (managers, service providers). The first author led the FGD. Probes, follow up questions and summarised key themes were used and verification from participants was sought at the end of each FGD (58, 59). The FGD facilitator guide is presented in supplementary file 1.

Respondents for the in-depth interviews and the focus group discussions were identified through qualitative purposive sampling(53). All FGD and IDI were audio recorded with the exception of 1 interview. In this specific case, we took notes and transcribed the unrecorded interview using memory recall (60). Following guidance provided by (Miles and Huberman,2016) (61) and (Krueger,2014) (58), we wrote a brief contact summary at the end of any contact with research participants. It included major themes and ideas arising after each interaction. All recordings were transcribed verbatim.Two researchers (ZB and BM) checked the transcripts for accuracy.

Document review

We collected documents at the study sites and at the Ministry of Health. We focused on human resources availability and skill mix, the strategic plans of the hospitals, audit documents and quality assurance reports.

Observations

The first author carried out opportunistic observations (between appointments with interviewee), following the guidance described by (62). Close attention was paid to the interaction between supervisors and staff. We recorded our observations about feelings and goals expressed during informal interaction with hospital staff and external actors and the physical spaces.

Table 2 Respondent characteristics

Managerial function

	NHMH	EJMH	RKMH	SMBA
Senior managers	4	4	3	4
Middle Managers	3	7	2	5
Line Managers	5	2	4	3
Operational staff	20	30	17	33
Total	32	43	26	45

Professional profile

	NHMH	EJMH	RKMH	SMBA
Doctors	13	14	4	14
Pharmacist	1	3	1	1
Nurses	14	15	14	20
Administrators	4	11	7	10
Total	32	43	26	45

Age category

	NHMH	EJMH	RKMH	SMBA
20-30	6	3	5	3
31-40	11	11	6	17
41-50	9	10	9	11
51-63	6	19	6	14
Total	32	43	26	45

Gender

	NHMH	EJMH	RKMH	SMBA
Female	20	25	10	24
Male	12	18	15	21
Total	32	43	26	45

Step 4 - Analysis

We carried out the data analysis following the 'traditional' analytical phases of compiling data, interpreting, discussion, and drawing conclusions (54). Guided but not restricted by the initial programme theory, we coded all data sources (transcripts, contact summaries and field notes) using different coding techniques (concept, hypothesis and "in vivo" coding)(63). We used the ICAMO (Intervention-Context-Actor-Mechanism-Outcome) heuristic to identify causal configurations. We revisited the data to test conjectural ICAMO configurations (64). We adopted a retroductive approach (65) to contrast patterns of leadership effectiveness between different types of actors (doctors, nurses and administrators). We compared these patterns with the chronology of the CEO succession periods.

NVivo 10 software (66) was used to manage the data. Milestones in the coding process were discussed during research teams meetings.

Step 5 – Synthesis

When the data from all sites were analysed, we compared the ICAMO configurations with the initial programme theory and modified it accordingly. We followed the RAMESES II reporting standards in writing the research report and this paper (48).

Ethical considerations

The study was granted approval by the Moroccan Institutional Review Board, Rabat (n°90/16) and the Institutional Review Board of ITM (N° 1204/17). We informed all interviewees before the start of data collection about the study objectives, topics, type of questions and their right to refuse being interviewed and to interrupt the interview at any time. This information was also provided in an information sheet and reiterated before the start of interview when the written consent procedure was explained. The respondents were asked to sign the informed consent form if they agreed to participate in the study. The forms were co-signed by the researcher and a copy was given to research participants.

Patient and public involvement statement

There was no direct patient involvement in this study.

RESULTS

In this section, we first present for each hospital the main leadership and management practices, the perspective of staff, their views on public service motivation, and a summary. Then we present a summary of the cross case analysis and the resulting refined programme theory.

EJM Hospital

Main leadership and management practices

In EJMH, there were two successive leadership periods. Between 2012 and 2015, CEO 1 had a transactional leadership style, relying on administrative procedures, assertion of power, and

compliance with rules and procedures. He was perceived by his staff as being distant and not responsive to their needs for professional autonomy. Conflicts and tensions with unions and doctors were high. He left in 2015.

> *"CEO 1 was too strict in the application of the new hospital procedures. We could not discuss the rules with him. The hospital cannot be managed by strictly following the rules. For instance, in compliance with the new procedures, CEO 1 decided to implement night shifts for administrative staff and stopped the night shifts of nursing supervisors. The administrators did not accept to carry out this task because the new procedures did not mention who should do this and how this 'overtime' job would be reimbursed". EJMH 3 Administrator.*

In mid-2015, CEO 1 was replaced by CEO 2. He was upto then the chief medical officer of the hospital and had quite some management experience. For instance, he was the director of EJMH between 2002 and 2006. In 2016, EJMH won the first price at the quality contest. CEO 2 had an explicit vision on leadership:

> *"I had the chance to manage the hospital in 2002. This allowed me to really know the personal and vice versa. Now, we work as a team in that sense that staff are involved in decision making. This is very important. In a real world setting, participative decision making is very important, because you avoid many problems. When you involve them, you avoid resistance. If staff is involved from the beginning, they will adopt the solution and will not feel that it was imposed on them. This will be totally different if the solution was imposed on the staff. (…) When you involve staff in decision making, you build trust relationships. Trust relationships are very important in our context, where the hospital director has little power over his staff. [….] When we explain to staff well defined objectives. They know which organisational objectives to pursue. Achieving these goals at the operational level bring legitimacy to the hospital direction. It is important that health workers know that you are thriving to achieve these objectives. This is what I call credibility." EJMH 7, CEO 2*

The perspective of staff

Leadership style

Our analysis shows that the staff found that the transactional leadership style of CEO 1 was incongruent with their professional values and their need for autonomy. This contributed to mistrust in the management team, low organisational commitment and a high level of tension with unions.

> *CEO 1, with whom I worked, was authoritative. This was not congruent with my values. I value participative decision making. I try to share with others, I need to be treated the same way by my superior. CEO 1 was just commanding: 'Do this, give this to this person'. I would have accepted and engaged with him if he would have involved me in participative decision making with other members of the hospital committee, if he would have used polite inquiries, like "Would it be possible to do this?, rather than giving orders without listening to team members or involving them in decision making." EJMH 25, pharmacist.*

The participative decision making style of CEO 2 and his consideration for individuals restored trust in the management team and reduced the tensions with the unions.

> *"Now everything works smoothly. He does things that are right. He reacts to wrong doings. He is sympathetic with all staff. CEO2 has a long experience. He knows everyone, he knows*

their personal characters, motivation and personal needs…. He is very successful in doing that! He knows how to reduce tensions between his close collaborators. He takes decisions smoothly. As a physician, he is able to reduce tensions between medical union representatives and internal coalitions within the medical departments. His door is open to everyone. He listens to staff. He does not rush decisions. He maintains a low level of tension within the hospital. He does not complicate things. The former CEO took rapid decisions and was facing much resistance […].CEO 2 involves his close collaborators and chiefs of departments in decision making. This way, they adhere to his decisions. He listened to them. He has a participative leadership." EJMH 25, pharmacist.

Public Service Motivation

Frontline providers said that compassion and self-sacrifice are important components of their public service motivation.

"While recording electrocardiographs on patients, I was constantly communicating with them. Sometimes, women shared with me their feelings, their worries about their siblings, their fear of death, their personal life and stories about their deceased or ill husbands. They were often crying. I feel their sufferings as if I were living with them". EJMH 17, Nurse.

We found that the intrinsic motivation of health providers is sustained by their feelings of competence and their ability to adequately apply their professional skills and competencies.

"I love my job. I chose deliberately to work at the emergency unit. I love working at the emergency unit. I am totally engaged. Handling serious medical emergencies is a motivation in itself". EJMH 38, Doctor.

Participative decision making was perceived by staff as congruent with their professional identity and their public service values. It enhanced their self-esteem and satisfied their needs for autonomy and relatedness. It also increased their perceived autonomy support.

"Leaders needs to be fair, listen to our needs and resolve our organizational issues. Most importantly, they need to understand my professional needs, take into consideration my suggestions and contributions to work. This make me feel satisfied. In contrast, with the former leader, I was not feeling secured. He was exerting excessive control. I suffered the martyr!. I was constantly under constant threats. I even sent an administrative correspondence to the ministry of health against the injust treatment. I was just trying to do my job correctly!". EJMH 17, Nurse.

Summary

Our analysis showed that the transactional leadership of CEO 1 did not address the basic psychological needs of the staff and specifically the need for autonomy. This not only contributed to low organisatinonal commitment and reduced public service motivation, but also to tensions with the unions.

In contrast, CEO 2 had a transformational leadership style: he effectively understood how people are motivated, listened to them, and clearly communicated his vision and objectives to the health workers. He showed genuine concern for the needs of his staff, effectively resolving problems through a constructive dialogue with informal leaders and union representatives. He also involved his close collaborators and heads of department in decision making.

CEO 2 also stimulated the emergence of distributed leadership to lower levels of the organisation, which increased trust between the staff and the CEO, and reduced resistance to change. This was considered by mid-level managers as crucial in maintaining the motivation of staff, in particular given the perceived limited decision spaces they have over their personal work. We saw that not only senior managers but also mid-level managers engaged in distributing leadership. For the latter, participating in decision making increased their perceived leader support and satisfaction of their autonomy needs.

RKM Hospital

Main leadership and management practices

This hospital has known two leadership periods since 2010. From 2010 to 2012, CEO 1 displayed transactional leadership: he assiduously monitored staff attendance, planned their shifts and dealt with his staff through administrative correspondence. He was confronted with staff resistance.

Because of shortage of intensive care anaesthetists, nurses anesthesists often take over their tasks, like sedating patients in the operating theatre without medical supervision. When they were confronted with excessive control by the director, they stopped carrying out this "medical" task. This has negatively impacted the continuity of surgical activities. In this case, nurses used their professional expertise as a source for discretionary power (e.g. ability to intubate and sedate patients in the operating theatre).

> *"(CEO1) was suspicious and was strictly applying the regulations to correct the staff absenteeism. When the cat's away, the mice will play. There were many conflicts, especially with nurse anesthesists who did not comply with the control of attendance. As a result, they stopped sedating patients and argued that they are not allowed to sedate patients without an intensive medical care anaesthetist". RKMH8, close collaborator.*

CEO2 managed the hospital between 2012 and 2018. He favoured a distant *laisser faire* leadership approach and was often absent. He would then be replaced by the chief nursing officer who adopted the same leadership style. The latter seemed overwhelmed by day-to-day operational management responsibilities. During our field work, we noted that the management of the hospital was poor. No organizational action plans were available, and there were no meetings. Strikingly, our focus group discussion with nurses was the only meeting they attended in three years. We observed high level of absenteeism among hospital staff.

The perspective of staff

Leadership style

Our analysis shows that the close collaborators, administrators and technical staff appreciated the leadership of CEO 1, because he reduced role ambiguity and job pressure. However, nurses and doctors were unhappy with his overcontrolling behaviour and engaged in resistance. Also CEO 2 was appreciated by his close collaborators, now because of his gentle wording and good interpersonal management. However, doctors and nurses perceived his *laisser-faire* leadership as non-responsive to their needs in terms of resources and working conditions.

Respondents complained management engaging in clientelism and nepotism, which they found to conflict with their public service values.

> *"The chief of the admission office is carrying out tasks that are not his. He manages the personnel! Staff who come from the town of CEO2 are privileged compared with others. Decisions are guided by his close interpersonal relationship with them". RKMH 11, Nurse.*

> *"For instance, when I take necessary administrative measures to correct staff absenteeism, the provincial district officer takes no actions to sanction these deviant behaviours. My authority is weakened. Either you accept staff's deviant behaviours and thus participate in this "crime", or you are intransigent and staff will build an alliance against you and you will be demonised. As you may know, unions and political parties are corrupt, they seek only the interest of their members and not the general interest" RKMH 15, Administrator.*

Staff perceived that they were unable to treat adequately patients because of lack of material and ressources (e.g. laboratory tests, mobile radiology, etc.) and the inadequate organisational support to their supply needs. They did not feel self-efficacious. Some felt that they were doing more harm than good for patients. This reduced their PSM and negatively impacted their psychological well being.

> *"We suffer because we transfer patients for simple technical procedures that we could have handled locally" RKMH 10,Nurse.*

> "*We often ask relatives to help us carry patients with a fractured femur to the fixed X Ray table. By doing this, we may worsen the fracture. I feel sorry when I had to ask sick patients to go themselves to the fixed X-Ray table. No organisational support is given, despite our relentless asking the administration to provide us with a mobile X Ray system."*RKMH 14 Radiology technician

Poor management and bad working conditions led to low levels of perceived organisational support amongst nurses. Staff felt inadequately supported by their supervisors and were left to face problems in the execution of their daily tasks. This created a stressful job pressure they were unable to deal with.

> *" During the transfer (of a patient to the referral hospital), we do not focus on what care to give to the patient, but we are stressed by the poor conditions of the ambulance. It is not an ambulance, it is a wreck!" RKMH 12, Nurse anesthesiologist"*

Reluctance of the managers to start up legal procedures against patients or families who assaulted nurses or doctors further reduced the latter's trust in the management.

> *"Many times, staff were assaulted. The management just forgave the assaulter, because the CEO knows him. Leaders should support staff, … support them in a sense that if someone of us is assaulted one day, I mean a nurse staff in his shift or a doctor, staff should be protected. This assault should not be considered as an assault on an individual person, it is an assault on all of us, on all health care providers cadres in general." RKMH 24, Nurse, ED.*

Public Service Motivation

In this hospital, we found that frontline providers value the importance of adequately serving patients and improving health outcomes. They derive satisfaction from relieving suffering and saving

lifes, or at least preventing them from developing complications. Health workers mentioned that compassion, self-sacrifice, serving the underprivileged and caring for the poor are crucial drivers of their public service motivation.

> *"We often sacrifice our own time for the sake of patients and for the sake of God to avoid unnecessary delays and prevent parturients from getting complications, for exemple, severe neurological and cardiac complications of post partum haemorrhage. We even help patient's families to pay for ambulance fees in order to avoid delays". RKMH 14, midwife*

> *"Here, I work a lot with vulnerable citizens. It is a reward in itself to serve poor patients. It is my source of motivation". RKMH 3, Doctor*

We noted that the *laisser-faire* and transactional leadership had a negative effect on staff with high levels of public service motivation. It led to psychological distress, low organisational commitment and self-interested behaviour. This was compounded by the perceived organisational politics (see. clientelism and nepotism).

Summary

Our analysis showed that the *laisser-faire* and transactional leadership in this hospital did not respond to the basic psychological needs of health workers. This led to reduced public service motivation with negative consequences on their psychological well-being, because of the lack of opportunities of experiencing valued patient outcomes (e.g saving lifes).

The leadership styles also contributed to low perceived organisational support, which in a context of perceived organisational politics, in turn lowered organisational commitment, and increased self-interested behaviour and mistrust between administration and staff.

SMBA Hospital

Main leadership and management practices

In SMBA hospital, one of the low-performing hospitals, there were three leadership periods. CEO 1 (2007-2010) displayed strong transactional leadership, emphasising comformity with rules and procedures and insisting on top-down hierarchal management. He carried out many performance audits and clinical supervisions, and organised training to staff. He showed high moral standards and was both respected and feared by staff. He was replaced in 2010 by CEO 2, who retired in 2013. He had some experience in management, displayed transactional leadership and stressed the conformity with rules similarly to his predecessor. In 2014, CEO 2 was replaced by CEO 3, who adopted a *laisser-faire* leadership. The hierarchical line was no longer respected. He managed the hospital poorly: no organisational action plans were available, and he did not carry any audit nor supervision. No inter-units meetings were held and the departementalisation process was halted. During our field work, we observed a strike of the clerical officers in charge of hospital admission and of the private company in charge of security in reaction to bad working conditions and perceived low responsiveness of management to their needs.

The perspective of staff

Leadership style

CEO 1 and 2 were highly appreciated by the administrators and their close collaborators. The health professionals (nurses and doctors) pointed to reduced perceived organisational support and to lack of participative decision making. Under the leadership of CEO 3, staff felt less supported by their supervisors. They said they were left to deal with problems alone. Lack of clarity of goals led health workers to perceive role ambiguity and job pressure.

Poor management and low responsiveness of leaders to staff needs in terms of improving working conditions decreased their public service motivation.

> *"Leaders do not play a role in our motivation. […]. We came to work despite constraints and poor working conditions. If we were only motivated by working conditions, we wouldn't come to work. The management team was even unable to timely replace a broken window of our reception desk counter!" SMBA 29, Reception desk officer*

Our respondents also mentioned the clientelism and nepotism of CEO3, who privileged some staff and patients over others. This led to perceived organisational politics and mistrust, and contributed to low organisational commitment, demotivation and crowding out of public service motivation.

> *"In this hospital, there are some external actors who pretend to do social work, and pretend to act as benefactors. These external actors, often members of associations, intervene illegimitely in hospital activities. They are like parasites. They definitely impact on our productivity. They are like stockbrokers. They do not care about citizens. They frequently mediate between citizens and services providers. The CEO responds quickly to patients needs when these actors are involved. This what I call clientelism. This is not fair! All citizens are equal" SMBA 21, support straff, reception desk.*

Public service motivation

Physicians and nurses perceived compassion with patients' conditions and self sacrifice as major components of their public service motivation.

> *"Patients are important for me because I got sick myself. So, I sense what the patients are feeling. My family members, my daughter and my grandmother got sick. I feel the pain patients are suffering from. I can feel their suffering. "(SMBA 35, Nurse).*

Public service motivation is also driven religious cultural beliefs including elements of fear of God and divine rewards.

> *"We work because of our sense of humanity, our own consciousness and our fear of God. One day, we will be asked about the quality of work we have done in the past. We feel sorry for patients, SMBA 29, reception desk officer"*

Staff said they were suffering from psychological distress due to poor working conditions, and experienced feelings of guilt because of their inability to perform their job adequately and to ease

their patients suffering. Lack of opportunities to experience positive patients outcomes reduced their public service motivation.

> *"When you do not have necessary material you are in trouble! It is not only a constraint but a source of suffering. Instead of relieving patients' distress, it is us who get stressed." SMBA 45, Doctor.*

> *«Here, ressources are limited compared to the teaching hospital where we were trained. Real world practices are really different. When we first were assigned to this hospital we could not change things around. This is really depressing. We have the ability to provide specialised care but we do not have the necessary ressources to do it ! , SMBA 42, Doctor.*

This impacted negatively on their perceived organisational support. This led to crowding out of their public service motivation and lowered their organisational commitment and their well-being.

> *"It is really depressing. I do not want to work anymore because I do not have the necessary ressources.[…] I often cry when I watch newborns suffering from intramuscular injections because nurses are not skilled to administrater intraveineus infusions to newborns and often use instead intramuscular injection for 10 days. I am not only frustrated, I hate entering neonatology service!!!. I only grudgingly go see my patients whereas in the past I loved providing neonatology care. I cannot stand seeing newborn almost dying of hypoglycaemia 0.3g/l because they are not adequately fed. This is due to the acute shortage of nurses (one nurse per shift) who are unable to reconciliate between administering antibiotics and treating infections and baby feeding. I am not anymore motivated to cure newborns 'infections but I am terribly stressed avoiding newborns to die from hypoglycaemia. If babies are left alone with the feeding bottles they may die by suffocation. How can we come motivated to work in the next morning? of course not!!! SMBA 42, paediatrician.*

Shortage of material reduced their ability to properly care for patients, which reduced their PSM and contributed to a reduced sense of competency, self-efficacy and autonomy.

> *"During my pediatric residency, I practiced neonatology and neonatal reanimation for two years, I developped many skills that I am not using now because I do not have the necessary equipments. I have only few neonatal rescuscitation tables and two sources of oxygen for 21 patients. I do not have a respirator. During my training I learned to intubate and manage cardiorespiratory distress. Now, in neonatology service instead of using unavailable syringe pumps,we manage pediatric diabetes by intraveinous perfusion. I never been thaught to do this!!". SMBA 42, paediatrician.*

> *"I am very proud to serve my population, however I am truly unsatisfied. We have strong faith and we work eagerly to serve people. But our faith is not sufficiant. We need more ressources. For exemple, I am often called for patients with cranial trauma. We do what is possible depending on available ressources. Cerebral trauma patients need an emergency cerebral CT-scan and the golden hour must be respected. When they arrive at the hospital, often with a delay, the CT Scan is unavailable. It is often out of order. What could we do? In this case, We help teams transfer the patient to the nearby hospital in Marrakech. We often collect money to pay ambulance fuel and to avoid extradelays. I feel that my contribution to patient health is useless, despite being present for about 5 or 6 six hours at night. I feel that our contribution is hampered by organisational problems that are beyond our control". SMBA 43, intensive care* anaesthetist

Summary

In this hospital, we found that leaders (like CEO 1) who are perceived as showing a high sense of moral and ethical standards, and who stimulate the awareness of staff of public service values and their contribution to society, were positively considered by some cadres. For the administrative staff, the transactional leadership displayed by CEO 1 led to higher clarity of goals, reduced job pressure and increased extrinsic motivation. However, it was negatively perceived by frontline workers because they felt it did not respond to their needs for autonomy.

Laisser faire leadership crowded out public service motivation by reducing frontline healthworkers' opportunities to help. Such management did not respond to the basic psychological needs of staff and led to low organisational commitment.

In Table 3, we present a summary of the perspectives of staff on the leadership and management practices. We present in the first column key summary data derived from the initial exploratory case study (NHMH hospital) and detailed in (Belrhiti,2019(49) in press) .

Table 3 - The perspectives of staff on the leadership and management practices

NHMH	EJMH	RKMH	SMBA
CEO 1 (2007-2013) ***Transactional leadership*** Conformity to rules and procedures, role model. Improved staff working conditions. **Staff perspective** Strong perceived leader support, which catalysed the quality culture **CEO 2 (2014-2016)** ***Transformational leadership*** Clear communication of his vision. Genuine concern for staff needs. Enhanced staff mission valence. ***Distributed leadership*** Stimulated network formation, "kind heart actions" **Staff perspective** Responsiveness to their basic psychological needs Reinforced existing clan culture. Positive organisational climate (mutual trust and team work). This led to increased organisational commitment and extra role performance, In 2016, the hospital won the second price in the national quality contest).	**CEO 1 (2012-2015)** ***Transactional leadership*** Power-assertive attritude. Overemphasis on compliance with rules and procedures **Staff perspective** Perceived distant leader. Low perceived autonomy support. Decreased organisational commitment. Mistrust, conflicts and tensions with unions. **CEO 2 (2015-2018)** ***Transformational leadership*** Good communication of vision and objectives. Genuine concern for the needs of staff. ***Distributed leadership*** Constructive dialogue to resolve professional issues. Catalysing role of mid-level managers. Participative decision making. In 2016, the hospital won the first price of the quality contest. **Staff perspective** High perceived autonomy support. Good congruence with professional and public service motives. Trust relationship between staff and management team. Reduced tensions with unions.	**CEO (2010-2012)** ***Transactional leadership*** Strict application of administrative procedures **Staff perspective** Appreciated by administrators and close collaborators. Increased extrinsic motivation of staff. Nurses and doctors resisting to his overcontrolling behaviour engaging in conflicts and strikes. **CEO2 (2012- 2018)** ***Laisser faire* leadership** Often absent. Chief Nursing officer overwelmed by day to day operational management duties. **Staff perspective** Appreciated by administrators and close collaborators. Nurses and doctors unhappy about lack of responsiveness to their needs and the poor working conditions. Conflictual organisational climate, characterised by high job pressure and role ambiguity. Perceived organisational politics (nepotism and clientelism), contributing to perceived unfairness.	**CEO 1 (2007-2010)** ***Transactional leadership*** Enforcement of hierarchy. Emphasis on comformity with rules and procedures. Audit and clinical supervision. High moral standards. **Staff perspective** Highly appreciated by close collaborators and administrative staff. Nurses and doctors perceived a lack of participative decision-making and reduced perceived autonomy support. **CEO 2 (2010-2013)** ***Transactional leadership*** Enforcing conformity with rules and regulations. Close supervision, administrative sanctions. **Staff perspective** Well appreciated by administrators and close collaborators Perceived unresponsiveness to nurses' needs. **CEO 3 (2014-2018)** ***Laisser faire leadership*** Hierachical line not respected. No meetings, no clinical supervision. No inter-unit interaction. **Staff perspective** Decreased organisational commitment

CEO 3 (July 2016-Sep 2017): Laisser faire leadership Passive attitude. Reliance on administrative correspondence. Poor communication with staff. Hierchical line not enforced **Staff perspective** Role ambiguity, high job stressors. Unresponisveness to staff needs. Deterioriating working conditions. Perceived organisational politics. Demotivation, conflicts and tensions with unions. **CEO 4 (Oct 2017-March 2018)**: **Transactional leadership** Reinforcing the hierachical line. Building alliance with informal leaders. **Staff perspective** Distant leader. Reduced perceived autonomy support. Improved working conditions. Claryfing goals reduced role ambiguity and job pressures for admin. staff Reduced interaction between health units.			Inadequate woking conditions and supply of consumables. Low perceive organisational support. High role ambiguity and job pressure. High level of perceived organisational politics.

Cross case analysis and refined causal configurations

Comparing the initial programme theory with the results of the analysis of the data from the hospitals EJMH, RKMH and SMBA allowed us to refine it (table 4). We used the Intervention-Context-Actor-Mechanism-Outcome (ICAMO) configuration to structure the analysis (64). We confirmed or refuted the four causal configurations presented above.

ICAMO configuration 1: *Laisser faire* leadership and PSM

This configuration was confirmed in the RKMH and SMBA hospitals (See table 4).

> *Laisser faire* leadership [I] decreases intrinsic motivation and public service motivation [O] of health providers [A] by being less responsive to the basic psychological needs of autonomy, competence and relatedness [M] and by reducing perceived organisational support [M] in situations of reduced opportunities to experience positive patient outcomes [C].
>
> *Laisser faire* leadership [I] contributes to mistrust between administration and staff, resistance to change and tensions with unions [O] by inducing perceived job pressure and role ambiguity [M] for health providers [A]
>
> *Laisser faire* leadership [I] reduces public service motivation [O] in a context of perceived organisational politics (clientelism and nepotism)[C] by being incongruent with individual public service values [M] of all cadres [A]

Figure 3 - Laisser-faire leadership and PSM (ICAMO 1)

ICAMO configuration 2 - Transactional leadership and PSM

This configuration is confirmed by empirical data from the three hospitals (EJMH, RKMH, SMBA). As a result, we retain ICAMO 2 as follows:

> If transactional leadership ensures adequate support and working conditions of administrative staff [I] or if enforces a clear hierarchical line [I], it can reduce job pressure [M] and reduce role conflict [M] and thus increase the extrinsic motivation of administrative staff [O] and the level of organisational commitment [O]. If transactional leaders [I] are felt by health professionals [A] to be distant, this can reduce perceived autonomy support and reduce the satisfaction of the need for mutual respect (relatedness) [M], leading in turn to reduced motivation [O] and low organisational commitment [O].

Figure 4 Transactional leadership-PSM (ICAMO 2)

ICAMO configuration 3: Transformational leadership and PSM

Configuration 3 is confirmed only in EJMH hospital (Table 4).

> Transformational leadership understood as inspiring staff (walking the talk), infusing jobs with public service values and showing individual consideration to staff [I] increases public service motivation [O] by responding to basic psychological needs of autonomy and relatedness [M] of all staff [A] and contributes to higher organisational commitment and expressed mutual trust between staff with administration [O].

Figure 5 Transformational leadership and PSM (ICAMO 3)

ICAMO configuration 4: Distributed leadership and PSM

Distributed leadership was observed only in the high performing hospitals EJMH and NHMH.

> Distributed leadership in the sense of creating a supportive and open climate and good relations between staff [I] increased staff public service motivation[O] and organisational commitment[O] and led to extra role behaviours by satisfying staff basic psychological needs[M] and increasing trust in management teams [M]

Figure 6 Distributed leadership and PSM (ICAMO4)

As described in table 3 and 4, we noticed that only CEO2 in NHMH and CEO2 in EJMH displayed complex leadership understood as the balancing between transactional, transformational and distributed leadership that fits best the diversity of professional profiles, the nature of the tasks and the organisational culture. Transactional leadership fits the administrators who value role clarity and reduced job ambiguity, whereas transformational and distributed leadership addresses the basic psychological needs of health providers. The other CEOS either adopted a transactional leadership style or laisser faire leadership, which was not well received by a majority of staff.

The four ICAMOs presented above allowed us to refine our initial programme theory:

> Complex leaders, applying an appropriate mix of transactional, transformational and distributed leadership styles that fit organisational and individuals characteristics [I] can increase public service motivation, organisational commitment and extra role behaviours [O] by increasing perceived supervisor support and perceived organizational support and satisfying staff basic psychological needs [M], if the organisational culture is conducive and in the absence of perceived organisational politics [C].

Table 4 Testing the initial configurations in the study sites

Programme theories based on literature review and the study of NHMH Hospital	EJMH Hospital	RKMH Hospital	SMBA Hospital
Laisser faire leadership decreases the levels of perceived organisational support and staff motivation by being less responsive to their basic psychological needs of autonomy, competence and relatedness. Lack of vision and goal setting contributes to a climate of ambiguity and role conflict. The inadequate enforcement of the hierarchical structure and high job pressure can contribute to mistrust between administration and staff.	Not confirmed not refuted.	Confirmed and refined: *Laisser faire* leadership decreases the levels of […]. contributes to general malaise, mistrust between administration and staff and decreases public service motivation and ***psychological well being. This mechanism is triggered by the lack of opportunities for experiencing positive patient outcomes and the perceived organisational politics***	Confirmed.
Transactional leaders can improve extrinsic motivation of staff if they offer the necessary support and ensure adequate working conditions. By improving the latter, transactional leaders reduce job pressure and by implementing a clear hierarchical line they reduce role conflicts.	Confirmed and refined. Transactional leaders are effective on staff extrinsic motivation ….. leading in turn to reduced motivation"**and low organisational commitment and tension with unions.**	Confirmed	Confirmed
By showing individual consideration and communicating clearly about mission valence, **transformational leaders** enhance self-esteem of staff, perceived supervisor support, and satisfaction of their autonomy needs. This in turn contributes to staff commitment, mutual trust and respect between the management team and staff.	Confirmed	Not confirmed nor refuted, because no transformational leadership was enacted in this hospital.	Not confirmed nor refuted because no transformational leadership was enacted in this hospital
Distributed leadership can contribute to improved communication and interaction between staff from different units, to problem solving and a reinforced clan culture. Distributing leadership roles and embedding	Confirmed	Not confirmed nor refuted, because no distributed leadership was enacted in RKMH.	Not confirmed nor refuted because no distributed

them throughout the organisation, combined with engaging staff in decision making, contributes to staff's perceived autonomy and organisational commitment, which in turn leads to extra role activities			leadership was enacted in SMBA.

Discussion

In this study, we explored mechanisms and contextual conditions by and in which leadership influences (public service) motivation of health workers.

Our study shows, in line with leadership literature (67, 68), that *laisser faire* leadership decreases intrinsic motivation and public service motivation of all cadres by being less responsive to the basic psychological needs of autonomy, competence and relatedness of staff and by reducing perceived organisational support (1, 2, 69).

Our findings suggest that *transactional* leadership, when it ensures adequate managerial support and improvement of working conditions, can enhance the extrinsic motivation of staff by reducing role ambiguity and job pressure, and by increasing perceived organisational support. This is supported by other studies (70-73). However, we also found indications that *transactional* leadership can crowd out intrinsic motivation and public service motivation of health workers by reducing the satisfaction of their needs for autonomy. This is supported by other studies in LMIC (10, 11, 74-76).

We found *transformational* leaders who clearly communicate their vision and walk the talk, infuse jobs with public services meaning, and show individual consideration can enhance PSM by responding to their need for relatedness. This is supported by recent studies, for instance (21, 39, 42, 77-82). Transactional leadership can lead to higher organisational commitment and extra role behaviours (83, 84).

Distributed leadership facilitated teamwork, information flows, and team cohesion. It nurtured feelings of connectedness, enhancing the perception of autonomy support and perceived organizational support. This led to creative problems solving, collective learning and better performance at the quality assurance contest, in ways similarly to other study findings (4-8, 85).

Our study supports the hypothesis that the effect of leadership on PSM depends on the degree of responsiveness to basic psychological needs (autonomy, competency and relatedness). This points to the relevance of self-determination theory (1, 51) as a middle range theory that may frame how individual psychological mechanisms underlie the effects of leadership on staff motivation (extrinsic motivation, intrinsic motivation and PSM). It also supports the hypothesis that the effect of leadership on PSM is conditioned by the existence of a conducive organisational culture (a clan culture and absence of perceived organisational politics). This is explained by value congruence, understood as the degree of congruence between individual and organisational values, which represents a major mechanism in the integration of public service values in individual behaviours(34, 86-88).

In summary, in healthcare organisations, leaders able to adapt their leadership practices to the nature of individuals and organisational characteristics (complex leaders) are likely to be more effective. They foster networking and connections between staff by distributing leadership responsibilities and reinforcing the role of middle managers, infusing jobs with meaning and creating constructive dialogues with professional health workers (5, 50, 89-92).

Study contributions, validity and limitations

This study contributed to fill the gap in leadership studies in general (93-95) and in healthcare specifically (96, 97) by unravelling the underlying mechanisms of leadership effects on health

workers' motivation. It contributes to the study of leadership in North African muslim countries, an neglegted field of research (98).

This study contributes to the case that realist evalution can contribute to building a better understanding of complex phenomena in health systems (46). Realist evaluation proved an appropriate approach to unravell the relationship between leadership and PSM, and thus responded to calls of PSM scholars for robust research methodologies (24, 26, 28, 40-42).

The validity of our study findings derive from theoretical guidance in study design, sampling and analysis and cross-validation (99-101) and theoretical replication across cases (65). Theoretical replication allows for a retroductive process of knowledge creation (65) by constantly shuttling from theory to empirical data and by continuously refining our programme theories across negative and positive cases.

There are limitations to our study. The causal configurations developed here are the most plausible explanation for the outcomes observed in our study, but may likely not be the unique explanation. Further empirical testing in a larger set of cases would enable to further refine the programme theories. a second limitation is that we did not quantitatively measure public service motivation, organisational commitment, perceived organisational support and other variables. The time and resource limits of the PhD study of which the study presented here is part precluded testing and validating existing scales for these constructs.

Implications for practice

In Morocco, similarly to other low- and middle-income countries (81), the hierarchical culture within the Ministry of Health favours transactional leadership styles (102, 103) and this may impede the emergence of PSM (104-106). We raise some concerns in relation to the actual health reforms carried out in Morocco, which are inspired by New Public Management (e.g. performance-based management, contracting out and public-private partnerships) and which may have negative consequences on health workers performance by facilitating the practice of transactional leadership, focusing on extrinsic rewards (and sanctions) and crowding out the expression of PSM and self-altruistic behaviours of frontline health workers. Policy makers should stimulate the development of complex leadership competencies (e.g. fostering network building, generative sense making, see also (50) in their capacity building programs.

Conclusion

In the context of health care organisations, the motivation of health workers relies on individual, organisational and contextual antecedents. The effectiveness of leaders depends on the degree of responsiveness to the basic psychological needs of health workers and on value congruence between organisational and individual values. Leaders should learn how to adapt their leadership practices to the organisational characteristics (nature of task, mission valence) and to type of motivation of health workers (extrinsic versus intrinsic and PSM). Further research is needed to explore the role of value congruence and to understand how the social institutions (i.e. religion, family education, professionalism) may shape the expression of public service motivation of health workers in low and middle income countries.

List of Figures :

Abreviations :

CEO : Chief Executive Officer

CQ : "Concours Qualité"

FGD : Focus Group Discussion

ICAMO : Intervention, Context,Actor, Mechanism, Outcome.

IDI : In-depth Interview

ITM : Institute of Tropical Medicine

LMIC : Low -and Middle-Income Countries

PHO : Provincial Health Officer

PSM : Public Service Motivation

RE : Realist Evaluation

Declarations :

Ethics approval and consent to participate

The research protocol was approved by the Moroccan Institutional Review Board (n°90/16) of the Faculty of Medicine of Pharmacy, Rabat and the Institutional Review Board of the Institute of Tropical Medicine, Antwerp (n° 1204/17). All participants have been informed prior to the conduct of the research and written consent forms were signed by the respondants and countersigned by the researcher. A signed copy was given to each respondents.

Consent for publication : « Not Applicable »

Availability of data and material : « Not Applicable »

Competing interests

The authors declare that they have no competing interests.

Funding

This work was funded through a PhD framework agreement between the Belgian Directorate-General for Development Cooperation and the Institute of Tropical Medicine, Antwerp. The sponsors had no role in the study or in the writing of the paper

Authors contributions

All the four authors contributed to the original design and analysis and writing of the manuscript. ZB carried out the data collection. BM cross checked the transcripts. Initial coding was done by ZB and discussed between the research team members. ZB edited the final draft. All authors read and approved the final manuscript.

Aknowledgement

We would like to thank NHMH, EJMH, RKMH and SMBA hospital directors, provincial health offcers, and staff who participated willingly to the study.

References :

1. Ryan R, Deci E. Psychological Needs. Varied Concepts and a Preliminary Description of SDT's Approach. In: Press TG, editor. Self-determination theory: basic psychological needs in motivation, development, and wellness. New York London 2017. p. 80-101.
2. Rowe AK, De Savigny D, Lanata CF, Victora CG. How can we achieve and maintain high-quality performance of health workers in low-resource settings? The Lancet. 2005;366(9490):1026-35.
3. WHO. The world health report 2000: health systems: improving performance: World Health Organization; 2000.
4. Fitzgerald L, Ferlie E, McGivern G, Buchanan D. Distributed leadership patterns and service improvement: Evidence and argument from English healthcare. The Leadership Quarterly. 2013;24(1):227-39.
5. Uhl-Bien M, Marion R, McKelvey B. Complexity Leadership Theory: Shifting leadership from the industrial age to the knowledge era. The Leadership Quarterly. 2007;18(4):298-318.
6. Baker GR, Denis J-L. Medical leadership in health care systems: from professional authority to organizational leadership. Public Money & Management. 2011;31(5):355-62.
7. Denis JL, Lamothe L, Langley A. The Dynamics of Collective Leadership and Strategic Change in Pluralistic Organisations The Academy of Management Journal. 2001;44(4):809-37.
8. Hooijberg R, Choi J. The impact of organizational characteristics on leadership effectiveness models :An Examination of Leadership in a Private and a Public Sector Organization. Administration & Society 2001;33(4):403-31.
9. Bellé N, Cantarelli P. Monetary Incentives, Motivation, and Job Effort in the Public Sector. Review of Public Personnel Administration. 2015;35(2):99-123.
10. Mathauer I, Imhoff I. Health worker motivation in Africa: the role of non-financial incentives and human resource management tools. Human Resources for Health. 2006;4(1):24.
11. Willis-Shattuck M, Bidwell P, Thomas S, Wyness L, Blaauw D, Ditlopo P. Motivation and retention of health workers in developing countries: a systematic review. BMC Health Services Research. 2008;8(1):247.
12. Deci EL, Koestner R, Ryan RMJPb. A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. 1999;125(6):627.
13. Deci EL, Betley G, Kahle J, Abrams L, Porac JJP, bulletin sp. When trying to win: Competition and intrinsic motivation. 1981;7(1):79-83.
14. Frey BS, Jegen RJJoes. Motivation crowding theory. 2001;15(5):589-611.
15. Frey BS, Homberg F, Osterloh M. Organizational Control Systems and Pay-for-Performance in the Public Service. Organization Studies. 2013;34(7):949-72.
16. Perry JL, Wise LR. The motivational bases of public service. Public administration review. 1990:367-73.

17. Vandenabeele W. Toward a public administration theory of public service motivation. Public Management Review. 2007;9(4):545-56.
18. Andersen LB. What determines the behaviour and performance of health professionals? Public service motivation, professional norms and/or economic incentives. International Review of Administrative Sciences. 2009;75(1):79-97.
19. Van Loon NM, Leisink P, Vandenabeele W. Talking the talk of public service motivation: How public organization logics matter for employees' expressions of PSM. International Journal of Public Administration. 2013;36(14):1007-19.
20. Bellé N. Leading to Make a Difference: A Field Experiment on the Performance Effects of Transformational Leadership, Perceived Social Impact, and Public Service Motivation. Journal of Public Administration Research and Theory. 2014;24(1):109-36.
21. Bellé N. Experimental evidence on the relationship between public service motivation and job performance. Public Administration Review. 2013;73(1):143-53.
22. Ritz A, Brewer GA, Neumann O. Public Service Motivation: A Systematic Literature Review and Outlook. Public Administration Review. 2016;76(3):414-26.
23. Homberg F, McCarthy D, Tabvuma V. A Meta-Analysis of the Relationship between Public Service Motivation and Job Satisfaction. Public Administration Review. 2015;75(5):711-22.
24. Petrovsky N, Fabian Homberg DVTaD, Ritz A. Public service motivation and performance: a critical perspective. Evidence-based HRM: a Global Forum for Empirical Scholarship. 2014;2(1):57-79.
25. Warren DC, Chen L-t. The relationship between Public Service Motivation and Performance. In: J.Rincquist E, editor. Meta-Analysis for Public Management and Policy San Francisco, USA: John Wiley & Sons; 2013.
26. Park SM, Rainey HG. Leadership and Public Service Motivation in U.S. Federal Agencies. International Public Management Journal. 2008;11(1):109-42.
27. Paarlberg LE, Lavigna B. Transformational leadership and public service motivation: Driving individual and organizational performance. Public Administration Review. 2010;70(5):710-8.
28. Wright BE, Moynihan DP, Pandey SK. Pulling the Levers: Transformational Leadership, Public Service Motivation, and Mission Valence. Public Administration Review. 2011;72(2):206-15.
29. Vandenabeele W. Explaining Public Service Motivation: The Role of Leadership and Basic Needs Satisfaction. Review of Public Personnel Administration. 2014;34(2):153-73.
30. Anderson LB, Bjornholt B, Bro LL, Holm-Pertersen C. Leadership and motivation:a qualitative study of transformational leadership and public service motivation. International review of Administrative Sciences. 2016;0(0):1-17.
31. Ritz A, Brewer GA. Does Societal Culture Affect Public Service Motivation? Evidence of Sub-national Differences in Switzerland. International Public Management Journal. 2013;16(2):224-51.
32. Rockstuhl T, Dulebohn JH, Ang S, Shore LM. Leader-member exchange (LMX) and culture: a meta-analysis of correlates of LMX across 23 countries. J Appl Psychol. 2012;97(6):1097-130.
33. Perry J. Antecedents of public service motivation. Journal of public administration research theory. 1997;7(2):181-97.
34. Pandey SK, Stazyk ECJ. Antecedents and Correlates of Public Service Motivation. Motivation in Public Management: The Call of Public Service. Oxford: Oxford University Press; 2008. p. 101.
35. Bøgh Andersen L, Holm Pedersen L. Public Service Motivation and Professionalism. International Journal of Public Administration. 2012;35(1):46-57.
36. Vandenabeele W. Who Wants to Deliver Public Service? Do Institutional Antecedents of Public Service Motivation Provide an Answer? Review of Public Personnel Administration. 2010;31(1):87-107.
37. Camilleri E. Antecedents affecting public service motivation. Personnel Review. 2007;36(3):356-77.
38. Wise LR. Bureaucratic posture: On the need for a composite theory of bureaucratic behavior. J Public Administration Review. 2004;64(6):669-80.

39. Moynihan Dp, K.Pandey S. The role of organizations in fostering public service motivation Public Administrative review. 2007 67(1):40-53.
40. Chapman C, Getha-Taylor H, Holmes MH, Jacobson WS, Morse RS, Sowa JE. How Public Service Leadership Is Studied: An Examination of a Quarter Century of Scholarship. Public Administration. 2016;94(1):111-28.
41. Perry JL, Hondeghem A. Motivation in Public Management : The Call of Public Service. New York: Oxford University Press; 2008.
42. Moynihan DP, Pandey SK, Wright BE. Transformational Leadership in the Public Sector : Empricial Evidence of Its effects" In: Dwivedi YK, Shareef MA, Pandey SK, Kumar V, editors. Public Administration Reformation : Market Demand from Public Organizations Routeledge/ Taylor and Francis; 2014. p. 87-104.
43. McVeigh J, MacLachlan M, Gilmore B, McClean C, Eide AH, Mannan H, et al. Promoting good policy for leadership and governance of health related rehabilitation: a realist synthesis. Globalization and Health. 2016;12(1):49.
44. Brand SL, Thompson Coon J, Fleming LE, Carroll L, Bethel A, Wyatt K. Whole-system approaches to improving the health and wellbeing of healthcare workers: A systematic review. PLoS One. 2017;12(12):e0188418.
45. Pawson R, Tilley N, Tilley N. Realistic evaluation: Sage; 1997.
46. Marchal B, Van Belle S, Van Olmen J, Hoerée T, Kegels G. Is realist evaluation keeping its promise? A review of published empirical studies in the field of health systems research. Evaluation. 2012;18(2):192-212.
47. Astbury B, Leeuw FL. Unpacking Black Boxes : Mechanisms and Theory Building in Evaluation. American Journal of Evaluation 2010;31(3):363-81.
48. Wong G, Westhorp G, Manzano A, Greenhalgh J, Jagosh J, Greenhalgh T. RAMESES II reporting standards for realist evaluations. BMC medicine. 2016;14(1):96.
49. Belrhiti Z, Van Damme W, Belalia A, Marchal B. Unravelling the role of leadership in motivation and performance of health workers in a Moroccan public hospital: a realist evaluation (In press). BMJ Open. 2019.
50. Belrhiti Z, Nebot Geralt A, Marchal B. Complex Leadership in Healthcare: A Scoping Review. International Journal of Health Policy and Management. 2018:-.
51. Deci EL, Ryan RM. Self-determination theory: A macrotheory of human motivation, development, and health. Canadian Psychology/Psychologie canadienne. 2008;49(3):182-5.
52. Yin RK. Case study research: design and methods, Applied social research methods series. Thousand Oaks, CA: Sage Publications, Inc Afacan, Y, & Erbug, C(2009) An interdisciplinary heuristic evaluation method for universal building design Journal of Applied Ergonomics. 2003;40:731-44.
53. Patton MQ. Qualitative Research & Evaluation Methods Thousand Oaks, London, New Delhi: Sage Publications; 2001.
54. Yin RK. Qualitative Research from Start to Finish. New York, London: The Guilford Press; 2016.
55. Ministère de la Santé du Maroc. Concours Qualité Fourth Edition 2011. Rabat: Direction des Hopitaux et Soins Ambulatoires 2011.
56. Ministère de la Santé du Maroc. Concours Qualité Sixth Edition 2016. Rabat: Direction des Hopitaux et Soins Ambulatoires 2016.
57. Sahel A, DeBrouwere V, Dujardin B, Kegels G, Belkaab N, Alaoui Belghiti A. Implementing a nationwide quality improvement approach in health services. Leadersh Health Serv (Bradf Engl). 2015;28(1):24-34.
58. Krueger RA, Casey MA. Focus groups: A practical guide for applied research: Sage publications; 2014.
59. Morgan DL, Krueger RA. Analyzing and reporting focus group results: Sage; 1998.
60. Rubin HJ, Rubin IS. Qualitative interviewing: The art of hearing data: Sage; 2011.
61. Miles MB, Huberman AM, Saldana J. Qualitative data analysis: Sage; 2016.

62. Spradley JP. Participant observation: Waveland Press; 2016.
63. Saldaña J. The coding manual for qualitative researchers: Sage; 2015.
64. Marchal B, Kegels G, Belle SV. Theory and realist methods In: Emmel N, Greenhalgh J, Manzano A, Monaghan M, Dalkin S, editors. Doing Realist Research. Los Angeles, London, New Delhi: SAGE; 2018.
65. Bhaskar R. A realist theory of science: Routledge; 2013.
66. QSR International Pty Ltd. NVivo qualitative data analysis Software. 11.4 ed2014.
67. Hinkin TR, Schriesheim CA. An examination of" nonleadership": From laissez-faire leadership to leader reward omission and punishment omission. Journal of Applied Psychology. 2008;93(6):1234.
68. Judge TA, Piccolo RF. Transformational and transactional leadership: a meta-analytic test of their relative validity. Journal of applied psychology. 2004;89(5):755.
69. George A, Scott K, Govender V. A Health Policy and Systems Research Reader on Human Resources for Health. Geneva: World Health Organisation 2017 15 November 2017.
70. Lee RT, Ashforth BE. A meta-analytic examination of the correlates of the three dimensions of job burnout. Journal of applied Psychology. 1996;81(2):123.
71. Moyle P. Longitudinal influences of managerial support on employee well-being. Work & Stress. 1998;12(1):29-49.
72. Van Dierendonck D, Haynes C, Borrill C, Stride C. Leadership behavior and subordinate well-being. Journal of occupational health psychology. 2004;9(2):165.
73. Rooney JA, Gottlieb BH. Development and initial validation of a measure of supportive and unsupportive managerial behaviors. Journal of Vocational Behavior. 2007;71(2):186-203.
74. Fritzen SA. Strategic management of the health workforce in developing countries: what have we learned? Human Resources for Health. 2007;5(1):4.
75. Musinguzi C, Namale L, Rutebemberwa E, Dahal A, Nahirya-Ntege P, Kekitiinwa A. The relationship between leadership style and health worker motivation, job satisfaction and teamwork in Uganda. J Healthc Leadersh. 2018;10:21-32.
76. Zakumumpa H, Taiwo MO, Muganzi A, Ssengooba F. Human resources for health strategies adopted by providers in resource-limited settings to sustain long-term delivery of ART: a mixed-methods study from Uganda. Hum Resour Health. 2016;14(1):63.
77. Wright BE, P.Moynihan D, Pandey SK. Pulling the Levers: Transformational Leadership, Public Service Motivation, and Mission Valence. Public Administration Review. 2012;72(2):206-15.
78. Caillier JG. Toward a Better Understanding of the Relationship Between Transformational Leadership, Public Service Motivation, Mission Valence, and Employee Performance. Public Personnel Management. 2014;43(2):218-39.
79. Caillier JG. Transformational Leadership and Whistle-Blowing Attitudes: Is This Relationship Mediated by Organizational Commitment and Public Service Motivation? The American Review of Public Administration. 2013;45(4):458-75.
80. Caillier JG. Toward a Better Understanding of the Relationship Between Transformational Leadership, Public Service Motivation, Mission Valence, and Employee Performance: A Preliminary Study. Public Personnel Management. 2014;43(2):218-39.
81. Okello DR, Gilson L. Exploring the influence of trust relationships on motivation in the health sector: a systematic review. Hum Resour Health. 2015;13:16.
82. Gould-Williams J. The importance of HR practices and workplace trust in achieving superior performance: A study of public-sector organizations. The International Journal of Human Resource Management. 2003;14(1):28-54.
83. Alimo-Metcalfe B, Alban-Metcalfe J. Engaging leadership: creating organisations that maximise the potential of their people: CIPD; 2008.
84. Baumeister RF, Leary MR. The need to belong: desire for interpersonal attachments as a fundamental human motivation. Psychological bulletin. 1995;117(3):497.

85. Quinn RE. Beyond rational management: Mastering the paradoxes and competing demands of high performance. San Francisco, CA, US: Jossey-Bass; 1988. xxii, 199-xxii, p.
86. P.Moynihan D, K.Pandey S. The Role of Organizations in Fostering Public Service Motivation. Public Administration Review. 2007:40-53.
87. Krogsgaard JA, Thomsen P, Andersen LB. Only If We Agree? How Value Conflicts Moderate the Relationship Between Transformational Leadership and Public Service Motivation. International Journal of Public Administration. 2014;37(12):895-907.
88. McKee MC, Driscoll C, Kelloway EK, Kelley E. Exploring linkages among transformational leadership, workplace spirituality and well-being in health care workers. Journal of Management, Spirituality & Religion. 2011;8(3):233-55.
89. Ford R. Complex leadership competency in health care: towards framing a theory of practice. Health Serv Manage Res. 2009;22(3):101-14.
90. Plsek PE, Greenhalgh T. the challenge of complexity in health care BMJ. 2001;323:625-8.
91. Hazy J. Measuring leadership effectiveness in complex socio-technical systems. E:CO. 2006;8(3):58-77.
92. Uhl-Bien M, Marion R. Complexity leadership in bureaucratic forms of organizing: A meso model. The Leadership Quarterly. 2009;20(4):631-50.
93. Kark R, Dijk DV. Motivation to Lead, Motivation to Follow: The Role of the Self-Regulatory Focus in Leadership Processes. Academy of Management 2007;32(2):500-28.
94. Avolio BJ, Walumbwa FO, Weber TJ. Leadership: Current Theories, Research, and Future Directions. Annual Review of Psychology. 2009;60(1):421-49.
95. Perry JL, Hondeghem A. Directions for future theory and research. In: Press OU, editor. Motivation in public management: The call of public service. Oxford2008. p. 294-313.
96. Brady Germain P, Cummings GG. The influence of nursing leadership on nurse performance: a systematic literature review. J Nurs Manag. 2010;18(4):425-39.
97. Belrhiti Z, Nebot Geralt A, Marchal B. Complex Leadership in Healthcare: A Scoping Review. International Journal of Health Policy and Management. 2018;7(12):1073-84.
98. Avolio BJ, Reichard RJ, Hannah ST, Walumbwa FO, Chan A. A meta-analytic review of leadership impact research: Experimental and quasi-experimental studies. The Leadership Quarterly. 2009;20(5):764-84.
99. Cassell C, Symon G. Essential guide to qualitative methods in organizational research: Sage; 2004.
100. Ferlie E. Organisational studies. Studying the organisation and delivery of health services: Routledge; 2004. p. 36-51.
101. Murphy E. Micro-level qualitative research. Studying the organisation and delivery of health services: Routledge; 2004. p. 52-67.
102. Akhnif E, Macq J, Meessen B. The place of learning in a universal health coverage health policy process: the case of the RAMED policy in Morocco. Health Research Policy Systems. 2019;17(1):21.
103. Belghiti AA, Boffin N, De Brouwere V. L'espace de décision de la gestion des ressources humaines sanitaires au Maroc. Rabat: Royaume du Maroc, Ministère de la santé 2004.
104. Cox JB, Estrada SD, Lynham SA, Motii N. Defining human resource development in Morocco: An exploratory inquiry. Human Resource Development International. 2005;8(4):435-47.
105. Benson PG, Al Arkoubi K. Human resource management in Morocco. Managing human resources in the Middle East. 2006;29:273-90.
106. Al-Arkoubi K, McCourt W. The politics of HRM: waiting for Godot in the Moroccan civil service. The International Journal of Human Resource Management. 2004;15(6):978-95.

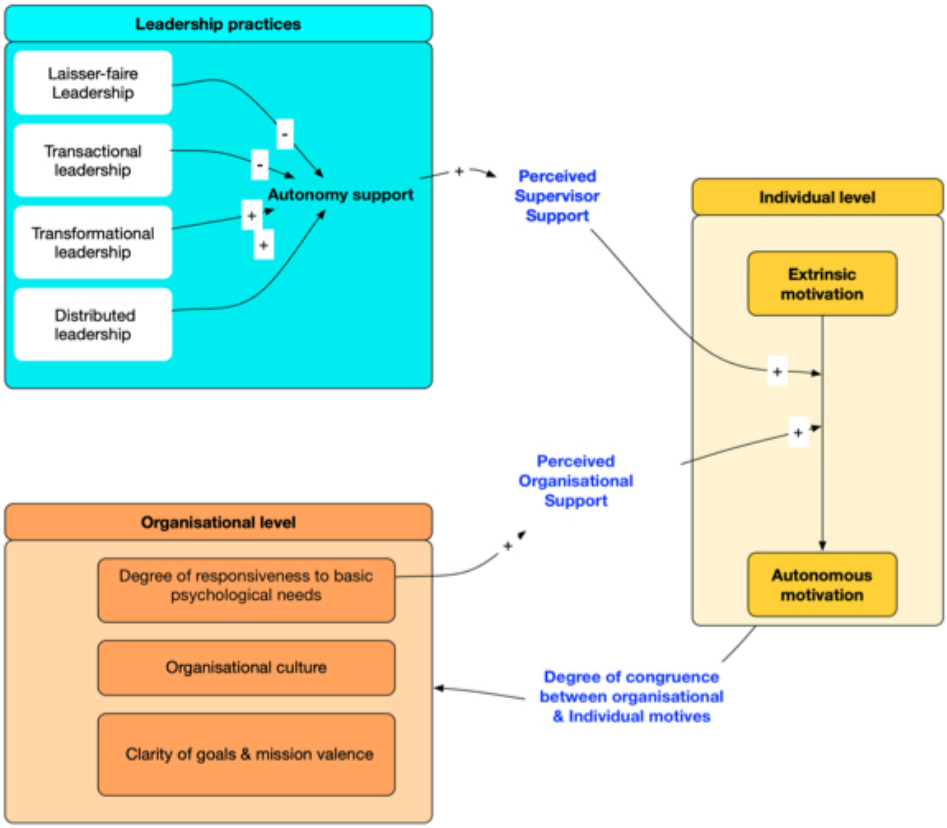


Figure 1 Program theories

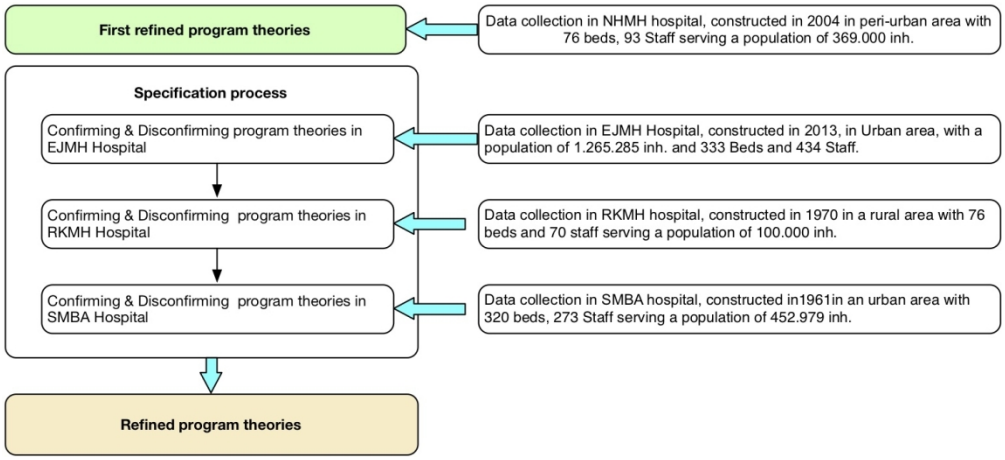


Figure 2 - Cases studies and data collection, Morocco, January-June 2018

261x118mm (150 x 150 DPI)

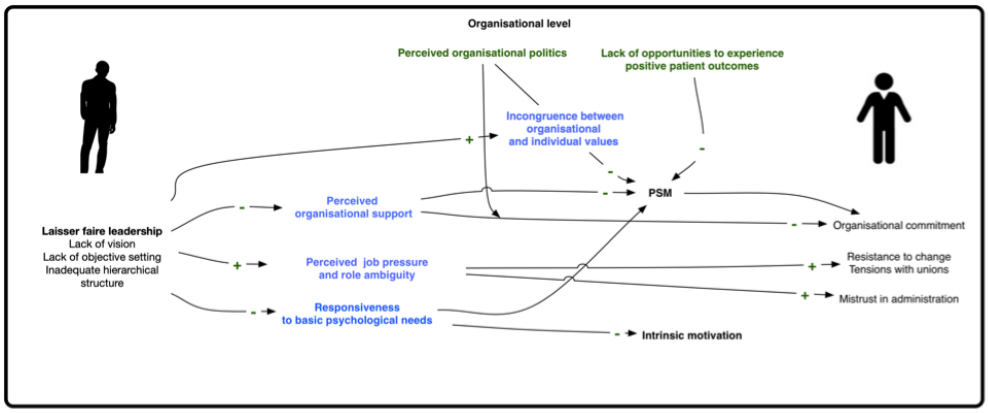


Figure 3 - Laisser-faire leadership and PSM (ICAMO 1)

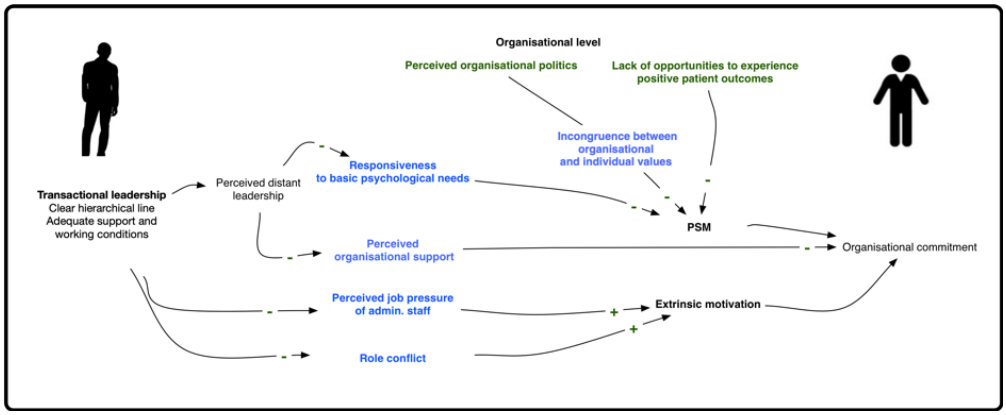


Figure 4 - Transactional leadership-PSM (ICAMO 2)

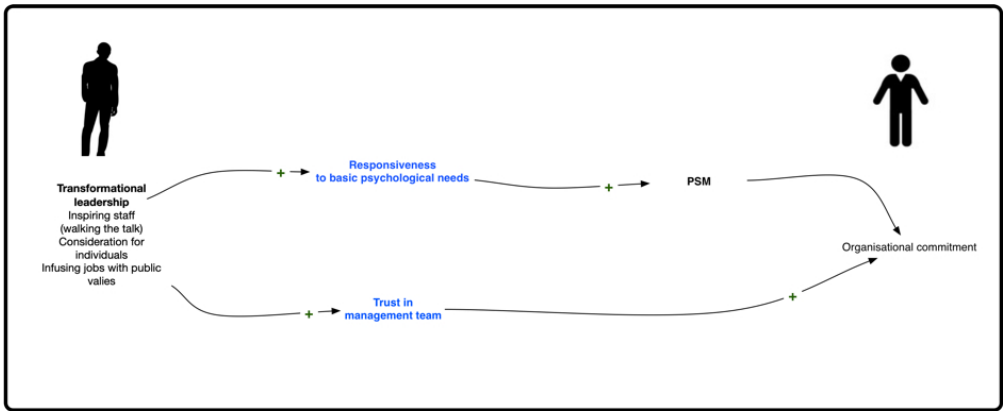


Figure 5 - Transformational leadership and PSM (ICAMO 3)

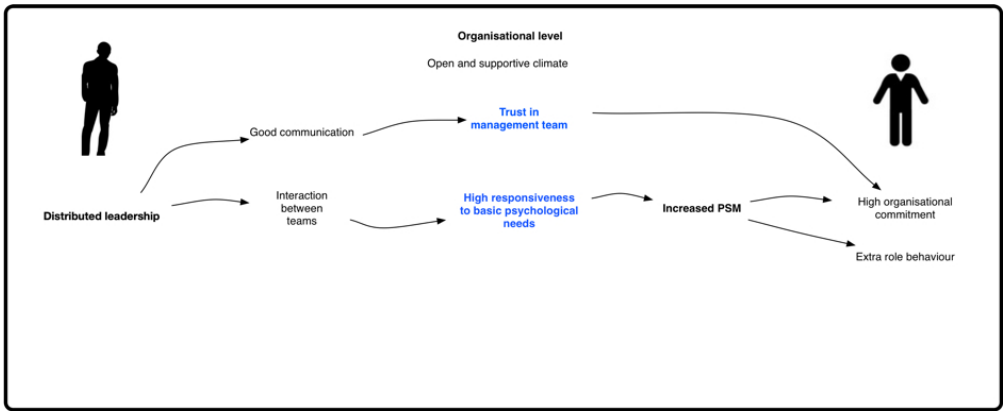


Figure 6 Distributed leadership and PSM (ICAMO4)

Supplementary file 1 Focus Group Discussion Guide (senior managers)

themes	Questions	Prompts, clarifications, vignettes
Motivation	**Q 1 : What motivates at work at this hospital?** Q 2 : How do you feel at work at the hospital?	
Motivation au Service Publique	**Q2 : Why did you choose to the work at the public sector?** You told me about your (de) motivation in the public sector? Could you explain your (de) motivation?	
	Q3 : Sering citizen, what does it mean to you ? Give me examples from your professional experience?	
	Q 4 : Did you think abouit quitting the public service? If Yes why? If no why not?	***Vignette 1*** *Mr or Dr Rachid work in this hospital for 10 years, he did not leave the public hospital to work in the private sector because he feel satisfied with the help he is providing to the local underprivileged population What do you think about Dr /Mr Rachid perspective?*
	Q 5 : Do that you are well paid according to your contribution to this hospital? If Yes why? If no why ?	***Vignette 2*** *: Dr/Mr Rachid a has accompanied many patients in medical transfers although he is not well remunerated. he continues to do it when asked. What do you think about his attiude ?*
Leadership	Q6 **: in your opinion, what does it mean a good leader?** Q 7 : How could you describe the leadership of your supervisors? Q 8 : Does managers' leadership matters for you to be performant at work?	**Vignette 3 :**A manager told me that leadership is important in the motivation of staff. Do you agree with that. ? Do you agree that leadership play a role in the staff performance?
Interaction Leadership-Motivation	Q 9 : How would you describe your the relationship between your interaction with the leader an your motivation ?	
Organisational performance	Q : According to you, what explains the good/ bad performance of your hospitals in "Concours Qualité"?	Who was involved? Who took leadership roles? Who was responsible for decision making?
	Q : What makes you perform well/bad under the leadership of Mr/Mme ?	

Supplementary file 2 Open ended interview

This interview topic guide gives an indication of the main questions that will be asked in the interviews of health service managers and providers. Core questions were adapted to meet the specificity of each category (senior managers (Questions 1 to 4), intermediate managers (Questions 1 to 5); health professional (Questions 2 to 5).

Components	Objectives/Remarks / Questions
Introduction	Researcher presentation (Name, qualification, institution)
	Interview objectives
	Explain the procedure (Time, Clarification questions, information about voluntary participation and the autonomy to respond or not to sensitive question and information about consent forms)
	Explain confidentiality and data anonymisation procedures
	Ask permission to record the interview (Audio record and notes)
	Obtain informed consent
Adjust the recording device	Make sure that equipment is functioning and the room is not noisy
General part	To get overall idea about the interviewee and make him/ her comfortable
	Q : How old are you ?
	Q : Could you describe your actual job position? Your tasks?
	Q : How long have you been working in your actual position?
	Q : How long have you been working in this hospital?
	Q : Where have you worked before? In which function?
Introduction to specific questions	Transition to core questions
1) Leadership Practices	Q : Could you describe you task?
	Q : Could you describe your role as a manager? P
	Q : What is your vision about leadership? What do a good leader means to you?
	Q : Would you give me some examples of your practice of leadership?
	Q : What challenges are you confronted with in you leadership practice ?
	Q : In your opinion, how could you describe your influence on staff behaviours ?
2)Hospital Performance	Q : In your opinion, what explain the good/bad performance of your hospital in "Concours Qualité" ?
	Q : Is it related to leadership? Does leadership matters?
3) Individual Performance	Q : In your opinion, what are the major reasons why a health professional is performant in health care provision?
	Q : According to you, what are he facilitators to individual performance?

	Q : In your opinion, what are the barriers to maintain a good individual performance for health professionals ?.
	Q : Is there a difference in the motivation between different cadres of health professionals or not?
	Q : How could you play a role in the motivation of your staff/ colleagues?
4) Public Service Motivation	**Q : Could you explain what motivates you to work in this hospital ? (Motivation intrinsic/extrinsic)**
	Q : how do you feel working in this hospital?
	Q : What attaches you to this hospitals, if any? Q: how do you describe this attachment?
	Q : serving citizens, what does it means for you?
	Q : Did you think about quitting the public service? If yes, why? If no, why?
	Q : Do you feel that you are doing tasks that go beyond your responsibilities, or not?
	Q : how could you describe you engagement about the organisational mission and vision?
	Q : Do you feel that you have the necessary information, tools and support to carry on your task, or not?
	Q : Do you engage in supplementary efforts without contingent financial rewards ? Could you give me some examples?
5) Leadership in your organisation	**Q : Could you describe leadership practices in your organisations?**
	Q : Do you feel that you are supported by your superior ? By management teams?
	Q : Could you provide some examples of leadership practices of your superior?
	Q : how could you describe relation between your interaction with your leader and your motivation?
Summary and debriefing	**During this interview you gave me useful informations that are relevant to this study.**
	Q : Is there something that you see as important regarding our topic we did not mention? If Yes we could discuss it. We do have time.
	Q: Do you have questions for me?

Supplementary file 3 : sociodemographic characteristics case 1

Code	Age	Managerial function	Professional profile	Genre
NHMH 1	41-50	Senior Manager	Doctor (General Practictionner)	Female
NHMH 2	31-40	Non Manager	Nurse anthesiologist	Male
NHMH 3	41-50	Non Manager	Doctor (General Practictionner)	Male
NHMH 4	20-30	Non Manager	Nurse	Female
NHMH 5	31-40	Intermediate Manager	Pharmacist	Female
NHMH 6	41-50	Non Manager	Doctor (Specialist)	Male
NHMH 7	41-50	Senior Manager	Doctor (General Practictionner)	Male
NHMH 8	31-40	Operational Manager	MidWife	Female
NHMH 9	51-63	Operational Manager	Nurse	Female
NHMH 10	51-63	Non Manager	Doctor (Specialist)	Male
NHMH 11	41-50	Non Manager	Doctor (Specialist)	Male
NHMH 12	31-40	Operational Manager	Administrator	Female
NHMH 13	20-30	Non Manager	Nurse	Female
NHMH 14	31-40	Non Manager	Administrator (former nurse)	Female
NHMH 15	31-40	Non Manager	Administrator (was a nurse)	Male
NHMH 16	51-63	Operational Manager	Doctor (General Practictionner)	Female
NHMH 17	20-30	Operational Manager	Nurse	Male
NHMH 18	20-30	Non Manager	Nurse	Female
NHMH 19	31-40	Non Manager	Laboratory technician	Female
NHMH 20	31-40	Non Manager	Nurse anthesiologist	Female
NHMH 21	31-40	Non Manager	rAdiology technician	Female
NHMH 22	31-40	Non Manager	Nurse	Female
NHMH 23	20-30	Non Manager	Nurse (Operating theator)	Male
NHMH 24	20-30	Non Manager	Nurse anthesiologist	Female
NHMH 25	51-63	Intermediate Manager	Doctor (General Practictionner)	Male
NHMH 26	41-50	Non Manager	Doctor (Specialist)	Female
NHMH 27	31-40	Non Manager	Doctor (General Practictionner)	Female
NHMH 28	51-63	Non Manager	Doctor (Specialist)	Female
NHMH 29	51-63	Non Manager	Cashier (Technical staff)	Female
NHMH30	41-50	Senior Manager	Nurse	Male
NHMH31	41-50	Intermediate Manager	Doctor (General Practictionner)	Female
NHMH32	41-50	Senior Manager	Doctor (Specialist)	Male

Supplementary file 4

Code	Age	Managerial function	Professional profile	Genre
EJMH 1	41-50	Senior Manager	Nurse	Female
EJMH 2	41-50	Senior Manager	Doctor (General Practitioner)	Male
EJMH 3	31-40	Intermediate Manager	Administrator	Male
EJMH 4	51-63	Non-Manager	Pharmacy technician	Female
EJMH 5	31-40	Non-Manager	Pharmacist	Female
EJMH 6	31-40	Non-Manager	Pharmacist	Female
EJMH 7	51-63	Senior Manager	Doctor (General Practitioner)	Male
EJMH 8	51-63	Non-Manager	Administrator	Male
EJMH 9	41-50	Non-Manager	Doctor (General Practitioner)	Male
EJMH 10	41-50	Non-Manager	Doctor (General Practitioner)	Female
EJMH 11	41-50	Non-Manager	Doctor (Specialist)	Male
EJMH 12	31-40	Intermediate Manager	Laboratory technician	Female
EJMH 13	51-63	Intermediate Manager	Doctor (Specialist)	Male
EJMH 14	31-40	Intermediate Manager	Nurse	Female
EJMH 15	41-50	Non-Manager	Technician (Technical staff)	Female
EJMH 16	41-50	Non-Manager	Administrator (former nurse)	Female
EJMH 17	41-50	Non-Manager	Administrator (former nurse)	Female
EJMH 18	51-63	Non-Manager	technician (Technical staff)	Female
EJMH 19	20-30	Non-Manager	Technician (Technical staff)	Female
EJMH 20	51-63	Non-Manager	Administrator	Female
EJMH 21	41-50	Non-Manager	Administrator (former midwife)	Female
EJMH 22	51-63	Non-Manager	Administrator	Female
EJMH 23	51-63	Intermediate Manager	Nurse	Male
EJMH 24	31-40	Non-Manager	Nurse	Female
EJMH 25	31-40	Intermediate Manager	Pharmacist	Male
EJMH 26	41-50	Non-Manager	Doctor (Specialist)	Male
EJMH 27	51-63	Non-Manager	Doctor (Specialist)	Female
EJMH 28	51-63	Non-Manager	Doctor (Specialist)	Male
EJMH 29	51-63	Non-Manager	Doctor (General Practitioner)	Male
EJMH 30	31-40	Non-Manager	Doctor (Specialist)	Male
EJMH 31	51-63	Non-Manager	Doctor (Specialist)	Male

EJMH 32	51-63	Operational Manager	Radiology technician	Female
EJMH 33	20-30	Non-Manager	Nurse	Female
EJMH 34	20-30	Non-Manager	Midwife	Female
EJMH 35	51-63	Non-Manager	Laboratory technician	Female
EJMH 36	31-40	Non-Manager	Nurse anaesthesiologist	Female
EJMH 37	51-63	Non-Manager	Auxiliary Nurse	Female
EJMH 38	31-40	Non-Manager	Doctor (General Practitioner)	Female
EJMH 39	31-40	Non-Manager	Nurse	Male
EJMH 40	51-63	Operational Manager	Nurse	Male
EJMH 41	51-63	Non-Manager	Nurse	Male
EJMH 42	51-63	Intermediate Manager	Doctor (General Practitioner)	Male
EJMH 43	51-63	Senior Manager	Administrator	Female

Supplementary file 5 sociodemographic characteristics of respondents from RKMH hospital

Code	Age	Managerial function	Professional profile	Genre
RKMH 1	41-50	Non-Manager	Doctor (General Practitioner)	Male
RKMH 2	41-50	Intermediate Manager	Pharmacist	Male
RKMH 3	41-50	Non-Manager	Doctor (Specialist)	Female
RKMH 4	51-63	Operational Manager	Nurse	Female
RKMH 5	41-50	Operational Manager	Administrator	Male
RKMH 6	51-63	Senior Manager	Nurse	Male
RKMH 7	51-63	Operational Manager	Nurse	Male
RKMH 8	51-63	Operational Manager	Technician (Technical staff)	Female
RKMH 9	41-50	Non-Manager	Cashier (Technical staff)	Male
RKMH 10	31-40	Non-Manager	Nurse	Male
RKMH 11	20-30	Non-Manager	Nurse	Female
RKMH 12	20-30	Non-Manager	Nurse anasthesiologist	Female
RKMH 13	20-30	Non-Manager	Radiology technician	Female
RKMH 14	31-40	Non-Manager	Midwife	Female
RKMH 15	51-63	Senior Manager	Administrator	Male
RKMH 16	41-50	Non-Manager	Doctor (Specialist)	Female
RKMH 17	20-30	Non-Manager	Radiology technician	Female
RKMH 18	20-30	Non-Manager	Nurse anesthesiologist	Male
RKMH 19	31-40	Non-Manager	Nurse	Male
RKMH 20	51-63	Non-Manager	Nurse	Female
RKMH 21	31-40	Non-Manager	Midwife	Female
RKMH 22	31-40	Non-Manager	technician (Technical staff)	Male
RKMH 23	41-50	Senior Manager	Doctor (General Practitioner)	Male
RKMH 24	31-40	Operational Manager	Nurse	Male
RKMH 25	41-50	Non-Manager	Technician (Technical staff)	Male
RKMH 26	41-50	Non-Manager	technician (Technical staff)	Male

Supplementary file 6 socio demographic characteristics from SMBA Hospital

Code	Age	Managerial function	Professional profile	Genre
SMBA 1	51-63	Non Manager	Nurse	Male
SMBA 2	31-40	Non Manager	Nurse	Female
SMBA 3	41-50	Senior Manager	Doctor (General Practitioner)	Male
SMBA 4	31-40	Senior Manager	Nurse (Filling administrative position)	Male
SMBA 5	51-63	Senior Manager	Nurse	Male
SMBA 6	41-50	Line Manager	Midwife	Female
SMBA 7	51-63	Non Manager	Nurse	Female
SMBA 8	51-63	Non Manager	Nurse	Female
SMBA 9	51-63	Non Manager	Nurse	Female
SMBA 10	51-63	Non Manager	Nurse	Female
SMBA 11	20-30	Non Manager	Midwife	Female
SMBA 12	31-40	Non Manager	Nurse anaesthesiologist	Female
SMBA 13	31-40	Non Manager	Nurse	Female
SMBA 14	31-40	Non Manager	Doctor (General Practitioner)	Female
SMBA 15	31-40	Non Manager	Doctor (Specialist)	Female
SMBA 16	41-50	Non Manager	Doctor (General Practitioner)	Male
SMBA 17	51-63	Line Manager	Nurse	Male
SMBA 18	41-50	Line Manager	Doctor (General Practitioner)	Male
SMBA 19	41-50	Non Manager	Doctor (Specialist)	Female
SMBA 20	41-50	Non Manager	Doctor (General Practitioner)	Male
SMBA 21	51-63	Non Manager	Technician (Technical staff)	Male
SMBA 22	41-50	Non Manager	Technician (Technical staff)	Male
SMBA 23	51-63	Line Manager	Doctor (General Practitioner)	Male
SMBA 24	51-63	Line Manager	Nurse	Female
SMBA 25	31-40	Operational Manager	Nurse	Male
SMBA 26	31-40	Non Manager	technician (Technical staff)	Male
SMBA 27	41-50	Non Manager	Technician (Technical staff)	Female
SMBA 28	41-50	Non Manager	Administrator	Male
SMBA 29	31-40	Non Manager	Technician (Technical staff)	Male
SMBA 30	31-40	Non Manager	Cashier (Technical staff)	Female

SMBA 31	51-63	Non Manager	technician (Technical staff)	Female
SMBA 32	41-50	Senior Manager	Doctor (Specialist)	Male
SMBA 33	31-40	Non Manager	Pharmacist	Female
SMBA 34	20-30	Non Manager	Pharmacy technician	Female
SMBA 35	51-63	Non Manager	Nurse	Female
SMBA 36	41-50	Operational Manager	Administrator	Male
SMBA 37	51-63	Non Manager	Nurse (Operating theatre)	Female
SMBA 38	31-40	Non Manager	Nurse	Female
SMBA 39	31-40	Non Manager	Nurse	Male
SMBA 40	31-40	Operational Manager	Doctor (Specialist)	Male
SMBA 41	20-30	Non Manager	Psychiatric nurse	Male
SMBA 42	31-40	Non Manager	Doctor (Specialist)	Female
SMBA 43	31-40	Non Manager	Doctor (Specialist)	Female
SMBA 44	31-40	Non Manager	Doctor (General Practitioner)	Female
SMBA 45	51-63	Non Manager	Doctor (General Practitioner)	Male

Table 1 List of items to be included when reporting realist evaluations

			Reported in document Y/N/Unclear	Page(s) in document
TITLE				
1		In the title, identify the document as a realist evaluation		
SUMMARY OR ABSTRACT				
2		Journal articles will usually require an abstract, while reports and other forms of publication will usually benefit from a short summary. The abstract or summary should include brief details on: the policy, programme or initiative under evaluation; programme setting; purpose of the evaluation; evaluation question(s) and/or objective(s); evaluation strategy; data collection, documentation and analysis methods; key findings and conclusions Where journals require it and the nature of the study is appropriate, brief details of respondents to the evaluation and recruitment and sampling processes may also be included Sufficient detail should be provided to identify that a realist approach was used and that realist programme theory was developed and/or refined		
INTRODUCTION				
3	Rationale for evaluation	Explain the purpose of the evaluation and the implications for its focus and design		
4	Programme theory	Describe the initial programme theory (or theories) that underpin the programme, policy or initiative		
5	Evaluation questions, objectives and focus	State the evaluation question(s) and specify the objectives for the evaluation. Describe whether and how the programme theory was used to define the scope and focus of the evaluation		
6	Ethical approval	State whether the realist evaluation required and has gained ethical approval from the relevant authorities, providing details as appropriate. If ethical approval was deemed unnecessary, explain why		
METHODS				
7	Rationale for using realist evaluation	Explain why a realist evaluation approach was chosen and (if relevant) adapted		
8	Environment surrounding the evaluation	Describe the environment in which the evaluation took place		
9	Describe the programme policy, initiative or product evaluated	Provide relevant details on the programme, policy or initiative evaluated		
10	Describe and justify the evaluation design	A description and justification of the evaluation design (i.e. the account of what was planned, done and why) should be included, at least in summary form or as an appendix, in the document which presents the main findings. If this is not done, the omission should be justified and a reference or link to the evaluation design given. It may also be useful to publish or make freely available (e.g. online on a website) any original evaluation design document or protocol, where they exist		
11	Data collection methods	Describe and justify the data collection methods – which ones were used, why and how they fed into developing, supporting, refuting or refining programme theory Provide details of the steps taken to enhance the trustworthiness of data collection and documentation		
12	Recruitment process and sampling strategy	Describe how respondents to the evaluation were recruited or engaged and how the sample contributed to the development, support, refutation or refinement of programme theory		
13	Data analysis	Describe in detail how data were analysed. This section should include information on the constructs that were identified, the process of analysis, how the programme theory was further developed, supported, refuted and refined, and (where relevant) how analysis changed as the evaluation unfolded		

Table 1 List of items to be included when reporting realist evaluations *(Continued)*

RESULTS		
14	Details of participants	Report (if applicable) who took part in the evaluation, the details of the data they provided and how the data was used to develop, support, refute or refine programme theory
15	Main findings	Present the key findings, linking them to contexts, mechanisms and outcome configurations. Show how they were used to further develop, test or refine the programme theory
DISCUSSION		
16	Summary of findings	Summarise the main findings with attention to the evaluation questions, purpose of the evaluation, programme theory and intended audience
17	Strengths, limitations and future directions	Discuss both the strengths of the evaluation and its limitations. These should include (but need not be limited to): (1) consideration of all the steps in the evaluation processes; and (2) comment on the adequacy, trustworthiness and value of the explanatory insights which emerged In many evaluations, there will be an expectation to provide guidance on future directions for the programme, policy or initiative, its implementation and/or design. The particular implications arising from the realist nature of the findings should be reflected in these discussions
18	Comparison with existing literature	Where appropriate, compare and contrast the evaluation's findings with the existing literature on similar programmes, policies or initiatives
19	Conclusion and recommendations	List the main conclusions that are justified by the analyses of the data. If appropriate, offer recommendations consistent with a realist approach
20	Funding and conflict of interest	State the funding source (if any) for the evaluation, the role played by the funder (if any) and any conflicts of interests of the evaluators

help guide the reporting of their realist evaluations may find the last two columns ('Reported in document' and 'Page(s) in document') as a useful way to indicate to others where in the document each item has been reported.

Scope of the reporting standards

These reporting standards are intended to help evaluators, researchers, authors, journal editors, and policy- and decision-makers to know and understand what should be reported when writing up a realist evaluation. They are not intended to provide detailed guidance on how to conduct a realist evaluation; for this, we would suggest that interested readers access summary articles or publications on methods [1, 19, 20, 22, 23]. These reporting standards apply only to realist evaluation. A list of publication or reporting guidelines for other evaluation methods can be found on the EQUATOR Network's website [24], but at present none of these relate specifically to realist evaluations. As part of the RAMESES II project we are also developing quality standards which will be available as a separate publication and training materials for realist evaluations [11].

How to use these reporting standards

The layout of this document is based on the RAMESES publication standards: realist syntheses [17, 18], which itself was based on previous methodological publications (in particular, on the 'Explanations and Elaborations' document of the PRISMA statement [25]. After each item there is an exemplar drawn from publically available evaluations followed by a rationale for its inclusion. Within these standards, we have drawn our exemplar texts mainly from realist evaluations that have been published in peer review journals, as these were easy to access and publically available. Our choice of exemplar texts should not be taken to imply that the standard of reporting of realist evaluations that have not been published in peer review journals is in any way substandard.

The exemplar text is provided to illustrate how an item might be written up in a report. However, each exemplar has been extracted out of a larger document and so important contextual information has been omitted. It may thus be necessary to consult the original document from which the exemplar text was drawn to fully understand the evaluation it refers to.

What might be expected for each item has been set out within these reporting standards, but authors will

BMJ Open

The effect of leadership on public service motivation: A multiple embedded case study in Morocco

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2019-033010.R1
Article Type:	Original research
Date Submitted by the Author:	30-Oct-2019
Complete List of Authors:	Belrhiti, Zakaria; Ecole Nationale de Sante Publique, ; Institute of Tropical Medicine, Public Health Van Damme, Wim; Institute of Tropical Medicine, Public Health; Vrije Universiteit Brussel, Gerontology Belalia, Abdelmounim; Ecole Nationale de Santé Publique Marchal, Bruno; Institute of Tropical Medicine, Department of Public Health
Primary Subject Heading:	Health services research
Secondary Subject Heading:	Qualitative research, Research methods, Public health
Keywords:	Human resource management < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Leadership, Public Service Motivation, Complex leadership, Basic Psychological Needs, Health workers

The effect of leadership on public service motivation: A multiple embedded case study in Morocco

Zakaria Belrhiti [1,2,3], Wim Van Damme[2,3], Abdelmounim Belalia[1], Bruno Marchal[2]

Authors' information

1 National School of Public Health, Rabat, Morocco.

2 Department of Public Health, Institute of Tropical Medicine, Antwerpen, Belgium.

3 Vrije Universiteit Brussel, Brussels, Belgium.

Word count : 8807 word

Correspondance to : Dr Zakaria Belrhiti, Ecole Nationale de Santé Publique, Rabat, Morocco
drbelrhiti@gmail.com, (Phone number : 00212661631966)

Abstract

Objectives: We aimed at exploring the underlying mechanisms and contextual conditions by which leadership may influence "public service motivation" of health providers in Moroccan hospitals.

Design: We used the realist evaluation (RE) approach in the following steps : eliciting the initial programme theory, designing the study, carrying out the data collection, doing the data analysis and synthesis. In practice, we adopted a multiple embedded case study design.

Settings: We used purposive sampling to select hospitals representing extreme cases displaying contrasting leadership practices and organisational performance scores using data from the Ministry of Health quality assurance programs from 2011 to 2016.

Participants: We carried out on average 17 individual in-depth interviews in 4 hospitals as well as 7 focus group discussions and 8 group discussions with different cadres (administrators, nurses and doctors)**.** We collected relevant documents (e.g. performance audit, human resource availability, etc.) and carried out observations.

Results: Comparing the Intervention-Context-Actor-Mechanism-Outcome configurations across the hospitals allowed us to confirm and refine our following programme theory: "*Complex leaders, applying an appropriate mix of transactional, transformational and distributed leadership styles that fit organisational and individuals characteristics [I] can increase public service motivation, organisational commitment and extra role behaviours [O] by increasing perceived supervisor support and perceived organizational support and satisfying staff basic psychological needs [M], if the organisational culture is conducive and in the absence of perceived organisational politics [C]".*

Conclusions: In hospitals, the archetype of complex professional bureaucracies, leaders need to be able to balance between different leadership styles according to the staff's profile, the nature of tasks and the organisational culture if they want to enhance public service motivation, intrinsic motivation and organisational commitment.

Strengths and limitations of this study

Realist evaluation (RE) is useful in explaining how, why and under which conditions an intervention or a social phenomenon (leadership in our study) generates a particular outcome (*in casu* public service motivation).

Continous refinement of programme theories through RE cycles allows for a cumulative process of knowledge creation by constant shuttling across cases from theory to empirical data and back.

The time and resource constraints of the PhD research project, of which this study is a part, precludes testing and validating existing measurement scales of concepts such as PSM, perceived organisational support and organisational commitment.

Keywords : Leadership, Complex leadership, Public Service Motivation, Health workers,Basic Psychological Needs, Realist Evaluation, Morocco, Hospital, Human Resource Management

Introduction

Health workers' performance has received increased attention from policy makers, scholars and global health organisations (1-3) and is recognised as an essential driver for the achievement of the sustainable development goals (4), the implementation and the scale up of effective public health sectors reforms *(5-9).*

Motivation in the public sector

In low- and middle-income countries (LMIC), poor performance of health workers is a critical barrier to quality of care and to the implementation of health policies in general (5, 10). This often stems from a lack of motivation and to negative attitudes of health workers in the provision of care (11-15).

The motivation of health workers is recognised as a critical determinant of the performance of health workers in public performance (2, 5, 6, 16). While staff availability, knowledge and skills are essential in health service delivery, they are not sufficient to ensure good health worker performance. This critically depends on staff motivation, and in public services specifically on their willingness to pursue public service values and work in line with the best interest of patients (16-19). This notion is encompassed by the concept of Public Service Motivation (PSM), understood as the altruistic desire of health workers to serve the common interest and to help patients and their families regardless of financial or external rewards. PSM has been shown to be key to the performance of public servants in public administration (20, 21) and in the health sector (22, 23).

Since 1990, public management scholars have been developping the concept of "*public service motivation" (PSM),* defined as *"an individual's predisposition to respond to motives grounded primarily or uniquely in public institutions and organizations*." (24). PSM involves a set of "*beliefs, values and attitudes that go beyond self-interest and organizational interest, that concern the interest of a larger political entity, and that motivate individuals to act accordingly whenever appropriate*" (25). From this perspective, health workers can be driven by an altruistic desire to serve the public interest and the population (26-30). Research in public sector settings and in healthcare produced evidence on the positive effect of PSM on job satisfaction, reduced turn-over and individual performance, (28, 29, 31-34). Within the field of PSM, research has focused on how managers and leaders can enhance PSM among public servants (28, 35-39).

This perspective on the motivation offers an alternative perspective to the recent trends in health system performance management reforms inspired from New Public Management, including pay for performance and contracting out, which focuses on extrinsic motivation of health providers, and risks to crowd out intrinsic motivation (30). Such strategies may also generate negative self-interested behaviours, goal displacement and mistrust (30, 40-45).

Leadership in the health sector

In Morocco, research evidence points to how a lack of motivation and poor leadership of health managers may have hampered the performance of health workers, the quality of care and the scaling up of proven effective health policies (46-53) and quality assurance programmes (54, 55).

In LMIC, health managers often display poor leadership practices either by avoiding getting involved, delaying decisions (laisser-faire leadership) or by overemphasising top-down controlling behaviours perceived as inefficient in the motivation of health workers. (56-60)

'Traditional' leadership theories emphasise the transactional nature of the relationship between leaders and their employees. They comprise transactional leadership (where leaders focus on top

down contingent rewards and sanctions) and transformational leadership (where leaders focus on inspiring staff, infusing jobs with meaning and acting as a role model)(61). Recent leadership theories emphasize the need for more complex approaches that allow for better adaptation to the complex social nature of healthcare organizations (62-64). Complex leadership scholars highlight the multi-layered nature of effective leadership, which includes information sharing, distributed leadership and support for lower-level cadres. They define complex leadership as the ability of leaders in complex unpredictable situations to balance between transactional, transformational and distributed leadership so as to fit the nature of task, type of staff and organisational characteristics (62, 63, 65-67)

The relationship between leadership and PSM

Complex processes underlie the effect of leadership on PSM, and they are conditioned by contextual factors (professionalism, religion and family education) (68-74) and organisational factors (organisational culture (75, 76) and job characteristics (28, 29)).

Most PSM research in the field of public administration relies on quantitative measures of the effect of leadership on PSM. Little attention has been paid to the mechanisms underlying this relationship in healthcare and public service settings (16, 31, 33, 35, 37, 39, 77-79) and the existing studies often display methodologies challenges (80, 81). Understanding these mechanisms is valuable in the sense that it can guide health managers in developing appropriate leadership and managerial practices that reinforce organisational value systems, and foster health workers' PSM and intrinsic motivation, and consequently their performance (60, 82-84).

In response, we set out to explore the causal processes through which leadership, context and organisational attributes influence public service motivation of health workers in Moroccan hospitals. The research questions we address are: 1) How does leadership influence public service motivation of health workers? and 2) Which organisational or contextual conditions underlie the effect of leadership on PSM? This study is part of a larger study on the nature and effects of leadership practices on health workers in 4 Moroccan hospitals.

Methods

We adopted the realist evaluation (RE) approach (85). RE aims at identifying causal mechanisms that explain how, why and under which conditions an intervention or a social phenomenon (leadership in our study) generates a particular outcome (*in casu* PSM)(85). Realists posit that causal mechanisms are generative in nature and embedded in a stratified social reality; they reside in the interplay between individuals, institutional and structural factors (86, 87).

We applied the steps of the realist research cycle (86, 88) to structure our study: 1) eliciting the initial programme theory, 2) designing the study, 3) carrying out the data collection, 4) analysing the data and 5) synthesis. We refer to our paper reporting on a case study of leaderhip for more details on the realist approach (89) in press).

Step 1 - Eliciting the initial programme theory

Our scoping review of complex leadership (90) allowed us to elicit an initial programme theory (PT) on the relationship between leadership and motivation. It was further developed through a first exploratory case study (coded NHMH) (see Belrhiti,2019 (89) in press) and this led to the initial PT that is the starting point of this study:

"Complex leaders adopt an appropriate mix of transactional, transformational and distributed leadership styles that fit the mission, goals, organisational culture, nature of the tasks of the organisation and the individual characteristics of the personnel. This adaptation of leadership style enhances staff perceived supervisor support and perceived organizational support, and contributes to the satisfaction of basic psychological needs of the staff". (Figure1)

As we described before (89), the underlying theories used to build our above mentioned programme theory rely on two mechanims that have shown to be important in explaining the complex relationship between leadership and motivation (91-93): 1) the satisfaction of basic psychologic needs, based on self-determination theory (94)(see box 1) and 2) perceived supervisor support and perceived organisational support (91, 92, 95)(see box 2).

Box 1 Definition of Basic Psychological Needs

According to self determination theory, every individual thrive to satisfy three basic psychological needs (autonomy, competence, relatedness). *Autonomy* corresponds to the sense of volition and willingness ones feel when undertaking specific behaviours. This allow staff to self endorse their actions. *Competence needs* means the feeling self efficacy when experiencing work opportunities that allow individuals to express and use their abilities and skills. *Relatedness* means that staff need to feel mutual respect, consideration from others, connectedness and a sense of belonging to a social group.

Box 2 Perceived organisational and supervisor support

Perceived Organisational Support (POS) is understood as the beliefs of healthworkers about the extent to which the organisation (e.g. top management teams) values their efforts and their psychological well-being.

Perceived Supervisor Support (PSS) is identical to the former but focuses on the relationship between staff and their supervisor.

In this study, we adopted a dynamic perspective of leadership which we considered as a multilevel process embedded in a multi-layered social and organisational context (63, 65, 96-100). From this perspective, leadership is shaped by the organizational culture and by how staff interpret their organizational context (organizational climate) (101-103).

We mean by the organisational culture *"the shared values, underlying assumptions and expectations that characterise organisational membership*" (104). Different types of organisational culture are presented in box 3 (105). The visible aspect of the organisational culture is represented by the organisational climate ('the tip of the iceberg') and is "the visible behaviour of group members" (101).

We adopt the definition of organisational climate of Bock (2005): the "*contextual situation at a point in time and its link to the thoughts, feelings, and behaviours of organizational members. Thus, it is temporal, subjective, and often subject to direct manipulation by people with power and influence*." (106). It is a multidimensional concept that includes role conflict and ambiguity, professional and organisational esprit, job challenges, workgroup cooperation and mutual trust) (107).

Box 3 Types of organisational culture according to Cameron and Quinn

Hierarchical culture: strong emphasis on stability, predictability and efficiency. Formalisation, procedures and rules govern individual behaviour.

Clan culture: emphasis on cohesion, teamwork, high levels of employee morale, employee involvement and commitment within an autonomy supportive environment.

Market culture: emphasis on employee productivity, results and profit orientation, individualism and competitiveness, in an environment that is considered as hostile.

Adhocratic culture: emphasis on creativity, innovation, individuality, experimentation, risk taking and adaptability. Power is decentralised to task teams.

Figure 1 shows our programme theory and the complex relationship between leadership, individual motivation and organisational characteristics (organisational culture and climate, mission and goals and degree of responsiveness to basic psychologic needs). The quality and type of staff motivation (extrinsic versus autonomous motivation, including PSM and intrinsic motivation) depends on the degree of autonomy support by leaders, and consequently their perceived supervisor support (which in itself is increased by transformational and distributed leadership and reduced by laisser-faire and transactional leadership). Autonomous motivation is enhanced when staff have positive levels of perceived organisational support, which depends on the degree of responsiveness of top management teams to staff's basic psychological needs and the congruence between the organisational culture and the individual values.

More specifically, we identified four causal configurations (Figure 1):

Configuration 1

- Laisser faire leadership decreases the levels of perceived organisational support and staff motivation by being less responsive to their basic psychological needs of autonomy, competence and relatedness. Lack of vision and goal setting contributes to a climate of ambiguity and role conflict. The inadequate enforcement of the hierarchical structure and high job pressure can contribute to mistrust between administration and staff.

Configuration 2

- Transactional leaders can improve extrinsic motivation of staff if they offer the necessary support and ensure adequate working conditions. By improving the latter, transactional leaders reduce job pressure and by implementing a clear hierarchical line they reduce role conflicts.

Configuration 3

- By showing individual consideration and communicating clearly about mission valence, transformational leaders enhance self-esteem of staff, perceived supervisor support, and satisfaction of their autonomy needs. This in turn contributes to staff commitment, mutual trust and respect between the management team and staff.

Configuration 4

- Distributed leadership can contribute to improved communication and interaction between staff from different units, to problem solving and a reinforced clan culture. Distributing leadership roles and embedding them throughout the organisation, combined with engaging staff in decision making, contributes to staff's perceived autonomy and organisational commitment, which in turn leads to extra role activities.

In this study, we zoom in on the role of public service motivation. We assume that leaders who stimulate staff's awareness of the value of their work to society and its contribution to the public good may enhance PSM and intrinsic motivation. Leaders who are responsive to the basic psychological needs of their staff are likely to stimulate the internalisation of public values and may shift the locus of individual motivation from extrinsic to more autonomous forms of motivation (108). This requires a conducive organisational culture and absence of conflicts between individual and organisational values. We hypothesise that the specific attributes of the Moroccan health system, and specifically its hierarchical organisational culture, may impede the emergence of PSM.

Figure 1 Programme theories

Step 2 - Study design: a multiple embedded case study design

We adopted a multiple case study design (109) because it fits the exploration of multifaceted complex phenomena, such as PSM, in real world settings (in our case in 4 hospitals). We defined the case as the relationship between leadership and "public service motivation". We took a hospital as the unit of analysis. Purposive sampling allowed us to select hospitals that would allow us to test the programme theory. We selected hospitals representing extreme cases, displaying contrasting organisational performance and leadership practices (110, 111). To select hospitals, we used data from the Ministry of Health's quality assurance programme called "concours qualité" from 2011 to 2016 (112, 113). More specifically, we used the leadership scores and the overall organisational quality performance scores (table 1). We refer to (Sahel,2015) (55) for a discussion of the "concours qualité".

We purposefully selected two well-performing hospitals with high leadership scores (NHMH and EJMH) and two poor-performing hospitals with low leadership scores (RKMH and SMBA) (Table 1). This selection was informed by independence of cases, variation in hospitals size (seeking to have 1 large and 1 small sized hospital in each category), variation in location (urban, periurban, rural) and accessibility to the first author.

Table 1 : List of high and low-performing hospitals (Ministère de la santé du Maroc, 2011 and 2016 report)

Hospital	Size (number of beds)	Performance scores %		Leadership score (2016)
		2011	2016	
NHMH	<120	65	80.33	75.76
EJMH	>240	46	65.98	57,61
SMBA	>240	44	20.01	14.54
RKMH	<120	44	18.91	6.97

Realist evaluation seeks to refine programme theories through a process of specification: the PT is gradually refined by testing it in different settings or in different cases. For this study, we started the data collection in NHMH and developed a first refined PT. This was then tested in EJMH and the poor-performing hospitals RKMH and SMBA. The analysis of each site led to successive refinement, confirmation or disconfirmation of the elements of the initial PT.

Figure 2 - Cases studies and data collection, Morocco, January-June 2018

Step 3 - Data collection

We based the choice of the data collection methods on our programme theory (Figure 1) to ensure that data would allow us to test the initial PT. We used interviews, focus group discussions and document review (see figure 2). We collected data during the period January-June 2018

Interviews

In each hospital, we interviewed health professionals, and senior, middle and operational managers. We explored the antecedents of PSM, its expression and the relationship with leadership and management practices, organisational structure, and cultural context. We used open-ended interview guides tailored to each category of respondents (supplementary file 1). We collected data until saturation was attained. In the first site (NHMH), we carried out 18 individual in-depth interviews (IDI). Subsequently, we carried out 17, 16 and 17 IDI in EJMH, RKMH and SMBA respectively. Each respondent was anonymised and given a unique identifier. Sociodemographic characteristics of the respondents are summarised in table 2.

Focus group discussions

To further explore the key constructs used by interviewees in relation to “public service motivation”, we carried out 7 focus group discussions and 8 group discussions with different cadres (administrators, nurses and doctors). Group discussions were carried out whenever the number of participants did not reach the appropriate size (6 to 8) to carry out focus group discussions. This was encountered in practice in low staffed hospitals (RKMH and NHMH) particularly for doctors and administrative staff.

This allowed us to deepen the analysis across the different categories of health workers (managers, service providers). The first author led the FGD. Probes, follow up questions and summarised key themes were used and verification from participants was sought at the end of each FGD (114, 115). The FGD facilitator guide is presented in supplementary file 2.

Respondents for the in-depth interviews and the focus group discussions were identified through qualitative purposive sampling(110). All FGD and IDI were audio recorded with the exception of 1 interview. In this specific case, we took notes and transcribed the unrecorded interview using memory recall (116). Following guidance provided by (Miles and Huberman,2016) (117) and (Krueger,2014) (114), we wrote a brief contact summary at the end of any contact with research participants. It included major themes and ideas arising after each interaction. All recordings were transcribed verbatim.Two researchers (ZB and BM) checked the transcripts for accuracy.

Document review

We collected documents at the study sites (760 page) and at the Ministry of Health (460 page). We focused on human resources availability and skill mix, the strategic plans of the hospitals, audit documents and quality assurance reports.

Observations

The first author carried out opportunistic observations (between appointments with interviewee), following the guidance described by (118). Close attention was paid to the interaction between supervisors and staff. We recorded our observations about feelings and goals expressed during informal interaction with hospital staff and external actors and the physical spaces.

Table 2 Respondent characteristics

Managerial function

	NHMH	EJMH	RKMH	SMBA
Senior managers	4	4	3	4
Middle Managers	3	7	2	5
Line Managers	5	2	4	3
Operational staff	20	30	17	33
Total	32	43	26	45

Professional profile

	NHMH	EJMH	RKMH	SMBA
Doctors	13	14	4	14
Pharmacist	1	3	1	1
Nurses	14	15	14	20
Administrators	4	11	7	10
Total	32	43	26	45

Age category

	NHMH	EJMH	RKMH	SMBA
20-30	6	3	5	3
31-40	11	11	6	17
41-50	9	10	9	11
51-63	6	19	6	14
Total	32	43	26	45

Gender

	NHMH	EJMH	RKMH	SMBA
Female	20	25	10	24
Male	12	18	15	21
Total	32	43	26	45

Step 4 - Analysis

We carried out the data analysis following the 'traditional' analytical phases of compiling data, interpreting, discussion, and drawing conclusions (111). Guided but not restricted by the initial programme theory, we coded all data sources (transcripts, contact summaries and field notes) using different coding techniques (concept, hypothesis and "in vivo" coding)(119). We used the ICAMO (Intervention-Context-Actor-Mechanism-Outcome) heuristic to identify causal configurations. We revisited the data to test conjectural ICAMO configurations (120). We adopted a retroductive approach (121) to contrast patterns of leadership effectiveness between different types of actors (doctors, nurses and administrators). We compared these patterns with the chronology of the CEO succession periods.

NVivo 10 software (122) was used to manage the data. Milestones in the coding process were discussed during research teams meetings.

Step 5 – Synthesis

When the data from all sites were analysed, we compared the ICAMO configurations with the initial programme theory and modified it accordingly. We followed the RAMESES II reporting standards in writing the research report and this paper (88).

Ethical considerations

The study was granted approval by the Moroccan Institutional Review Board, Rabat (n°90/16) and the Institutional Review Board of ITM (N° 1204/17). We informed all interviewees before the start of data collection about the study objectives, topics, type of questions and their right to refuse being interviewed and to interrupt the interview at any time. This information was also provided in an information sheet and reiterated before the start of interview when the written consent procedure was explained. The respondents were asked to sign the informed consent form if they agreed to participate in the study. The forms were co-signed by the researcher and a copy was given to research participants.

Patient and public involvement statement

There was no direct patient involvement in this study.

RESULTS

In this section, we first present for each hospital the main leadership and management practices, the perspective of staff, their views on public service motivation, and a summary. Then we present a summary of the cross case analysis and the resulting refined programme theory.

EJM Hospital

Main leadership and management practices

In EJMH, there were two successive leadership periods. Between 2012 and 2015, CEO 1 had a transactional leadership style, relying on administrative procedures, assertion of power, and

compliance with rules and procedures. He was perceived by his staff as being distant and not responsive to their needs for professional autonomy. Conflicts and tensions with unions and doctors were high. He left in 2015.

> *"CEO 1 was too strict in the application of the new hospital procedures. We could not discuss the rules with him. The hospital cannot be managed by strictly following the rules. For instance, in compliance with the new procedures, CEO 1 decided to implement night shifts for administrative staff and stopped the night shifts of nursing supervisors. The administrators did not accept to carry out this task because the new procedures did not mention who should do this and how this 'overtime' job would be reimbursed". EJMH 3 Administrator.*

In mid-2015, CEO 1 was replaced by CEO 2. He was upto then the chief medical officer of the hospital and had quite some management experience. For instance, he was the director of EJMH between 2002 and 2006. In 2016, EJMH won the first price at the quality contest. CEO 2 had an explicit vision on leadership:

> *"I had the chance to manage the hospital in 2002. This allowed me to really know the personal and vice versa. Now, we work as a team in that sense that staff are involved in decision making. This is very important. In a real world setting, participative decision making is very important, because you avoid many problems. When you involve them, you avoid resistance. If staff is involved from the beginning, they will adopt the solution and will not feel that it was imposed on them. This will be totally different if the solution was imposed on the staff. (…) When you involve staff in decision making, you build trust relationships. Trust relationships are very important in our context, where the hospital director has little power over his staff. [….] When we explain to staff well defined objectives. They know which organisational objectives to pursue. Achieving these goals at the operational level bring legitimacy to the hospital direction. It is important that health workers know that you are thriving to achieve these objectives. This is what I call credibility." EJMH 7, CEO 2*

The perspective of staff

Leadership style

Our analysis shows that the staff found that the transactional leadership style of CEO 1 was incongruent with their professional values and their need for autonomy. This contributed to mistrust in the management team, low organisational commitment and a high level of tension with unions.

> *CEO 1, with whom I worked, was authoritative. This was not congruent with my values. I value participative decision making. I try to share with others, I need to be treated the same way by my superior. CEO 1 was just commanding: 'Do this, give this to this person'. I would have accepted and engaged with him if he would have involved me in participative decision making with other members of the hospital committee, if he would have used polite inquiries, like "Would it be possible to do this?, rather than giving orders without listening to team members or involving them in decision making." EJMH 25, pharmacist.*

The participative decision making style of CEO 2 and his consideration for individuals restored trust in the management team and reduced the tensions with the unions.

> *"Now everything works smoothly. He does things that are right. He reacts to wrong doings. He is sympathetic with all staff. CEO2 has a long experience. He knows everyone, he knows*

their personal characters, motivation and personal needs…. He is very successful in doing that! He knows how to reduce tensions between his close collaborators. He takes decisions smoothly. As a physician, he is able to reduce tensions between medical union representatives and internal coalitions within the medical departments. His door is open to everyone. He listens to staff. He does not rush decisions. He maintains a low level of tension within the hospital. He does not complicate things. The former CEO took rapid decisions and was facing much resistance […].CEO 2 involves his close collaborators and chiefs of departments in decision making. This way, they adhere to his decisions. He listened to them. He has a participative leadership." EJMH 25, pharmacist.

Public Service Motivation

Frontline providers said that compassion and self-sacrifice are important components of their public service motivation.

"While recording electrocardiographs on patients, I was constantly communicating with them. Sometimes, women shared with me their feelings, their worries about their siblings, their fear of death, their personal life and stories about their deceased or ill husbands. They were often crying. I feel their sufferings as if I were living with them". EJMH 17, Nurse.

We found that the intrinsic motivation of health providers is sustained by their feelings of competence and their ability to adequately apply their professional skills and competencies.

"I love my job. I chose deliberately to work at the emergency unit. I love working at the emergency unit. I am totally engaged. Handling serious medical emergencies is a motivation in itself". EJMH 38, Doctor.

Participative decision making was perceived by staff as congruent with their professional identity and their public service values. It enhanced their self-esteem and satisfied their needs for autonomy and relatedness and increased their public service motivation. It also increased their perceived autonomy support.

"Leaders needs to be fair, listen to our needs and resolve our organizational issues. Most importantly, they need to understand my professional needs, take into consideration my suggestions and contributions to work. This make me feel satisfied. In contrast, with the former leader, I was not feeling secured. He was exerting excessive control. I suffered the martyr!. I was constantly under constant threats. I even sent an administrative correspondence to the ministry of health against the injust treatment. I was just trying to do my job correctly!". EJMH 17, Nurse.

Summary

Our analysis showed that the transactional leadership of CEO 1 did not address the basic psychological needs of the staff and specifically the need for autonomy. This not only contributed to low organisatinonal commitment and reduced public service motivation, but also to tensions with the unions.

In contrast, CEO 2 had a transformational leadership style: he effectively understood how people are motivated, listened to them, and clearly communicated his vision and objectives to the health workers. He showed genuine concern for the needs of his staff, effectively resolving problems

through a constructive dialogue with informal leaders and union representatives. He also involved his close collaborators and heads of department in decision making.

CEO 2 also stimulated the emergence of distributed leadership to lower levels of the organisation, which increased trust between the staff and the CEO, and reduced resistance to change. This was considered by mid-level managers as crucial in maintaining the "public service motivation" of staff, in particular given the perceived limited decision spaces they have over their personal work. We saw that not only senior managers but also mid-level managers engaged in distributing leadership. For the latter, participating in decision making increased their perceived leader support and satisfaction of their autonomy needs. This has enhanced their autonomous motivation (intrinsic and public service motivation).

RKM Hospital

Main leadership and management practices

This hospital has known two leadership periods since 2010. From 2010 to 2012, CEO 1 displayed transactional leadership: he assiduously monitored staff attendance, planned their shifts and dealt with his staff through administrative correspondence. He was confronted with staff resistance.

Because of shortage of intensive care anaesthetists, nurses anesthesists often take over their tasks, like sedating patients in the operating theatre without medical supervision. When they were confronted with excessive control by the director, they stopped carrying out this "medical" task. This has negatively impacted the continuity of surgical activities. In this case, nurses used their professional expertise as a source for discretionary power (e.g. ability to intubate and sedate patients in the operating theatre).

> *"(CEO1) was suspicious and was strictly applying the regulations to correct the staff absenteeism. When the cat's away, the mice will play. There were many conflicts, especially with nurse anesthesists who did not comply with the control of attendance. As a result, they stopped sedating patients and argued that they are not allowed to sedate patients without an intensive medical care anaesthetist". RKMH8, close collaborator.*

CEO2 managed the hospital between 2012 and 2018. He favoured a distant *laisser faire* leadership approach and was often absent. He would then be replaced by the chief nursing officer who adopted the same leadership style. The latter seemed overwhelmed by day-to-day operational management responsibilities. During our field work, we noted that the management of the hospital was poor. No organizational action plans were available, and there were no meetings. Strikingly, our focus group discussion with nurses was the only meeting they attended in three years. We observed high level of absenteeism among hospital staff.

The perspective of staff

Leadership style

Our analysis shows that the close collaborators, administrators and technical staff appreciated the leadership of CEO 1, because he reduced role ambiguity and job pressure. However, nurses and doctors were unhappy with his overcontrolling behaviour and engaged in resistance. Also CEO 2 was appreciated by his close collaborators, now because of his gentle wording and good interpersonal

management. However, doctors and nurses perceived his *laisser-faire* leadership as non-responsive to their needs in terms of resources and working conditions. This had led to reduce their public service motivation by reducing their willingness to improve service delivery and to work for the common good. Some have expressed that laisser faire leadership has catalysed their intention to quit the public sector for good.

> *"Nowadays the strength and pace of my motivation to improve the service quality has decreased. This is essentially due to the lack of responsiveness of the hierarchy to my needs. There is no response. Even though we are engaged to improve our working conditions and the panel of services, the lack of feed back from the management teams has stopped our willingness to improve health service delivery. I found myself complaining alone. This has reduced my attraction to improve public service. This has negatively impacted my psychological well being. In all cases, I get my salary at the end of the month, however, from my personal point of view, I could not contend my self to work without thriving to improve the quality of public service at the pediatric unit. My husband is telling me that improving service delivery in the public sector is not my mission and that I am not a sort of social reformer!!. I am always told that these poor working conditions are common in the public sector and I need to stop trying to work for the common good. My motivation has decreased for while now. But I hope later to l try again with the new chief provincial hospital that has recently been appointed. Maybe, he will be more responsive to our needs than the former. If in the coming three years this does not change, I will quit the public sector and start my own private practice (RKMH 16 paediatrician)*

Respondents complained management engaging in clientelism and nepotism, which they found to conflict with their public service values.

> *"The chief of the admission office is carrying out tasks that are not his. He manages the personnel! Staff who come from the town of CEO2 are privileged compared with others. Decisions are guided by his close interpersonal relationship with them". RKMH 11, Nurse.*

> *"For instance, when I take necessary administrative measures to correct staff absenteeism, the provincial district officer takes no actions to sanction these deviant behaviours. My authority is weakened. Either you accept staff's deviant behaviours and thus participate in this "crime", or you are intransigent and staff will build an alliance against you and you will be demonised. As you may know, unions and political parties are corrupt, they seek only the interest of their members and not the general interest" RKMH 15, Administrator.*

Staff perceived that they were unable to treat adequately patients because of lack of material and ressources (e.g. laboratory tests, mobile radiology, etc.) and the inadequate organisational support to their supply needs. They did not feel self-efficacious. Some felt that they were doing more harm than good for patients. This reduced their PSM and negatively impacted their psychological well being.

> *"We suffer because we transfer patients for simple technical procedures that we could have handled locally" RKMH 10,Nurse.*

> "*We often ask relatives to help us carry patients with a fractured femur to the fixed X Ray table. By doing this, we may worsen the fracture. I feel sorry when I had to ask sick patients to go themselves to the fixed X-Ray table. No organisational support is given, despite our*

*relentless asking the administration to provide us with a mobile X Ray system."*RKMH 14 Radiology technician

Poor management and bad working conditions led to low levels of perceived organisational support amongst nurses. Staff felt inadequately supported by their supervisors and were left to face problems in the execution of their daily tasks. This created a stressful job pressure they were unable to deal with.

" During the transfer (of a patient to the referral hospital), we do not focus on what care to give to the patient, but we are stressed by the poor conditions of the ambulance. It is not an ambulance, it is a wreck!" RKMH 12, Nurse anesthesiologist"

Reluctance of the managers to start up legal procedures against patients or families who assaulted nurses or doctors further reduced the latter's trust in the management.

"Many times, staff were assaulted. The management just forgave the assaulter, because the CEO knows him. Leaders should support staff, … support them in a sense that if someone of us is assaulted one day, I mean a nurse staff in his shift or a doctor, staff should be protected. This assault should not be considered as an assault on an individual person, it is an assault on all of us, on all health care providers cadres in general." RKMH 24, Nurse, ED.

Public Service Motivation

In this hospital, we found that frontline providers value the importance of adequately serving patients and improving health outcomes. They derive satisfaction from relieving suffering and saving lifes, or at least preventing them from developing complications. Health workers mentioned that compassion, self-sacrifice, serving the underprivileged and caring for the poor are crucial drivers of their public service motivation.

"We often sacrifice our own time for the sake of patients and for the sake of God to avoid unnecessary delays and prevent parturients from getting complications, for exemple, severe neurological and cardiac complications of post partum haemorrhage. We even help patient's families to pay for ambulance fees in order to avoid delays". RKMH 14, midwife

"Here, I work a lot with vulnerable citizens. It is a reward in itself to serve poor patients. It is my source of motivation". RKMH 3, Doctor

We noted that the *laisser-faire* and transactional leadership had a negative effect on staff with high levels of public service motivation. It led to psychological distress, low organisational commitment and self-interested behaviour. This was compounded by the perceived organisational politics (see. clientelism and nepotism).

Summary

Our analysis showed that the *laisser-faire* and transactional leadership in this hospital did not respond to the basic psychological needs of health workers. This led to reduced public service motivation with negative consequences on their psychological well-being, because of the lack of opportunities of experiencing valued patient outcomes (e.g saving lifes).

The leadership styles also contributed to low perceived organisational support, which in a context of perceived organisational politics, in turn lowered organisational commitment, and increased self-interested behaviour and mistrust between administration and staff.

SMBA Hospital

Main leadership and management practices

In SMBA hospital, one of the low-performing hospitals, there were three leadership periods. CEO 1 (2007-2010) displayed strong transactional leadership, emphasising comformity with rules and procedures and insisting on top-down hierarchal management. He carried out many performance audits and clinical supervisions, and organised training to staff. He showed high moral standards and was both respected and feared by staff. He was replaced in 2010 by CEO 2, who retired in 2013. He had some experience in management, displayed transactional leadership and stressed the conformity with rules similarly to his predecessor. In 2014, CEO 2 was replaced by CEO 3, who adopted a *laisser-faire* leadership. The hierarchical line was no longer respected. He managed the hospital poorly: no organisational action plans were available, and he did not carry any audit nor supervision. No inter-units meetings were held and the departementalisation process was halted. During our field work, we observed a strike of the clerical officers in charge of hospital admission and of the private company in charge of security in reaction to bad working conditions and perceived low responsiveness of management to their needs.

The perspective of staff

Leadership style

CEO 1 and 2 were highly appreciated by the administrators and their close collaborators. The health professionals (nurses and doctors) pointed to reduced perceived organisational support and to lack of participative decision making. Under the leadership of CEO 3, staff felt less supported by their supervisors. They said they were left to deal with problems alone. Lack of clarity of goals led health workers to perceive role ambiguity and job pressure.

Poor management and low responsiveness of leaders to staff needs in terms of improving working conditions decreased their public service motivation.

> *"Leaders do not play a role in our motivation. […]. We came to work despite constraints and poor working conditions. If we were only motivated by working conditions, we wouldn't come to work. The management team was even unable to timely replace a broken window of our reception desk counter!" SMBA 29, Reception desk officer*

Our respondents also mentioned the clientelism and nepotism of CEO3, who privileged some staff and patients over others. This led to perceived organisational politics and mistrust, and contributed to low organisational commitment, demotivation and crowding out of public service motivation.

> *"In this hospital, there are some external actors who pretend to do social work, and pretend to act as benefactors. These external actors, often members of associations, intervene illegimitely in hospital activities. They are like parasites. They definitely impact on our productivity. They are like stockbrokers. They do not care about citizens. They frequently mediate between citizens and services providers. The CEO responds quickly to patients needs*

when these actors are involved. This what I call clientelism. This is not fair! All citizens are equal" SMBA 21, support straff, reception desk.

Public service motivation

Physicians and nurses perceived compassion with patients' conditions and self sacrifice as major components of their public service motivation.

"Patients are important for me because I got sick myself. So, I sense what the patients are feeling. My family members, my daughter and my grandmother got sick. I feel the pain patients are suffering from. I can feel their suffering. "(SMBA 35, Nurse).

Public service motivation is also driven religious cultural beliefs including elements of fear of God and divine rewards.

"We work because of our sense of humanity, our own consciousness and our fear of God. One day, we will be asked about the quality of work we have done in the past. We feel sorry for patients, SMBA 29, reception desk officer"

Staff said they were suffering from psychological distress due to poor working conditions, and experienced feelings of guilt because of their inability to perform their job adequately and to ease their patients suffering. Lack of opportunities to experience positive patients outcomes reduced their public service motivation.

"When you do not have necessary material you are in trouble! It is not only a constraint but a source of suffering. Instead of relieving patients' distress, it is us who get stressed." SMBA 45, Doctor.

«Here, ressources are limited compared to the teaching hospital where we were trained. Real world practices are really different. When we first were assigned to this hospital we could not change things around. This is really depressing. We have the ability to provide specialised care but we do not have the necessary ressources to do it ! , SMBA 42, Doctor.

This impacted negatively on their perceived organisational support. This led to crowding out of their public service motivation and lowered their organisational commitment and their well-being.

"It is really depressing. I do not want to work anymore because I do not have the necessary ressources.[…] I often cry when I watch newborns suffering from intramuscular injections because nurses are not skilled to administrater intraveineus infusions to newborns and often use instead intramuscular injection for 10 days. I am not only frustrated, I hate entering neonatology service!!!. I only grudgingly go see my patients whereas in the past I loved providing neonatology care. I cannot stand seeing newborn almost dying of hypoglycaemia 0.3g/l because they are not adequately fed. This is due to the acute shortage of nurses (one nurse per shift) who are unable to reconciliate between administering antibiotics and treating infections and baby feeding. I am not anymore motivated to cure newborns 'infections but I am terribly stressed avoiding newborns to die from hypoglycaemia. If babies are left alone with the feeding bottles they may die by suffocation. How can we come motivated to work in the next morning? of course not!!! SMBA 42, paediatrician.

Shortage of material reduced their ability to properly care for patients, which reduced their PSM and contributed to a reduced sense of competency, self-efficacy and autonomy.

> *"During my pediatric residency, I practiced neonatology and neonatal reanimation for two years, I developped many skills that I am not using now because I do not have the necessary equipments. I have only few neonatal rescuscitation tables and two sources of oxygen for 21 patients. I do not have a respirator. During my training I learned to intubate and manage cardiorespiratory distress. Now, in neonatology service instead of using unavailable syringe pumps,we manage pediatric diabetes by intraveinous perfusion. I never been thaught to do this!!". SMBA 42, paediatrician.*

> *"I am very proud to serve my population, however I am truly unsatisfied. We have strong faith and we work eagerly to serve people. But our faith is not sufficiant. We need more ressources. For exemple, I am often called for patients with cranial trauma. We do what is possible depending on available ressources. Cerebral trauma patients need an emergency cerebral CT-scan and the golden hour must be respected. When they arrive at the hospital, often with a delay, the CT Scan is unavailable. It is often out of order. What could we do? In this case, We help teams transfer the patient to the nearby hospital in Marrakech. We often collect money to pay ambulance fuel and to avoid extradelays. I feel that my contribution to patient health is useless, despite being present for about 5 or 6 six hours at night. I feel that our contribution is hampered by organisational problems that are beyond our control". SMBA 43, intensive care* anaesthetist

Summary

In this hospital, we found that leaders (like CEO 1) who are perceived as showing a high sense of moral and ethical standards, and who stimulate the awareness of staff of public service values and their contribution to society, were positively considered by some cadres. For the administrative staff, the transactional leadership displayed by CEO 1 led to higher clarity of goals, reduced job pressure and increased extrinsic motivation. However, it was negatively perceived by frontline workers because they felt it did not respond to their needs for autonomy.

Laisser faire leadership crowded out public service motivation by reducing frontline healthworkers' opportunities to help. Such management did not respond to the basic psychological needs of staff and led to low organisational commitment.

In Table 3, we present a summary of the perspectives of staff on the leadership and management practices. We present in the first column key summary data derived from the initial exploratory case study (NHMH hospital) and detailed in (Belrhiti,2019(89) in press) .

Table 3 - The perspectives of staff on the leadership and management practices

NHMH	EJMH	RKMH	SMBA
CEO 1 (2007-2013) ***Transactional leadership*** Conformity to rules and procedures, role model. Improved staff working conditions. **Staff perspective** Strong perceived leader support, which catalysed the quality culture **CEO 2 (2014-2016)** ***Transformational leadership*** Clear communication of his vision. Genuine concern for staff needs. Enhanced staff mission valence. ***Distributed leadership*** Stimulated network formation, "kind heart actions" **Staff perspective** Responsiveness to their basic psychological needs Reinforced existing clan culture. Positive organisational climate (mutual trust and team work). This led to increased organisational commitment and extra role performance, In 2016, the hospital won the second price in the national quality contest).	**CEO 1 (2012-2015)** ***Transactional leadership*** Power-assertive attritude. Overemphasis on compliance with rules and procedures **Staff perspective** Perceived distant leader. Low perceived autonomy support. Decreased organisational commitment. Mistrust, conflicts and tensions with unions. **CEO 2 (2015-2018)** ***Transformational leadership*** Good communication of vision and objectives. Genuine concern for the needs of staff. ***Distributed leadership*** Constructive dialogue to resolve professional issues. Catalysing role of mid-level managers. Participative decision making. In 2016, the hospital won the first price of the quality contest. **Staff perspective** High perceived autonomy support. Good congruence with professional and public service motives. Trust relationship between staff and management team. Reduced tensions with unions.	**CEO (2010-2012)** ***Transactional leadership*** Strict application of administrative procedures **Staff perspective** Appreciated by administrators and close collaborators. Increased extrinsic motivation of staff. Nurses and doctors resisting to his overcontrolling behaviour engaging in conflicts and strikes. **CEO2 (2012- 2018)** ***Laisser faire* leadership** Often absent. Chief Nursing officer overwelmed by day to day operational management duties. **Staff perspective** Appreciated by administrators and close collaborators. Nurses and doctors unhappy about lack of responsiveness to their needs and the poor working conditions. Conflictual organisational climate, characterised by high job pressure and role ambiguity. Perceived organisational politics (nepotism and clientelism), contributing to perceived unfairness.	**CEO 1 (2007-2010)** ***Transactional leadership*** Enforcement of hierarchy. Emphasis on comformity with rules and procedures. Audit and clinical supervision. High moral standards. **Staff perspective** Highly appreciated by close collaborators and administrative staff. Nurses and doctors perceived a lack of participative decision-making and reduced perceived autonomy support. **CEO 2 (2010-2013)** ***Transactional leadership*** Enforcing conformity with rules and regulations. Close supervision, administrative sanctions. **Staff perspective** Well appreciated by administrators and close collaborators Perceived unresponsiveness to nurses' needs. **CEO 3 (2014-2018)** ***Laisser faire leadership*** Hierachical line not respected. No meetings, no clinical supervision. No inter-unit interaction. **Staff perspective** Decreased organisational commitment

CEO 3 (July 2016-Sep 2017): Laisser faire leadership Passive attitude. Reliance on administrative correspondence. Poor communication with staff. Hierchical line not enforced **Staff perspective** Role ambiguity, high job stressors. Unresponisveness to staff needs. Deterioriating working conditions. Perceived organisational politics. Demotivation, conflicts and tensions with unions. **CEO 4 (Oct 2017-March 2018)**: **Transactional leadership** Reinforcing the hierachical line. Building alliance with informal leaders. **Staff perspective** Distant leader. Reduced perceived autonomy support. Improved working conditions. Claryfing goals reduced role ambiguity and job pressures for admin. staff Reduced interaction between health units.			Inadequate woking conditions and supply of consumables. Low perceive organisational support. High role ambiguity and job pressure. High level of perceived organisational politics.

Cross case analysis and refined causal configurations

Comparing the initial programme theory with the results of the analysis of the data from the hospitals EJMH, RKMH and SMBA allowed us to refine it (table 4). We used the Intervention-Context-Actor-Mechanism-Outcome (ICAMO) configuration to structure the analysis (120). We confirmed or refuted the four causal configurations presented above.

ICAMO configuration 1: *Laisser faire* leadership and PSM

This configuration was confirmed in the RKMH and SMBA hospitals (See table 4 and figure 3).

> *Laisser faire* leadership [I] decreases intrinsic motivation and public service motivation [O] of health providers [A] by being less responsive to the basic psychological needs of autonomy, competence and relatedness [M] and by reducing perceived organisational support [M] in situations of reduced opportunities to experience positive patient outcomes [C].
>
> *Laisser faire* leadership [I] contributes to mistrust between administration and staff, resistance to change and tensions with unions [O] by inducing perceived job pressure and role ambiguity [M] for health providers [A]
>
> *Laisser faire* leadership [I] reduces public service motivation [O] in a context of perceived organisational politics (clientelism and nepotism) [C] by being incongruent with individual public service values [M] of all cadres [A]

Figure 3 - Laisser-faire leadership and PSM (ICAMO 1)

ICAMO configuration 2 - Transactional leadership and PSM

This configuration is confirmed by empirical data from the three hospitals (EJMH, RKMH, SMBA). As a result, we retain ICAMO 2 as follows (see figure 4):

> If transactional leadership ensures adequate support and working conditions of administrative staff [I] or if enforces a clear hierarchical line [I], it can reduce job pressure [M] and reduce role conflict [M] and thus increase the extrinsic motivation of administrative staff [O] and the level of organisational commitment [O]. If transactional leaders [I] are felt by health professionals [A] to be distant, this can reduce perceived autonomy support and reduce the satisfaction of the need for mutual respect (relatedness) [M], leading in turn to reduced motivation [O] and low organisational commitment [O].

Figure 4 Transactional leadership-PSM (ICAMO 2)

ICAMO configuration 3: Transformational leadership and PSM

Configuration 3 is confirmed only in EJMH hospital (Table 4 and figure 5).

> Transformational leadership understood as inspiring staff (walking the talk), infusing jobs with public service values and showing individual consideration to staff [I] increases public service motivation [O] by responding to basic psychological needs of autonomy and relatedness [M] of all staff [A] and contributes to higher organisational commitment and expressed mutual trust between staff with administration [O].

Figure 5 Transformational leadership and PSM (ICAMO 3)

ICAMO configuration 4: Distributed leadership and PSM

Distributed leadership was observed only in the high performing hospitals EJMH and NHMH (see figure 6).

> Distributed leadership in the sense of creating a supportive and open climate and good relations between staff [I] increased staff public service motivation [O] and organisational commitment [O] and led to extra role behaviours by satisfying staff basic psychological needs [M] and increasing trust in management teams [M]

Figure 6 Distributed leadership and PSM (ICAMO4)

As described in table 3 and 4, we noticed that only CEO2 in NHMH and CEO2 in EJMH displayed complex leadership understood as the balancing between transactional, transformational and distributed leadership that fits best the diversity of professional profiles, the nature of the tasks and the organisational culture. Transactional leadership fits the administrators who value role clarity and reduced job ambiguity, whereas transformational and distributed leadership addresses the basic psychological needs of health providers. The other CEOS either adopted a transactional leadership style or laisser faire leadership, which was not well received by a majority of staff.

The four ICAMOs presented above allowed us to refine our initial programme theory:

> Complex leaders, applying an appropriate mix of transactional, transformational and distributed leadership styles that fit organisational and individuals characteristics [I] can increase public service motivation, organisational commitment and extra role behaviours [O] by increasing perceived supervisor support and perceived organizational support and satisfying staff basic psychological needs [M], if the organisational culture is conducive and in the absence of perceived organisational politics [C] .

Table 4 Testing the initial configurations in the study sites

Programme theories based on literature review and the study of NHMH Hospital	EJMH Hospital	RKMH Hospital	SMBA Hospital
Laisser faire leadership decreases the levels of perceived organisational support and staff motivation by being less responsive to their basic psychological needs of autonomy, competence and relatedness. Lack of vision and goal setting contributes to a climate of ambiguity and role conflict. The inadequate enforcement of the hierarchical structure and high job pressure can contribute to mistrust between administration and staff.	Not confirmed not refuted.	Confirmed and refined: *Laisser faire* leadership decreases the levels of […]. contributes to general malaise, mistrust between administration and staff and decreases public service motivation and ***psychological well being. This mechanism is triggered by the lack of opportunities for experiencing positive patient outcomes and the perceived organisational politics***	Confirmed.
Transactional leaders can improve extrinsic motivation of staff if they offer the necessary support and ensure adequate working conditions. By improving the latter, transactional leaders reduce job pressure and by implementing a clear hierarchical line they reduce role conflicts.	Confirmed and refined. Transactional leaders are effective on staff extrinsic motivation ….. leading in turn to reduced motivation"**and low organisational commitment and tension with unions.**	Confirmed	Confirmed
By showing individual consideration and communicating clearly about mission valence, **transformational leaders** enhance self-esteem of staff, perceived supervisor support, and satisfaction of their autonomy needs. This in turn contributes to staff commitment, mutual trust and respect between the management team and staff.	Confirmed	Not confirmed nor refuted, because no transformational leadership was enacted in this hospital.	Not confirmed nor refuted because no transformational leadership was enacted in this hospital
Distributed leadership can contribute to improved communication and interaction between staff from different units, to problem solving and a reinforced clan culture. Distributing leadership roles and embedding	Confirmed	Not confirmed nor refuted, because no distributed leadership was enacted in RKMH.	Not confirmed nor refuted because no distributed

them throughout the organisation, combined with engaging staff in decision making, contributes to staff's perceived autonomy and organisational commitment, which in turn leads to extra role activities			leadership was enacted in SMBA.

Discussion

In this study, we explored mechanisms and contextual conditions by and in which leadership influences "public service motivation" of health workers.

Our study shows, in line with leadership literature (123, 124), that *laisser faire* leadership decreases intrinsic motivation and public service motivation of all cadres by being less responsive to the basic psychological needs of autonomy, competence and relatedness of staff and by reducing perceived organisational support (1, 5, 94).

Our findings suggest that *transactional* leadership, when it ensures adequate managerial support and improvement of working conditions, can enhance the extrinsic motivation of staff by reducing role ambiguity and job pressure, and by increasing perceived organisational support. This is supported by other studies (125-128). However, we also found indications that *transactional* leadership can crowd out intrinsic motivation and public service motivation of health workers by reducing the satisfaction of their needs for autonomy. This is supported by other studies in LMIC (40, 41, 129-131).

We found *transformational* leaders who clearly communicate their vision and walk the talk, infuse jobs with public services meaning, and show individual consideration can enhance PSM by responding to their need for relatedness. This is supported by recent studies, for instance (29, 57, 76, 79, 132-136). Transactional leadership can lead to higher organisational commitment and extra role behaviours (137, 138).

Distributed leadership facilitated teamwork, information flows, and team cohesion. It nurtured feelings of connectedness, enhancing the perception of autonomy support and perceived organisational support. This led to creative problems solving, collective learning and better performance at the quality assurance contest, in ways similarly to other study findings (11-15, 139).

Our study supports the hypothesis that the effect of leadership on PSM depends on the degree of responsiveness to basic psychological needs (autonomy, competency and relatedness). This points to the relevance of self-determination theory (94, 108) as a middle range theory that may frame how individual psychological mechanisms underlie the effects of leadership on staff motivation (extrinsic motivation, intrinsic motivation and PSM). It also supports the hypothesis that the effect of leadership on PSM is conditioned by the existence of a conducive organisational culture (a clan culture and absence of perceived organisational politics). This is explained by value congruence, understood as the degree of congruence between individual and organisational values, which represents a major mechanism in the integration of public service values in individual behaviours(71, 140-142).

In summary, in healthcare organisations, leaders able to adapt their leadership practices to the nature of individuals and organisational characteristics (complex leaders) are likely to be more effective. They foster networking and connections between staff by distributing leadership responsibilities and reinforcing the role of middle managers, infusing jobs with meaning and creating constructive dialogues with professional health workers (12, 90, 143-146).

Study contributions, validity and limitations

This study contributed to fill the gap in leadership studies in general (84, 147, 148) and in healthcare specifically (63, 149) by unravelling the underlying mechanisms of leadership effects on health

workers' motivation. It contributes to the study of leadership in North African muslim countries, a neglegted field of research (150).

This study contributes to the case that realist evalution can contribute to building a better understanding of complex phenomena in health systems (86). Realist evaluation proved an appropriate approach to unravell the relationship between leadership and PSM, and thus responded to calls of PSM scholars for robust research methodologies (33, 35, 37, 77-79).

The Realist Evaluation (RE) proved to be a suitable approach for capturing the multilevel dynamic nature that evolved over time and across contexts. RE facilitated the unveiling of causal mechanisms (value congruence and satisfaction of basic psychological needs) and the contingent effect of contextual factors (organisational culture, climate and perceieved organisational politics) and the individual reasoning of different social actors (e.g. perceived supervisor and organisational support) (86, 151, 152).

By using ICAMO configurational analysis, we were able to provide evidence on the contextual nature and social construction of leadership. Adopting a situational approach on leadership help overcome the inconsistency of findings when studying leadership effectiveness in organisations(153-155)

In addition, the qualitative multiple embedded case study design proved appropriate in providing qualitative design rich, dynamic, contextual data with a focus on mechanisms rather than variables(156). Qualitative approaches are complex sensitive and allow for more research flexibility in unveiling the mechanisms and conditions underlying complex social phenomena in general and more specifically leadership effectiveness in health (90, 100, 157-165)

The validity of our study findings derive from theoretical guidance in study design, sampling and analysis and cross-validation (166-168) and theoretical replication across cases (121). Theoretical replication allows for a retroductive process of knowledge creation (121) by constantly shuttling from theory to empirical data and by continuously refining our programme theories across negative and positive cases.

There are limitations to our study. The causal configurations developed here are the most plausible explanation for the outcomes observed in our study, but may likely not be the unique explanation. Further empirical testing in a larger set of cases would enable to further refine the programme theories. A second limitation is that we did not quantitatively measure public service motivation, organisational commitment, perceived organisational support and other variables. The time and resource limits of the PhD study , of which the study presented here is part, precluded testing and validating existing scales for these constructs.

Implications for practice

In Morocco, similarly to other low- and middle-income countries (57), the hierarchical culture within the Ministry of Health favours transactional leadership styles (50, 169) and this may impede the emergence of PSM (170-172). We raise some concerns in relation to the actual health reforms carried out in Morocco, which are inspired by New Public Management (e.g. performance-based management, contracting out and public-private partnerships) and which may have negative consequences on health workers performance by facilitating the practice of transactional leadership, focusing on extrinsic rewards (and sanctions) and crowding out the expression of PSM and self-

altruistic behaviours of frontline health workers. Policy makers should stimulate the development of complex leadership competencies (e.g. fostering network building, generative sense making, see also (90) in their capacity building programs.

Conclusion

In the context of health care organisations, the motivation of health workers relies on individual, organisational and contextual antecedents. The effectiveness of leaders depends on the degree of responsiveness to the basic psychological needs of health workers and on value congruence between organisational and individual values. Leaders should learn how to adapt their leadership practices to the organisational characteristics (nature of task, mission valence) and to type of motivation of health workers (extrinsic versus intrinsic and PSM). Further research is needed to explore the role of value congruence and to understand how the social institutions (i.e. religion, family education, professionalism) may shape the expression of public service motivation of health workers in low and middle income countries.

List of Figures :

Abreviations :

CEO : Chief Executive Officer

CQ : ”Concours Qualité”

FGD : Focus Group Discussion

ICAMO : Intervention, Context,Actor, Mechanism, Outcome.

IDI : In-depth Interview

ITM : Institute of Tropical Medicine

LMIC : Low -and Middle-Income Countries

PHO : Provincial Health Officer

PSM : Public Service Motivation

RE : Realist Evaluation

Declarations :

Ethics approval and consent to participate

The research protocol was approved by the Moroccan Institutional Review Board (n°90/16) of the Faculty of Medicine of Pharmacy, Rabat and the Institutional Review Board of the Institute of Tropical Medicine, Antwerp (n° 1204/17). All participants have been informed prior to the conduct

of the research and written consent forms were signed by the respondants and countersigned by the researcher. A signed copy was given to each respondents.

Consent for publication : « Not Applicable »

Availability of data and material : « Data sharing not applicable as no datasets generated and/or analysed for this study»

Competing interests

The authors declare that they have no competing interests.

Funding

This work was funded through a PhD framework agreement between the Belgian Directorate-General for Development Cooperation and the Institute of Tropical Medicine, Antwerp. The sponsors had no role in the study or in the writing of the paper

Authors contributions

All the four authors (ZB, BM, WVD,AB) contributed to the original design and analysis and writing of the manuscript. ZB carried out the data collection. BM cross checked the transcripts. Initial coding was done by ZB and discussed between the research team members(BM,WVD,AB). ZB edited the final draft. All authors read and approved the final manuscript..

Aknowledgement

We would like to thank NHMH, EJMH, RKMH and SMBA hospital directors, provincial health offcers, and staff who participated willingly to the study.

References :

1. George A, Scott K, Govender V. A Health Policy and Systems Research Reader on Human Resources for Health. Geneva: World Health Organisation 2017 15 November 2017.
2. Dieleman M, Gerretsen B, van der Wilt GJ. Human resource management interventions to improve health workers' performance in low and middle income countries: a realist review. Health Research Policy and Systems. 2009;7(1):7.
3. WHO. The world health report 2006: working together for health. Geneva: World Health Organization; 2006.
4. WHO. Health workforce requirements for universal health coverage and the Sustainable Development Goals.(Human Resources for Health Observer, 17). Geneva: World Health Organization; 2016. Report No.: 9241511400.
5. Rowe AK, de Savigny D, Lanata CF, Victora CG. How can we achieve and maintain high-quality performance of health workers in low-resource settings? The Lancet. 2005;366(9490):1026-35.
6. Haines A, Kuruvilla S, Borchert M. Bridging the implementation gap between knowledge and action for health. Bulletin of the World Health Organization. 2004;82:724-31.

7. Topp SM. Health worker performance, practice and improvement In: WHO, AHPSR, editors. A Health Policy and Systems Research Reader on Human Resources for Health. Geneva: World Health Organisation 2017. p. 73.
8. Chopra M, Munro S, Lavis JN, Vist G, Bennett S. Effects of policy options for human resources for health: an analysis of systematic reviews. The Lancet. 2008;371(9613):668-74.
9. Siddiqi K, Newell J, Robinson M. Getting evidence into practice: what works in developing countries? International Journal for Quality in Health Care. 2005;17(5):447-54.
10. WHO. The world health report 2000: health systems: improving performance: World Health Organization; 2000.
11. Fitzgerald L, Ferlie E, McGivern G, Buchanan D. Distributed leadership patterns and service improvement: Evidence and argument from English healthcare. The Leadership Quarterly. 2013;24(1):227-39.
12. Uhl-Bien M, Marion R, McKelvey B. Complexity Leadership Theory: Shifting leadership from the industrial age to the knowledge era. The Leadership Quarterly. 2007;18(4):298-318.
13. Baker GR, Denis J-L. Medical leadership in health care systems: from professional authority to organizational leadership. Public Money & Management. 2011;31(5):355-62.
14. Denis JL, Lamothe L, Langley A. The Dynamics of Collective Leadership and Strategic Change in Pluralistic Organisations The Academy of Management Journal. 2001;44(4):809-37.
15. Hooijberg R, Choi J. The impact of organizational characteristics on leadership effectiveness models :An Examination of Leadership in a Private and a Public Sector Organization. Administration & Society 2001;33(4):403-31.
16. Franco LM, Bennett S, Kanfer R. Health sector reform and public sector health worker motivation: a conceptual framework. Social Science & Medicine. 2002;54(8):1255-66.
17. Ofori-Adjei D, Arhinful DK. Effect of training on the clinical management of malaria by medical assistants in Ghana. Social science & medicine. 1996;42(8):1169-76.
18. Ross-Degnan D, Laing R, Santoso B, Ofori-Adjei D, Lamoureux C, Hogerzeil H, editors. Improving pharmaceutical use in primary care in developing countries: a critical review of experience and lack of experience. International Conference on Improving Use of Medicines, Chiang Mai, Thailand; 1997.
19. Paredes P, De La Peña M, Flores-Guerra E, Diaz J, Trostle J. Factors influencing physicians' prescribing behaviour in the treatment of childhood diarrhoea: knowledge may not be the clue. Social science & medicine. 1996;42(8):1141-53.
20. Brewer GA, Selden SC. Why elephants gallop: Assessing and predicting organizational performance in federal agencies. Journal of public administration research and theory. 2000;10(4):685-712.
21. Rainey HG, Steinbauer P. Galloping elephants: Developing elements of a theory of effective government organizations. Journal of public administration research and theory. 1999;9(1):1-32.
22. Belrhiti Z, Damme WV, Belalia A, Marchal B. Does public service motivation matter in Moroccan public hospitals?
A multiple embedded case study submitted at the international journal of equity in health (article in press) International Journal of Equity in Health 2019.
23. van Loon NM, Vandenabeele W, Leisink P. Clarifying the Relationship Between Public Service Motivation and In-Role and Extra-Role Behaviors: The Relative Contributions of Person-Job and Person-Organization Fit. The American Review of Public Administration. 2015.
24. Perry JL, Wise LR. The motivational bases of public service. Public administration review. 1990:367-73.
25. Vandenabeele W. Toward a public administration theory of public service motivation. Public Management Review. 2007;9(4):545-56.
26. Andersen LB. What determines the behaviour and performance of health professionals? Public service motivation, professional norms and/or economic incentives. International Review of Administrative Sciences. 2009;75(1):79-97.

27. van Loon NM, Leisink P, Vandenabeele W. Talking the talk of public service motivation: How public organization logics matter for employees' expressions of PSM. International Journal of Public Administration. 2013;36(14):1007-19.
28. Bellé N. Leading to Make a Difference: A Field Experiment on the Performance Effects of Transformational Leadership, Perceived Social Impact, and Public Service Motivation. Journal of Public Administration Research and Theory. 2014;24(1):109-36.
29. Bellé N. Experimental evidence on the relationship between public service motivation and job performance. Public Administration Review. 2013;73(1):143-53.
30. Bellé N, Cantarelli P. Monetary Incentives, Motivation, and Job Effort in the Public Sector. Review of Public Personnel Administration. 2015;35(2):99-123.
31. Ritz A, Brewer GA, Neumann O. Public Service Motivation: A Systematic Literature Review and Outlook. Public Administration Review. 2016;76(3):414-26.
32. Homberg F, McCarthy D, Tabvuma V. A Meta-Analysis of the Relationship between Public Service Motivation and Job Satisfaction. Public Administration Review. 2015;75(5):711-22.
33. Petrovsky N, Fabian Homberg DVTaD, Ritz A. Public service motivation and performance: a critical perspective. Evidence-based HRM: a Global Forum for Empirical Scholarship. 2014;2(1):57-79.
34. Warren DC, Chen L-t. The relationship between Public Service Motivation and Performance. In: J.Rincquist E, editor. Meta-Analysis for Public Management and Policy San Francisco, USA: John Wiley & Sons; 2013.
35. Park SM, Rainey HG. Leadership and Public Service Motivation in U.S. Federal Agencies. International Public Management Journal. 2008;11(1):109-42.
36. Paarlberg LE, Lavigna B. Transformational leadership and public service motivation: Driving individual and organizational performance. Public Administration Review. 2010;70(5):710-8.
37. Wright BE, Moynihan DP, Pandey SK. Pulling the Levers: Transformational Leadership, Public Service Motivation, and Mission Valence. Public Administration Review. 2011;72(2):206-15.
38. Vandenabeele W. Explaining Public Service Motivation: The Role of Leadership and Basic Needs Satisfaction. Review of Public Personnel Administration. 2014;34(2):153-73.
39. Anderson LB, Bjornholt B, Bro LL, Holm-Pertersen C. Leadership and motivation:a qualitative study of transformational leadership and public service motivation. International review of Administrative Sciences. 2016;0(0):1-17.
40. Mathauer I, Imhoff I. Health worker motivation in Africa: the role of non-financial incentives and human resource management tools. Human Resources for Health. 2006;4(1):24.
41. Willis-Shattuck M, Bidwell P, Thomas S, Wyness L, Blaauw D, Ditlopo P. Motivation and retention of health workers in developing countries: a systematic review. BMC Health Services Research. 2008;8(1):247.
42. Deci EL, Koestner R, Ryan RMJPb. A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. 1999;125(6):627.
43. Deci EL, Betley G, Kahle J, Abrams L, Porac JJP, bulletin sp. When trying to win: Competition and intrinsic motivation. 1981;7(1):79-83.
44. Frey BS, Jegen RJJoes. Motivation crowding theory. 2001;15(5):589-611.
45. Frey BS, Homberg F, Osterloh M. Organizational Control Systems and Pay-for-Performance in the Public Service. Organization Studies. 2013;34(7):949-72.
46. Ministère de la Santé. Evaluation de l'impact de la politique de gratuité de l'accouchement et de la césarienne au niveau de six provinces au Maroc. Rabat: Ecole Nationale de Santé Publique, Rabat
FemHealth
Seventh Framework Programm; 2014.
47. Gruenais ME. une approche qualitative de la question de la motivation des personnels de santé. Le point de vue des acteurs de la région sanitaire du grand Casablanca. Rabat, Maroc: Institut National d'Administration Sanitaire Observatoire régional de la Santé, Institut de Recherche Developpement; 2008.

48. Boffin N, De Brouwere V. Expériences de renforcement des capacités de pilotage du système de santé; étude comparative des résultats des études dans six pays. 2003.
49. Bossert TJ, Beauvais JC. Decentralization of health systems in Ghana, Zambia, Uganda and the Philipines : a comparative analysis of decision space Health Policy and Planning. 2002;17 (1):14-31.
50. Akhnif E, Macq J, Meessen B. The place of learning in a universal health coverage health policy process: the case of the RAMED policy in Morocco. Health Research Policy Systems. 2019;17(1):21.
51. Blaise P, Sahel A, Afilal R, Wahid A, Boffin N, Kegels G, editors. Ten years of quality projects and their effect on the organisational culture of the Morrocan health care system. Quality in services: higher education, health care, local government; 7th" Toulon-Verona" Conference, Toulon, France, 2-3 September 2004; 2004: [sn].
52. Blaise PJ, Dujardin B, Kegels G. Culture qualité et organisation bureaucratique, le défi du changement dans les systèmes publics de santé: une évaluation réaliste de projets de qualité en Afrique. 2004.
53. Blaise P, Kegels G. A realistic approach to the evaluation of the quality management movement in health care systems: a comparison between European and African contexts based on Mintzberg's organizational models. The International journal of health planning and management. 2004;19(4):337-64.
54. Sahel A, Alaoui Belghiti A, DeBrouwere V, Valente Soares F, Kegels G, Belkaab N, et al. A systemic approach to quality improvement in public health services : The Moroccan “quality contest”. Leadersh Health Serv (Bradf Engl). 2015;28(1):8-23.
55. Sahel A, DeBrouwere V, Dujardin B, Kegels G, Belkaab N, Alaoui Belghiti A. Implementing a nationwide quality improvement approach in health services. Leadersh Health Serv (Bradf Engl). 2015;28(1):24-34.
56. Gilson L. Everyday politics and the leadership of health policy implementation. Health Systems & Reform. 2016;2(3):187-93.
57. Okello DR, Gilson L. Exploring the influence of trust relationships on motivation in the health sector: a systematic review. Hum Resour Health. 2015;13:16.
58. Kwamie A, van Dijk H, Agyepong IA. Advancing the application of systems thinking in health: realist evaluation of the Leadership Development Programme for district manager decision-making in Ghana. Health Res Policy Syst. 2014;12:29.
59. Kwamie A. Balancing Management and Leadership in Complex Health Systems Comment on "Management Matters: A Leverage Point for Health Systems Strengthening in Global Health". Int J Health Policy Manag. 2015;4(12):849-51.
60. Kwamie A BA, Lehmann U. Leadership, management and organizational cultures. In: A G, K S, V G, editors. Health Policy and Systems Research Reader on Human Resources for Health. Geneva: WHO 2017.
61. Bass BM, Riggio RE. Transformational Leadership, . Second Edition ed2006.
62. Ford R. Complex leadership competency in health care: towards framing a theory of practice. Health Services Management Research. 2009.
63. Belrhiti Z, Nebot Geralt A, Marchal B. Complex Leadership in Healthcare: A Scoping Review. International Journal of Health Policy and Management. 2018;7(12):1073-84.
64. Plsek PE, Wilson T. Complexity, leadership, and management in healthcare organisations. British medical journal. 2001.
65. Uhl-Bien M, Marion R. Complexity leadership in bureaucratic forms of organizing: A meso model. The Leadership Quarterly. 2009.
66. Weberg D. Complexity leadership: A healthcare imperative. Nursing forum. 2012.
67. Zimmerman B, Lindberg C, Plsek P. Edgeware: Lessons from Complexity Science for Health Care Leaders 2nd ed. Edition. USA: Irving, Tex: VHA, ; 1998.

68. Ritz A, Brewer GA. Does Societal Culture Affect Public Service Motivation? Evidence of Sub-national Differences in Switzerland. International Public Management Journal. 2013;16(2):224-51.
69. Rockstuhl T, Dulebohn JH, Ang S, Shore LM. Leader-member exchange (LMX) and culture: a meta-analysis of correlates of LMX across 23 countries. J Appl Psychol. 2012;97(6):1097-130.
70. Perry J. Antecedents of public service motivation. Journal of public administration research theory. 1997;7(2):181-97.
71. Pandey SK, Stazyk ECJ. Antecedents and Correlates of Public Service Motivation. Motivation in Public Management: The Call of Public Service. Oxford: Oxford University Press; 2008. p. 101.
72. Bøgh Andersen L, Holm Pedersen L. Public Service Motivation and Professionalism. International Journal of Public Administration. 2012;35(1):46-57.
73. Vandenabeele W. Who Wants to Deliver Public Service? Do Institutional Antecedents of Public Service Motivation Provide an Answer? Review of Public Personnel Administration. 2010;31(1):87-107.
74. Camilleri E. Antecedents affecting public service motivation. Personnel Review. 2007;36(3):356-77.
75. Wise LR. Bureaucratic posture: On the need for a composite theory of bureaucratic behavior. J Public Administration Review. 2004;64(6):669-80.
76. Moynihan Dp, K.Pandey S. The role of organizations in fostering public service motivation Public Administrative review. 2007 67(1):40-53.
77. Chapman C, Getha-Taylor H, Holmes MH, Jacobson WS, Morse RS, Sowa JE. How Public Service Leadership Is Studied: An Examination of a Quarter Century of Scholarship. Public Administration. 2016;94(1):111-28.
78. Perry JL, Hondeghem A. Motivation in Public Management : The Call of Public Service. New York: Oxford University Press; 2008.
79. Moynihan DP, Pandey SK, Wright BE. Transformational Leadership in the Public Sector : Empricial Evidence of Its effects" In: Dwivedi YK, Shareef MA, Pandey SK, Kumar V, editors. Public Administration Reformation : Market Demand from Public Organizations Routeledge/ Taylor and Francis; 2014. p. 87-104.
80. McVeigh J, MacLachlan M, Gilmore B, McClean C, Eide AH, Mannan H, et al. Promoting good policy for leadership and governance of health related rehabilitation: a realist synthesis. Globalization and Health. 2016;12(1):49.
81. Brand SL, Thompson Coon J, Fleming LE, Carroll L, Bethel A, Wyatt K. Whole-system approaches to improving the health and wellbeing of healthcare workers: A systematic review. PLoS One. 2017;12(12):e0188418.
82. Paarlberg LE, Perry JL. Values management: Aligning employee values and organization goals. The American Review of Public Administration. 2007;37(4):387-408.
83. Paarlberg LE, Perry JL, Hondeghem A. From theory to practice: Strategies for applying public service motivation. Motivation in public management: The call of public service. 2008:268-93.
84. Perry JL, Hondeghem A. Directions for future theory and research. In: Press OU, editor. Motivation in public management: The call of public service. Oxford2008. p. 294-313.
85. Pawson R, Tilley N, Tilley N. Realistic evaluation: Sage; 1997.
86. Marchal B, Van Belle S, Van Olmen J, Hoerée T, Kegels G. Is realist evaluation keeping its promise? A review of published empirical studies in the field of health systems research. Evaluation. 2012;18(2):192-212.
87. Astbury B, Leeuw FL. Unpacking Black Boxes : Mechanisms and Theory Building in Evaluation. American Journal of Evaluation 2010;31(3):363-81.
88. Wong G, Westhorp G, Manzano A, Greenhalgh J, Jagosh J, Greenhalgh T. RAMESES II reporting standards for realist evaluations. BMC medicine. 2016;14(1):96.
89. Belrhiti Z, Van Damme W, Belalia A, Marchal B. Unravelling the role of leadership in motivation and performance of health workers in a Moroccan public hospital: a realist evaluation (In press). BMJ Open. 2019.

90. Belrhiti Z, Nebot Geralt A, Marchal B. Complex Leadership in Healthcare: A Scoping Review. International Journal of Health Policy and Management. 2018:-.
91. Eisenberger R, Stinglhamber F, Vandenberghe C, Sucharski IL, Rhoades L. Perceived supervisor support: Contributions to perceived organizational support and employee retention. Journal of applied psychology. 2002;87(3):565.
92. Eisenberger R, Fasolo P, Davis-LaMastro V. Perceived organizational support and employee diligence, commitment, and innovation. Journal of applied psychology. 1990;75(1):51.
93. Rhoades L, Eisenberger R, Armeli S. Affective commitment to the organization: The contribution of perceived organizational support. Journal of applied psychology. 2001;86(5):825.
94. Ryan R, Deci E. Psychological Needs. Varied Concepts and a Preliminary Description of SDT's Approach. In: Press TG, editor. Self-determination theory: basic psychological needs in motivation, development, and wellness. New York London 2017. p. 80-101.
95. Kottke JL, Sharafinski CE. Measuring perceived supervisory and organizational support. Educational
psychological Measurement. 1988;48(4):1075-9.
96. Dinh JE, Lord RG, Gardner WL, Meuser JD, Liden RC, Hu J. Leadership theory and research in the new millennium: Current theoretical trends and changing perspectives. The Leadership Quarterly. 2014;25(1):36-62.
97. Marion R, Rumsey MG. Organizational leadership and complexity mechanisms. Oxford Handbook of Leadership2012.
98. Uhl-Bien M, Marion R, McKelvey B. Complexity leadership theory: shifting leadership from the industrial age to the knowledge era (Ch 8). Leadership, Gender, and2011.
99. Uhl-Bien M. Complexity leadership :part 1. Unites States of America: Information aged publishing 2008.
100. Viitala R. Leadership in transformation: a longitudinal study in a nursing organization. J Health Organ Manag. 2014;28(5):602-18.
101. Schein EH. Organizational culture and leadership: John Wiley & Sons; 2004.
102. Casida JJ, Pinto-Zipp G. Leadership-organizational culture relationship in nursing units of acute care hospitals. Nursing Economics. 2008;26(1):7.
103. Tsai Y. Relationship between Organizational Culture, Leadership Behavior and Job Satisfaction. BMC Health Services Research. 2011;11(1):98.
104. Cameron KS, Quinn RE. Diagnosing and changing organizational culture: Based on the competing values framework: John Wiley & Sons; 2011.
105. Cameron KS, Quinn RE. Diagnosing and changing organizational culture: Based on the competing values framework: John Wiley & Sons; 2005.
106. Bock G-W, Zmud RW, Kim Y-G, Lee J-NJMq. Behavioral intention formation in knowledge sharing: Examining the roles of extrinsic motivators, social-psychological forces, and organizational climate. MIS quarterly. 2005;29(1):87-111.
107. Jones AP, James LR. Psychological climate: Dimensions and relationships of individual and aggregated work environment perceptions. J Organizational behavior
. 1979;23(2):201-50.
108. Deci EL, Ryan RM. Self-determination theory: A macrotheory of human motivation, development, and health. Canadian Psychology/Psychologie canadienne. 2008;49(3):182-5.
109. Yin RK. Case study research: design and methods, Applied social research methods series. Thousand Oaks, CA: Sage Publications, Inc Afacan, Y, & Erbug, C(2009) An interdisciplinary heuristic evaluation method for universal building design Journal of Applied Ergonomics. 2003;40:731-44.
110. Patton MQ. Qualitative Research & Evaluation Methods Thousand Oaks, London, New Delhi: Sage Publications; 2001.
111. Yin RK. Qualitative Research from Start to Finish. New York, London: The Guilford Press; 2016.

112. Ministère de la Santé du Maroc. Concours Qualité Fourth Edition 2011. Rabat: Direction des Hopitaux et Soins Ambulatoires 2011.
113. Ministère de la Santé du Maroc. Concours Qualité Sixth Edition 2016. Rabat: Direction des Hopitaux et Soins Ambulatoires 2016.
114. Krueger RA, Casey MA. Focus groups: A practical guide for applied research. Los Angeles, London, New Delhi, Singapore, Washington DC: Sage publications; 2014.
115. Morgan DL, Krueger RA. Analyzing and reporting focus group results: Sage; 1998.
116. Rubin HJ, Rubin IS. Qualitative interviewing: The art of hearing data: Sage; 2011.
117. Miles MB, Huberman AM, Saldana J. Qualitative data analysis. 3 ed. Los Angeles, London, New Delhi, Singapore, Washington DC: Sage 2016.
118. Spradley JP. Participant observation: Waveland Press; 2016.
119. Saldaña J. The coding manual for qualitative researchers. Los Angeles, London, New Delhi, Singapore, Washington DC: Sage; 2015.
120. Marchal B, Kegels G, Belle SV. Theory and realist methods In: Emmel N, Greenhalgh J, Manzano A, Monaghan M, Dalkin S, editors. Doing Realist Research. Los Angeles, London, New Delhi: SAGE; 2018.
121. Bhaskar R. A realist theory of science. London and New York Routledge; 2013.
122. QSR International Pty Ltd. NVivo qualitative data analysis Software. 11.4 ed2014.
123. Hinkin TR, Schriesheim CA. An examination of" nonleadership": From laissez-faire leadership to leader reward omission and punishment omission. Journal of Applied Psychology. 2008;93(6):1234.
124. Judge TA, Piccolo RF. Transformational and transactional leadership: a meta-analytic test of their relative validity. Journal of applied psychology. 2004;89(5):755.
125. Lee RT, Ashforth BE. A meta-analytic examination of the correlates of the three dimensions of job burnout. Journal of applied Psychology. 1996;81(2):123.
126. Moyle P. Longitudinal influences of managerial support on employee well-being. Work & Stress. 1998;12(1):29-49.
127. Van Dierendonck D, Haynes C, Borrill C, Stride C. Leadership behavior and subordinate well-being. Journal of occupational health psychology. 2004;9(2):165.
128. Rooney JA, Gottlieb BH. Development and initial validation of a measure of supportive and unsupportive managerial behaviors. Journal of Vocational Behavior. 2007;71(2):186-203.
129. Fritzen SA. Strategic management of the health workforce in developing countries: what have we learned? Human Resources for Health. 2007;5(1):4.
130. Musinguzi C, Namale L, Rutebemberwa E, Dahal A, Nahirya-Ntege P, Kekitiinwa A. The relationship between leadership style and health worker motivation, job satisfaction and teamwork in Uganda. J Healthc Leadersh. 2018;10:21-32.
131. Zakumumpa H, Taiwo MO, Muganzi A, Ssengooba F. Human resources for health strategies adopted by providers in resource-limited settings to sustain long-term delivery of ART: a mixed-methods study from Uganda. Hum Resour Health. 2016;14(1):63.
132. Wright BE, P.Moynihan D, Pandey SK. Pulling the Levers: Transformational Leadership, Public Service Motivation, and Mission Valence. Public Administration Review. 2012;72(2):206-15.
133. Caillier JG. Toward a Better Understanding of the Relationship Between Transformational Leadership, Public Service Motivation, Mission Valence, and Employee Performance. Public Personnel Management. 2014;43(2):218-39.
134. Caillier JG. Transformational Leadership and Whistle-Blowing Attitudes: Is This Relationship Mediated by Organizational Commitment and Public Service Motivation? The American Review of Public Administration. 2013;45(4):458-75.
135. Caillier JG. Toward a Better Understanding of the Relationship Between Transformational Leadership, Public Service Motivation, Mission Valence, and Employee Performance: A Preliminary Study. Public Personnel Management. 2014;43(2):218-39.

136. Gould-Williams J. The importance of HR practices and workplace trust in achieving superior performance: A study of public-sector organizations. The International Journal of Human Resource Management. 2003;14(1):28-54.
137. Alimo-Metcalfe B, Alban-Metcalfe J. Engaging leadership: creating organisations that maximise the potential of their people: CIPD; 2008.
138. Baumeister RF, Leary MR. The need to belong: desire for interpersonal attachments as a fundamental human motivation. Psychological bulletin. 1995;117(3):497.
139. Quinn RE. Beyond rational management: Mastering the paradoxes and competing demands of high performance. San Francisco, CA, US: Jossey-Bass; 1988. xxii, 199-xxii, p.
140. P.Moynihan D, K.Pandey S. The Role of Organizations in Fostering Public Service Motivation. Public Administration Review. 2007:40-53.
141. Krogsgaard JA, Thomsen P, Andersen LB. Only If We Agree? How Value Conflicts Moderate the Relationship Between Transformational Leadership and Public Service Motivation. International Journal of Public Administration. 2014;37(12):895-907.
142. McKee MC, Driscoll C, Kelloway EK, Kelley E. Exploring linkages among transformational leadership, workplace spirituality and well-being in health care workers. Journal of Management, Spirituality & Religion. 2011;8(3):233-55.
143. Ford R. Complex leadership competency in health care: towards framing a theory of practice. Health Serv Manage Res. 2009;22(3):101-14.
144. Plsek PE, Greenhalgh T. the challenge of complexity in health care BMJ. 2001;323:625-8.
145. Hazy J. Measuring leadership effectiveness in complex socio-technical systems. E:CO. 2006;8(3):58-77.
146. Uhl-Bien M, Marion R. Complexity leadership in bureaucratic forms of organizing: A meso model. The Leadership Quarterly. 2009;20(4):631-50.
147. Kark R, Dijk DV. Motivation to Lead, Motivation to Follow: The Role of the Self-Regulatory Focus in Leadership Processes. Academy of Management 2007;32(2):500-28.
148. Avolio BJ, Walumbwa FO, Weber TJ. Leadership: Current Theories, Research, and Future Directions. Annual Review of Psychology. 2009;60(1):421-49.
149. Brady Germain P, Cummings GG. The influence of nursing leadership on nurse performance: a systematic literature review. Journal of nursing management. 2010;18(4):425-39.
150. Avolio BJ, Reichard RJ, Hannah ST, Walumbwa FO, Chan A. A meta-analytic review of leadership impact research: Experimental and quasi-experimental studies. The Leadership Quarterly. 2009;20(5):764-84.
151. Marchal B, Kegels G, Belle SV. Theory and realist methods In: Emmel N, Greenhalgh J, Manzano A, Monaghan M, Dalkin S, editors. Doing Realist Research. Los Angeles, London, New Delhi: SAGE; 2018. p. 79-90.
152. Greenhalgh T, Humphrey C, Hughes J, Macfarlane F, Butler C, Pawson R. How do you modernize a health service? A realist evaluation of whole-scale transformation in London. The Milbank Quarterly. 2009;87(2):391-416.
153. Anderson RA, Crabtree BF, Steele DJ, McDaniel RR, Jr. Case study research: the view from complexity science. Qual Health Res. 2005;15(5):669-85.
154. Marion R. Complexity theory for organizations and organizational leadership. In: Bien MU, Marion R, editors. Complexity leadership, part 1. Charlotte North Carolina: Information Age Publishing; 2008.
155. Yukl G. Contingency theories of effective leadership. In: Bryman A, Collinson D, Grint K, Jackson B, Bien. MU, editors. The SAGE handbook of leadership. 24. USA: Sage Publications; 2011. p. 286-98.
156. Yin RK. Case study research and applications: Design and methods. Thousand Oaks, California, USA: Sage publications; 2018.
157. Weberg DR. Complexity leadership theory and innovation: A new framework for innovation leadership. 2013.

158. Forbes-Thompson S, Leiker T, Bleich MR. High-performing and low-performing nursing homes: a view from complexity science. Health Care Manage Rev. 2007;32(4):341-51.
159. Corazzini KN, Anderson RA, Day L, McConnell ES, Mueller C, McKinney SH. When a situation is "not black or white": Using adaptive leadership to address complex challenges in nursing home care. Director (Cincinnati, Ohio). 2013;21(4):34-7.
160. Gilson L, Elloker S, Olckers P, Lehmann U. Advancing the application of systems thinking in health: South African examples of a leadership of sensemaking for primary health care. Health Res Policy Syst. 2014;12:30.
161. Prashanth NS, Marchal B, Devadasan N, Kegels G, Criel B. Advancing the application of systems thinking in health: a realist evaluation of a capacity building programme for district managers in Tumkur, India. Health Res Policy Syst. 2014;12:42.
162. Grady CM. Exploring Physician Leadership Development in Health-Care Organizations Through the Lens of Complexity Science 2015.
163. Kwamie A, Agyepong IA, van Dijk H. What Governs District Manager Decision Making? A Case Study of Complex Leadership in Dangme West District, Ghana. Health Systems \& Reform. 2015.
164. Plowman DA, Baker LT, Beck TE, Kulkarni M, Solansky ST, Travis DV. Radical change accidentally: The emergence and amplification of small change. Academy of Management Journal. 2007;50(3):515-43.
165. Plowman DA, Solansky S, Beck TE, Baker L, Kulkarni M, Travis DV. The role of leadership in emergent, self-organization. The leadership quarterly. 2007;18(4):341-56.
166. Cassell C, Symon G. Essential guide to qualitative methods in organizational research: Sage; 2004.
167. Ferlie E. Organisational studies. Studying the organisation and delivery of health services: Routledge; 2004. p. 36-51.
168. Murphy E. Micro-level qualitative research. Studying the organisation and delivery of health services: Routledge; 2004. p. 52-67.
169. Belghiti AA, Boffin N, De Brouwere V. L'espace de décision de la gestion des ressources humaines sanitaires au Maroc. Rabat: Royaume du Maroc, Ministère de la santé 2004.
170. Cox JB, Estrada SD, Lynham SA, Motii N. Defining human resource development in Morocco: An exploratory inquiry. Human Resource Development International. 2005;8(4):435-47.
171. Benson PG, Al Arkoubi K. Human resource management in Morocco. Managing human resources in the Middle East. 2006;29:273-90.
172. Al-Arkoubi K, McCourt W. The politics of HRM: waiting for Godot in the Moroccan civil service. The International Journal of Human Resource Management. 2004;15(6):978-95.

Leadership practices

Laisser -faire Leadership

Transactional Leadership

Transformational

Distributed

-

-

Autonomy Support

+

+

+

Perceived Supervisor Support

+

Individual level

Extrinsic Motivation

+

Autonomous Motivation (Intrinsic and PSM)

Degree of Perceived Organisational Support

+

Degree of congruence Organisational & Individual motives

Organisational level

Degree of responsiveness to Basic Psychological Needs

Organisational culture and climate

Clarity of goals & Mission valence

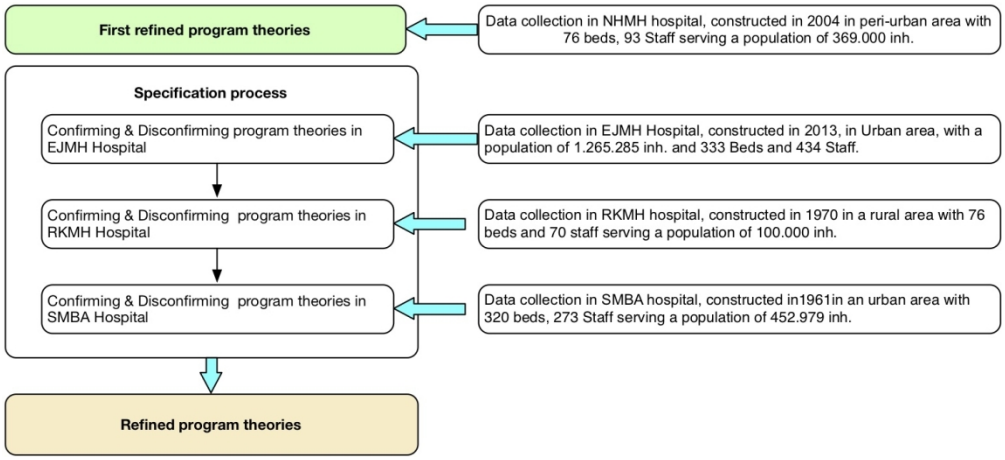


Figure 2 - Cases studies and data collection, Morocco, January-June 2018

261x118mm (150 x 150 DPI)

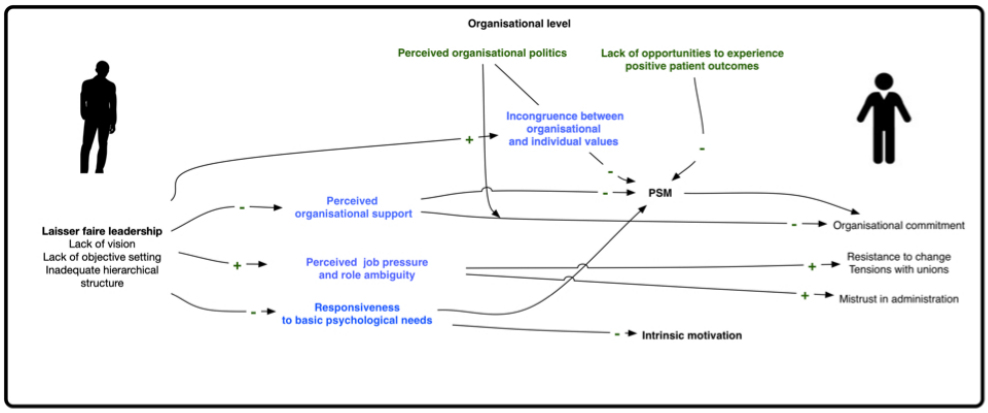


Figure 3 - Laisser-faire leadership and PSM (ICAMO 1)

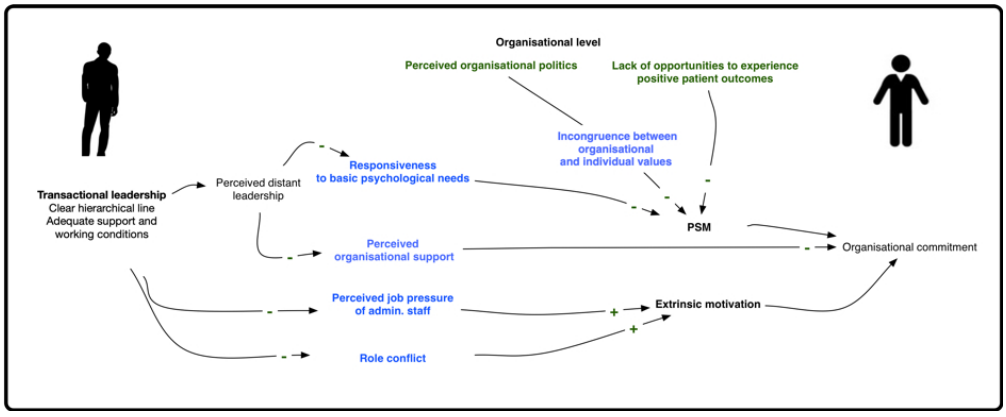


Figure 4 - Transactional leadership-PSM (ICAMO 2)

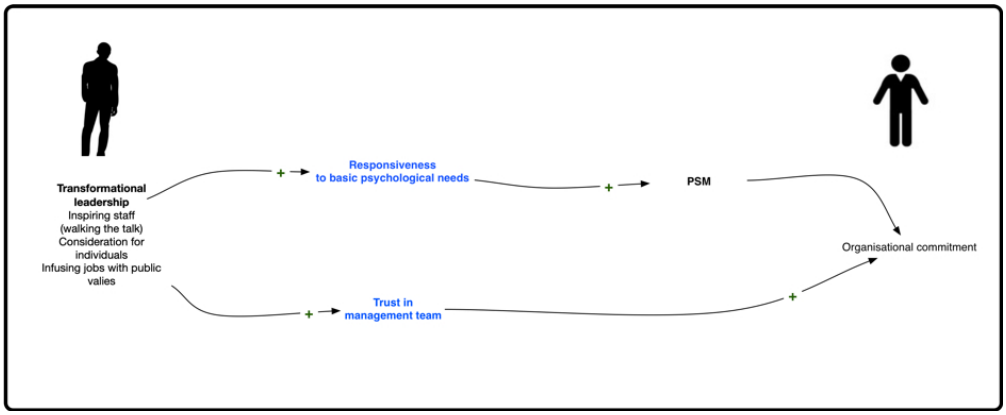


Figure 5 - Transformational leadership and PSM (ICAMO 3)

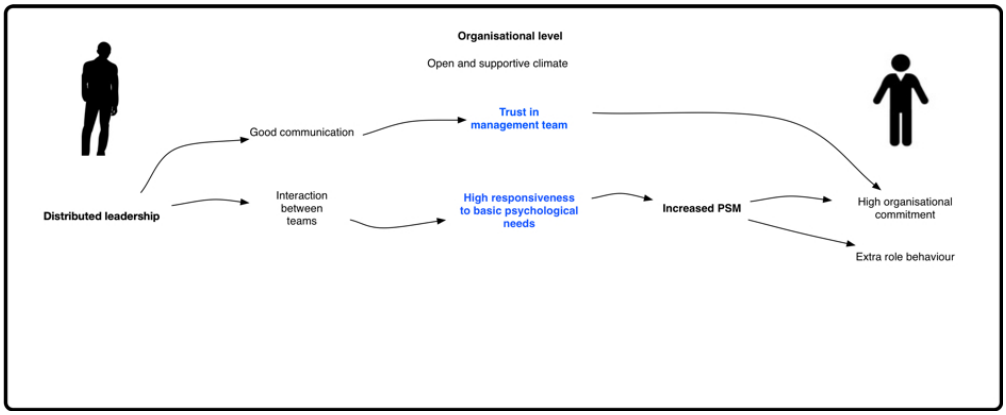


Figure 6 Distributed leadership and PSM (ICAMO4)

Supplementary file 1 Open ended interview

This interview topic guide gives an indication of the main questions that will be asked in the interviews of health service managers and providers. Core questions were adapted to meet the specificity of each category (senior managers (Questions 1 to 4), intermediate managers (Questions 1 to 5); health professional (Questions 2 to 5).

Components	Objectives/Remarks / Questions
Introduction	Researcher presentation (Name, qualification, institution)
	Interview objectives
	Explain the procedure (Time, Clarification questions, information about voluntary participation and the autonomy to respond or not to sensitive question and information about consent forms)
	Explain confidentiality and data anonymisation procedures
	Ask permission to record the interview (Audio record and notes)
	Obtain informed consent
Adjust the recording device	Make sure that equipment is functioning and the room is not noisy
General part	To get overall idea about the interviewee and make him/ her comfortable
	Q : How old are you ?
	Q : Could you describe your actual job position? Your tasks?
	Q : How long have you been working in your actual position?
	Q : How long have you been working in this hospital?
	Q : Where have you worked before? In which function?
Introduction to specific questions	Transition to core questions
1) Leadership Practices	Q : Could you describe you task?
	Q : Could you describe your role as a manager? P
	Q : What is your vision about leadership? What do a good leader means to you?
	Q : Would you give me some examples of your practice of leadership?
	Q : What challenges are you confronted with in you leadership practice ?
	Q : In your opinion, how could you describe your influence on staff behaviours ?
2)Hospital Performance	Q : In your opinion, what explain the good/bad performance of your hospital in "Concours Qualité" ?
	Q : Is it related to leadership? Does leadership matters?
3) Individual Performance	Q : In your opinion, what are the major reasons why a health professional is performant in health care provision?
	Q : According to you, what are he facilitators to individual performance?

	Q : In your opinion, what are the barriers to maintain a good individual performance for health professionals ?.
	Q : Is there a difference in the motivation between different cadres of health professionals or not?
	Q : How could you play a role in the motivation of your staff/ colleagues?
4) Public Service Motivation	**Q : Could you explain what motivates you to work in this hospital ? (Motivation intrinsic/extrinsic)**
	Q : how do you feel working in this hospital?
	Q : What attaches you to this hospitals, if any? Q: how do you describe this attachment?
	Q : serving citizens, what does it means for you?
	Q : Did you think about quitting the public service? If yes, why? If no, why?
	Q : Do you feel that you are doing tasks that go beyond your responsibilities, or not?
	Q : how could you describe you engagement about the organisational mission and vision?
	Q : Do you feel that you have the necessary information, tools and support to carry on your task, or not?
	Q : Do you engage in supplementary efforts without contingent financial rewards ? Could you give me some examples?
5) Leadership in your organisation	**Q : Could you describe leadership practices in your organisations?**
	Q : Do you feel that you are supported by your superior ? By management teams?
	Q : Could you provide some examples of leadership practices of your superior?
	Q : how could you describe relation between your interaction with your leader and your motivation?
Summary and debriefing	**During this interview you gave me useful informations that are relevant to this study.**
	Q : Is there something that you see as important regarding our topic we did not mention? If Yes we could discuss it. We do have time.
	Q: Do you have questions for me?

Supplementary file 2 Focus Group Discussion Guide (senior managers)

themes	Questions	Prompts, clarifications, vignettes
Motivation	**Q 1 : What motivates at work at this hospital?** Q 2 : How do you feel at work at the hospital?	
Public service motivation	**Q2 : Why did you choose to the work at the public sector?** You told me about your (de) motivation in the public sector? Could you explain your (de) motivation?	
	Q3 : Serving citizen, what does it mean to you ? **Give me examples from your professional experience?**	
	Q 4 : Did you think about quitting the public service? If Yes why? If no why not?	***Vignette 1*** *Mr or Dr Rachid work in this hospital for 10 years, he did not leave the public hospital to work in the private sector because he feel satisfied with the help he is providing to the local underprivileged population What do you think about Dr /Mr Rachid perspective?*
	Q 5 : Do that you are well paid according to your contribution to this hospital? If Yes why? If no why ?	***Vignette 2*** *: Dr/Mr Rachid a has accompanied many patients in medical transfers although he is not well remunerated. he continues to do it when asked. What do you think about his attiude ?*
Leadership	Q6 **: in your opinion, what does it mean a good leader?** Q 7 : How could you describe the leadership of your supervisors? Q 8 : Does managers' leadership matters for you to be performant at work?	**Vignette 3 :**A manager told me that leadership is important in the motivation of staff. Do you agree with that. ? Do you agree that leadership play a role in the staff performance?
Interaction Leadership-Motivation	Q 9 : How would you describe your the relationship between your interaction with the leader an your motivation ?	
Organisational performance	Q : According to you, what explains the good/ bad performance of your hospitals in "Concours Qualité"?	Who was involved? Who took leadership roles? Who was responsible for decision making?
	Q : What makes you perform well/bad under the leadership of Mr/Mme ?	

	Table 1 List of items	Content to be reported in realist evaluation (Wong, 2016)	Y/N/Unclear	Page(s) in document
1	Title	In the title, identify the document as a realist evaluation	Y	Page 1 L 1
2	Summary or Abstract	Journal articles will usually require an abstract, while reports and other forms of publication will usually benefit from a short summary. The abstract or summary should include brief details on: the policy, programme or initiative under evaluation; programme setting; purpose of the evaluation; evaluation question(s) and/or objective(s); evaluation strategy; data collection, documentation and analysis methods; key findings and conclusions Where journals require it and the nature of the study is appropriate, brief details of respondents to the evaluation and recruitment and sampling processes may also be included Sufficient detail should be provided to identify that a realist approach was used and that realist programme theory was developed and/or refined	Y Y Y	Page 2 L 1 -47
	INTRODUCTION			
3	Rationale for evaluation	Explain the purpose of the evaluation and the implications for its focus and design	Y	P 4 L 18 -29
4	Programme theory	Describe the initial programme theory (or theories) that underpin the programme, policy or initiative	Y	P 4 Line 42 to Page -7 line 20 and Figure 1
5	Evaluation questions, objectives and focus	State the evaluation question(s) and specify the objectives for the evaluation. Describe whether and how the programme theory was used to define the scope and focus of the evaluation	Y	P 4 L 24-29
6	Ethical approval	State whether the realist evaluation required and has gained ethical approval from the relevant authorities, providing details as appropriate. If ethical approval was deemed unnecessary, explain why	Y	P 10 L 14-22
	METHODS			
7	Rationale for using realist evaluation	Explain why a realist evaluation approach was chosen and (if relevant) adapted	Y	P 4 L 31-35
8	Environment surrounding the evaluation	Describe the environment in which the evaluation took place	Y	P 8 L 1 to 5 and Table 1/figure 2
9	Describe the programme policy, initiative or product evaluated	Provide relevant details on the programme, policy or initiative evaluated	Y	P 7 L 9-16, Figure 1 and Page 4 L 24-29
10	Describe and justify the evaluation design	A description and justification of the evaluation design (i.e. the account of what was planned, done and why) should be included, at least in summary form or as an appendix, in the document which presents the main findings. If this is not done, the omission should be justified and a reference or link to the evaluation design given. It may also be useful to publish or make freely available (e.g. online on a website) any original evaluation design document or protocol, where they exist	Y	P 4 L 31 36 and P 7 Line 21_37
11	Data collection methods	Describe and justify the data collection methods – which ones were used, why and how they fed into developing, supporting, refuting or refining programme theory Provide details of the steps taken to enhance the trustworthiness of data collection and documentation	Y	P 8 L 10-47 to P 9 L 1 TO 12 and table 2
12	Recruitment process and sampling strategy	Describe how respondents to the evaluation were recruited or engaged and how the sample contributed to the development, support, refutation or refinement of programme theory	Y	Table 2 P 9 and data collection and p 7 l 21 to 36 (see above)
13	Data analysis	Describe in detail how data were analysed. This section should include information on the constructs that were identified, the process of analysis, how the programme theory was further developed, supported, refuted and refined, and (where relevant) how analysis changed as the evaluation unfolded	Y	P 9 L 13-18 and P 10 L 1 to 8
	RESULTS			
14	Details of participants	Report (if applicable) who took part in the evaluation, the details of the data they provided and how the data was used to develop, support, refute or refine programme theory	Y	Table 2 P 9 and data collection see above
15	Main findings	Present the key findings, linking them to contexts, mechanisms and outcome configurations. Show how they were used to further develop, test or refine the programme theory	Y	Result Section P 10 and Table 3 and 4
	DISCUSSION			
16	Summary of findings	Summarise the main findings with attention to the evaluation questions, purpose of the evaluation, programme theory and intended audience	Y	P 24 L 7 to 29
17	Strengths, limitations and future directions	Discuss both the strengths of the evaluation and its limitations. These should include (but need not be limited to): (1) consideration of all the steps in the evaluation processes; and (2) comment on the adequacy, trustworthiness and value of the explanatory insights which emerged In many evaluations, there will be an expectation to provide guidance on future directions for the programme, policy or initiative, its implementation and/or design. The particular implications arising from the realist nature of the findings should be reflected in these discussions	Y	P 24 L 48
18	Comparison with existing literature	Where appropriate, compare and contrast the evaluation's findings with the existing literature on similar programmes, policies or initiatives	Y	P24 L 7 to 46
19	Conclusion and recommendations	List the main conclusions that are justified by the analyses of the data. If appropriate, offer recommendations consistent with a realist approach	Y	P 25 l 45 -51 and P 26 L1-15
20	Funding and conflict of interest	State the funding source (if any) for the evaluation, the role played by the funder (if any) and any conflicts of interests of the evaluators	Y	P 27 l 10 to 16

BMJ Open

The effect of leadership on public service motivation: A multiple embedded case study in Morocco

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2019-033010.R2
Article Type:	Original research
Date Submitted by the Author:	21-Nov-2019
Complete List of Authors:	Belrhiti, Zakaria; Ecole Nationale de Sante Publique, ; Institute of Tropical Medicine, Public Health Van Damme, Wim; Institute of Tropical Medicine, Public Health; Vrije Universiteit Brussel, Gerontology Belalia, Abdelmounim; Ecole Nationale de Santé Publique Marchal, Bruno; Institute of Tropical Medicine, Department of Public Health
Primary Subject Heading:	Health services research
Secondary Subject Heading:	Qualitative research, Research methods, Public health
Keywords:	Human resource management < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Leadership, Public Service Motivation, Complex leadership, Basic Psychological Needs, Health workers

The effect of leadership on public service motivation: A multiple embedded case study in Morocco

Zakaria Belrhiti [1,2,3], Wim Van Damme[2,3], Abdelmounim Belalia[1], Bruno Marchal[2]

Authors' information

1 National School of Public Health, Rabat, Morocco.

2 Department of Public Health, Institute of Tropical Medicine, Antwerpen, Belgium.

3 Vrije Universiteit Brussel, Brussels, Belgium.

Word count : 8807 word

Correspondance to : Dr Zakaria Belrhiti, Ecole Nationale de Santé Publique, Rabat, Morocco
drbelrhiti@gmail.com, (Phone number : 00212661631966)

Abstract

Objectives: We aimed at exploring the underlying mechanisms and contextual conditions by which leadership may influence "public service motivation" of health providers in Moroccan hospitals.

Design: We used the realist evaluation (RE) approach in the following steps : eliciting the initial programme theory, designing the study, carrying out the data collection, doing the data analysis and synthesis. In practice, we adopted a multiple embedded case study design.

Settings: We used purposive sampling to select hospitals representing extreme cases displaying contrasting leadership practices and organisational performance scores using data from the Ministry of Health quality assurance programs from 2011 to 2016.

Participants: We carried out on average 17 individual in-depth interviews in 4 hospitals as well as 7 focus group discussions and 8 group discussions with different cadres (administrators, nurses and doctors)**.** We collected relevant documents (e.g. performance audit, human resource availability, etc.) and carried out observations.

Results: Comparing the Intervention-Context-Actor-Mechanism-Outcome configurations across the hospitals allowed us to confirm and refine our following programme theory: "*Complex leaders, applying an appropriate mix of transactional, transformational and distributed leadership styles that fit organisational and individuals characteristics [I] can increase public service motivation, organisational commitment and extra role behaviours [O] by increasing perceived supervisor support and perceived organizational support and satisfying staff basic psychological needs [M], if the organisational culture is conducive and in the absence of perceived organisational politics [C]".*

Conclusions: In hospitals, the archetype of complex professional bureaucracies, leaders need to be able to balance between different leadership styles according to the staff's profile, the nature of tasks and the organisational culture if they want to enhance public service motivation, intrinsic motivation and organisational commitment.

Strengths and limitations of this study

Realist evaluation (RE) is useful in explaining how, why and under which conditions an intervention or a social phenomenon (leadership in our study) generates a particular outcome (*in casu* public service motivation).

Continous refinement of programme theories through RE cycles allows for a cumulative process of knowledge creation by constant shuttling across cases from theory to empirical data and back.

The time and resource constraints of the PhD research project, of which this study is a part, precludes testing and validating existing measurement scales of concepts such as PSM, perceived organisational support and organisational commitment.

Keywords : Leadership, Complex leadership, Public Service Motivation, Health workers,Basic Psychological Needs, Realist Evaluation, Morocco, Hospital, Human Resource Management

Introduction

Health workers' performance has received increased attention from policy makers, scholars and global health organisations (1-3) and is recognised as an essential driver for the achievement of the sustainable development goals (4), the implementation and the scale up of effective public health sectors reforms *(5-9).*

Motivation in the public sector

In low- and middle-income countries (LMIC), poor performance of health workers is a critical barrier to quality of care and to the implementation of health policies in general (5, 10). This often stems from a lack of motivation and to negative attitudes of health workers in the provision of care (11-15).

The motivation of health workers is recognised as a critical determinant of the performance of health workers in public performance (2, 5, 6, 16). While staff availability, knowledge and skills are essential in health service delivery, they are not sufficient to ensure good health worker performance. This critically depends on staff motivation, and in public services specifically on their willingness to pursue public service values and work in line with the best interest of patients (16-19). This notion is encompassed by the concept of Public Service Motivation (PSM), understood as the altruistic desire of health workers to serve the common interest and to help patients and their families regardless of financial or external rewards. PSM has been shown to be key to the performance of public servants in public administration (20, 21) and in the health sector (22, 23).

Since 1990, public management scholars have been developping the concept of "*public service motivation" (PSM),* defined as *"an individual's predisposition to respond to motives grounded primarily or uniquely in public institutions and organizations*." (24). PSM involves a set of "*beliefs, values and attitudes that go beyond self-interest and organizational interest, that concern the interest of a larger political entity, and that motivate individuals to act accordingly whenever appropriate*" (25). From this perspective, health workers can be driven by an altruistic desire to serve the public interest and the population (26-30). Research in public sector settings and in healthcare produced evidence on the positive effect of PSM on job satisfaction, reduced turn-over and individual performance, (28, 29, 31-34). Within the field of PSM, research has focused on how managers and leaders can enhance PSM among public servants (35-39).

This perspective on the motivation offers an alternative perspective to the recent trends in health system performance management reforms inspired from New Public Management, including pay for performance and contracting out, which focuses on extrinsic motivation of health providers, and risks to crowd out intrinsic motivation (30). Such strategies may also generate negative self-interested behaviours, goal displacement and mistrust (30, 40-44).

Leadership in the health sector

In Morocco, research evidence points to how a lack of motivation and poor leadership of health managers may have hampered the performance of health workers, the quality of care and the scaling up of proven effective health policies (45-52) and quality assurance programmes (53, 54).

In LMIC, health managers often display poor leadership practices either by avoiding getting involved, delaying decisions (laisser-faire leadership) or by overemphasising top-down controlling behaviours perceived as inefficient in the motivation of health workers. (55-59)

'Traditional' leadership theories emphasise the importance of individual leadership and leader-employee exchange relationships. They comprise transactional leadership (where leaders focus on

top down contingent rewards and sanctions) and transformational leadership (where leaders focus on inspiring staff, infusing jobs with meaning and acting as a role model)(60). Recent leadership theories emphasize the need for more complex approaches that allow for better adaptation to the complex social nature of healthcare organizations (61-63). Complex leadership scholars highlight the multi-layered nature of effective leadership, which includes information sharing, distributed leadership and support for lower-level cadres. They define complex leadership as the ability of leaders in complex unpredictable situations to balance between transactional, transformational and distributed leadership so as to fit the nature of task, type of staff and organisational characteristics (61, 62, 64-66)

The relationship between leadership and PSM

Complex processes underlie the effect of leadership on PSM, and they are conditioned by contextual factors (professionalism, religion and family education) (67-73) and organisational factors (organisational culture (74, 75) and job characteristics (28, 29)).

Most PSM research in the field of public administration relies on quantitative measures of the effect of leadership on PSM. Little attention has been paid to the mechanisms underlying this relationship in healthcare and public service settings (16, 31, 33, 35, 37, 39, 76-78) and the existing studies often display methodologies challenges (79, 80). Understanding these mechanisms is valuable in the sense that it can guide health managers in developing appropriate leadership and managerial practices that reinforce organisational value systems, and foster health workers' PSM and intrinsic motivation, and consequently their performance (59, 81-83).

In response, we set out to explore the causal processes through which leadership, context and organisational attributes influence public service motivation of health workers in Moroccan hospitals. The research questions we address are: 1) How does leadership influence public service motivation of health workers? and 2) Which organisational or contextual conditions underlie the effect of leadership on PSM? This study is part of a larger study on the nature and effects of leadership practices on health workers in 4 Moroccan hospitals.

Methods

We adopted the realist evaluation (RE) approach (84). RE aims at identifying causal mechanisms that explain how, why and under which conditions an intervention or a social phenomenon (leadership in our study) generates a particular outcome (*in casu* PSM)(84). Realists posit that causal mechanisms are generative in nature and embedded in a stratified social reality; they reside in the interplay between individuals, institutional and structural factors (85, 86).

We applied the steps of the realist research cycle (85, 87) to structure our study: 1) eliciting the initial programme theory, 2) designing the study, 3) carrying out the data collection, 4) analysing the data and 5) synthesis. We refer to our paper reporting on a case study of leaderhip for more details on the realist approach (88) in press).

Step 1 - Eliciting the initial programme theory

Our scoping review of complex leadership (89) allowed us to elicit an initial programme theory (PT) on the relationship between leadership and motivation. It was further developed through a first exploratory case study (coded NHMH) (see Belrhiti,2019 (88) in press) and this led to the initial PT that is the starting point of this study:

"Complex leaders adopt an appropriate mix of transactional, transformational and distributed leadership styles that fit the mission, goals, organisational culture, nature of the tasks of the organisation and the individual characteristics of the personnel. This adaptation of leadership style enhances staff perceived supervisor support and perceived organizational support, and contributes to the satisfaction of basic psychological needs of the staff". (Figure1)

As we described before (88), the underlying theories used to build our above mentioned programme theory rely on two mechanims that have shown to be important in explaining the complex relationship between leadership and motivation (90-92): 1) the satisfaction of basic psychologic needs, based on self-determination theory (93)(see box 1) and 2) perceived supervisor support and perceived organisational support (90, 91, 94)(see box 2).

Box 1 Definition of Basic Psychological Needs

According to self determination theory, every individual thrive to satisfy three basic psychological needs (autonomy, competence, relatedness). *Autonomy* corresponds to the sense of volition and willingness ones feel when undertaking specific behaviours. This allow staff to self endorse their actions. *Competence needs* means the feeling self efficacy when experiencing work opportunities that allow individuals to express and use their abilities and skills. *Relatedness* means that staff need to feel mutual respect, consideration from others, connectedness and a sense of belonging to a social group.

Box 2 Perceived organisational and supervisor support

Perceived Organisational Support (POS) is understood as the beliefs of healthworkers about the extent to which the organisation (e.g. top management teams) values their efforts and their psychological well-being.

Perceived Supervisor Support (PSS) is identical to the former but focuses on the relationship between staff and their supervisor.

In this study, we adopted a dynamic perspective of leadership which we considered as a multilevel process embedded in a multi-layered social and organisational context (62, 64, 95-99). From this perspective, leadership is shaped by the organizational culture and by how staff interpret their organizational context (organizational climate) (100-102).

We mean by the organisational culture *"the shared values, underlying assumptions and expectations that characterise organisational membership*" (103). Different types of organisational culture are presented in box 3 (104). The visible aspect of the organisational culture is represented by the organisational climate ('the tip of the iceberg') and is "the visible behaviour of group members" (100).

We adopt the definition of organisational climate of Bock (2005): the "*contextual situation at a point in time and its link to the thoughts, feelings, and behaviours of organizational members. Thus, it is temporal, subjective, and often subject to direct manipulation by people with power and influence*." (105). It is a multidimensional concept that includes role conflict and ambiguity, professional and organisational esprit, job challenges, workgroup cooperation and mutual trust) (106).

Box 3 Types of organisational culture according to Cameron and Quinn

Hierarchical culture: strong emphasis on stability, predictability and efficiency. Formalisation, procedures and rules govern individual behaviour.

Clan culture: emphasis on cohesion, teamwork, high levels of employee morale, employee involvement and commitment within an autonomy supportive environment.

Market culture: emphasis on employee productivity, results and profit orientation, individualism and competitiveness, in an environment that is considered as hostile.

Adhocratic culture: emphasis on creativity, innovation, individuality, experimentation, risk taking and adaptability. Power is decentralised to task teams.

Figure 1 shows our programme theory and the complex relationship between leadership, individual motivation and organisational characteristics (organisational culture and climate, mission and goals and degree of responsiveness to basic psychologic needs)(88). The quality and type of staff motivation (extrinsic versus autonomous motivation, including PSM and intrinsic motivation) depends on the degree of autonomy support by leaders, and consequently their perceived supervisor support (which in itself is increased by transformational and distributed leadership and reduced by laisser-faire and transactional leadership). Autonomous motivation is enhanced when staff have positive levels of perceived organisational support, which depends on the degree of responsiveness of top management teams to staff's basic psychological needs and the congruence between the organisational culture and the individual values.

More specifically, we identified four causal configurations (Figure 1):

Configuration 1

- Laisser faire leadership decreases the levels of perceived organisational support and staff motivation by being less responsive to their basic psychological needs of autonomy, competence and relatedness. Lack of vision and goal setting contributes to a climate of ambiguity and role conflict. The inadequate enforcement of the hierarchical structure and high job pressure can contribute to mistrust between administration and staff.

Configuration 2

- Transactional leaders can improve extrinsic motivation of staff if they offer the necessary support and ensure adequate working conditions. By improving the latter, transactional leaders reduce job pressure and by implementing a clear hierarchical line they reduce role conflicts.

Configuration 3

- By showing individual consideration and communicating clearly about mission valence, transformational leaders enhance self-esteem of staff, perceived supervisor support, and satisfaction of their autonomy needs. This in turn contributes to staff commitment, mutual trust and respect between the management team and staff.

Configuration 4

- Distributed leadership can contribute to improved communication and interaction between staff from different units, to problem solving and a reinforced clan culture. Distributing leadership roles and embedding them throughout the organisation, combined with engaging staff in decision making, contributes to staff's perceived autonomy and organisational commitment, which in turn leads to extra role activities.

In this study, we zoom in on the role of public service motivation. We assume that leaders who stimulate staff's awareness of the value of their work to society and its contribution to the public good may enhance PSM and intrinsic motivation. Leaders who are responsive to the basic psychological needs of their staff are likely to stimulate the internalisation of public values and may shift the locus of individual motivation from extrinsic to more autonomous forms of motivation (107). This requires a conducive organisational culture and absence of conflicts between individual and organisational values. We hypothesise that the specific attributes of the Moroccan health system, and specifically its hierarchical organisational culture, may impede the emergence of PSM.

Figure 1 Programme theories

Step 2 - Study design: a multiple embedded case study design

We adopted a multiple case study design (108) because it fits the exploration of multifaceted complex phenomena, such as PSM, in real world settings (in our case in 4 hospitals). We defined the case as the relationship between leadership and "public service motivation". We took a hospital as the unit of analysis. Purposive sampling allowed us to select hospitals that would allow us to test the programme theory. We selected hospitals representing extreme cases, displaying contrasting organisational performance and leadership practices (109, 110). To select hospitals, we used data from the Ministry of Health's quality assurance programme called "concours qualité" from 2011 to 2016 (111, 112). More specifically, we used the leadership scores and the overall organisational quality performance scores (table 1). We refer to (Sahel,2015) (54) for a discussion of the "concours qualité".

We purposefully selected two well-performing hospitals with high leadership scores (NHMH and EJMH) and two poor-performing hospitals with low leadership scores (RKMH and SMBA) (Table 1). This selection was informed by independence of cases, variation in hospitals size (seeking to have 1 large and 1 small sized hospital in each category), variation in location (urban, periurban, rural) and accessibility to the first author.

Table 1 : List of high and low-performing hospitals (Ministère de la santé du Maroc, 2011 and 2016 report)

Hospital	Size (number of beds)	Performance scores %		Leadership score (2016)
		2011	2016	
NHMH	<120	65	80.33	75.76
EJMH	>240	46	65.98	57,61
SMBA	>240	44	20.01	14.54
RKMH	<120	44	18.91	6.97

Realist evaluation seeks to refine programme theories through a process of specification: the PT is gradually refined by testing it in different settings or in different cases. For this study, we started the data collection in NHMH and developed a first refined PT. This was then tested in EJMH and the poor-performing hospitals RKMH and SMBA. The analysis of each site led to successive refinement, confirmation or disconfirmation of the elements of the initial PT.

Figure 2 - Cases studies and data collection, Morocco, January-June 2018

Step 3 - Data collection

We based the choice of the data collection methods on our programme theory (Figure 1) to ensure that data would allow us to test the initial PT. We used interviews, focus group discussions and document review (see figure 2). We collected data during the period January-June 2018

Interviews

In each hospital, we interviewed health professionals, and senior, middle and operational managers. We explored the antecedents of PSM, its expression and the relationship with leadership and management practices, organisational structure, and cultural context. We used open-ended interview guides tailored to each category of respondents (supplementary file 1). We collected data until saturation was attained. In the first site (NHMH), we carried out 18 individual in-depth interviews (IDI). Subsequently, we carried out 17, 16 and 17 IDI in EJMH, RKMH and SMBA respectively. Each respondent was anonymised and given a unique identifier. Sociodemographic characteristics of the respondents are summarised in table 2.

Focus group discussions

To further explore the key constructs used by interviewees in relation to “public service motivation”, we carried out 7 focus group discussions and 8 group discussions with different cadres (administrators, nurses and doctors). Group discussions were carried out whenever the number of participants did not reach the appropriate size (6 to 8) to carry out focus group discussions. This was encountered in practice in low staffed hospitals (RKMH and NHMH) particularly for doctors and administrative staff.

This allowed us to deepen the analysis across the different categories of health workers (managers, service providers). The first author led the FGD. Probes, follow up questions and summarised key themes were used and verification from participants was sought at the end of each FGD (113, 114). The FGD facilitator guide is presented in supplementary file 2.

Respondents for the in-depth interviews and the focus group discussions were identified through qualitative purposive sampling(109). All FGD and IDI were audio recorded with the exception of 1 interview. In this specific case, we took notes and transcribed the unrecorded interview using memory recall (115). Following guidance provided by (Miles and Huberman,2016) (116) and (Krueger,2014) (113), we wrote a brief contact summary at the end of any contact with research participants. It included major themes and ideas arising after each interaction. All recordings were transcribed verbatim.Two researchers (ZB and BM) checked the transcripts for accuracy.

Document review

We collected documents at the study sites (760 page) and at the Ministry of Health (460 page). We focused on human resources availability and skill mix, the strategic plans of the hospitals, audit documents and quality assurance reports.

Observations

The first author carried out opportunistic observations (between appointments with interviewee), following the guidance described by (117). Close attention was paid to the interaction between supervisors and staff. We recorded our observations about feelings and goals expressed during informal interaction with hospital staff and external actors and the physical spaces.

Table 2 Respondent characteristics

Managerial function

	NHMH	EJMH	RKMH	SMBA
Senior managers	4	4	3	4
Middle Managers	3	7	2	5
Line Managers	5	2	4	3
Operational staff	20	30	17	33
Total	32	43	26	45

Professional profile

	NHMH	EJMH	RKMH	SMBA
Doctors	13	14	4	14
Pharmacist	1	3	1	1
Nurses	14	15	14	20
Administrators	4	11	7	10
Total	32	43	26	45

Age category

	NHMH	EJMH	RKMH	SMBA
20-30	6	3	5	3
31-40	11	11	6	17
41-50	9	10	9	11
51-63	6	19	6	14
Total	32	43	26	45

Gender

	NHMH	EJMH	RKMH	SMBA
Female	20	25	10	24
Male	12	18	15	21
Total	32	43	26	45

Step 4 - Analysis

We carried out the data analysis following the 'traditional' analytical phases of compiling data, interpreting, discussion, and drawing conclusions (110). Guided but not restricted by the initial programme theory, we coded all data sources (transcripts, contact summaries and field notes) using different coding techniques (concept, hypothesis and "in vivo" coding)(118) (see supplementary file 3). We used the ICAMO (Intervention-Context-Actor-Mechanism-Outcome) heuristic to identify causal configurations. We revisited the data to test conjectural ICAMO configurations (119). We adopted a retroductive approach (120) to contrast patterns of leadership effectiveness between different types of actors (doctors, nurses and administrators). We compared these patterns with the chronology of the CEO succession periods. Guided by our research question, we focused on leadership effects on 'public service motivation' that emerged as a natural motivational driver of Moroccan public health workers(121).

NVivo 10 software (122) was used to manage the data. Milestones in the coding process were discussed during research teams meetings.

Step 5 – Synthesis

When the data from all sites were analysed, we compared the ICAMO configurations with the initial programme theory and modified it accordingly. We followed the RAMESES II reporting standards in writing the research report and this paper (87).

Ethical considerations

The study was granted approval by the Moroccan Institutional Review Board, Rabat (n°90/16) and the Institutional Review Board of ITM (N° 1204/17). We informed all interviewees before the start of data collection about the study objectives, topics, type of questions and their right to refuse being interviewed and to interrupt the interview at any time. This information was also provided in an information sheet and reiterated before the start of interview when the written consent procedure was explained. The respondents were asked to sign the informed consent form if they agreed to participate in the study. The forms were co-signed by the researcher and a copy was given to research participants.

Patient and public involvement statement

There was no direct patient involvement in this study.

RESULTS

In this section, we first present for each hospital the main leadership and management practices, the perspective of staff, their views on public service motivation, and a summary. Then we present a summary of the cross case analysis and the resulting refined programme theory.

EJM Hospital

Main leadership and management practices

In EJMH, there were two successive leadership periods. Between 2012 and 2015, CEO 1 had a transactional leadership style, relying on administrative procedures, assertion of power, and compliance with rules and procedures. He was perceived by his staff as being distant and not responsive to their needs for professional autonomy. Conflicts and tensions with unions and doctors were high. He left in 2015.

> *"CEO 1 was too strict in the application of the new hospital procedures. We could not discuss the rules with him. The hospital cannot be managed by strictly following the rules. For instance, in compliance with the new procedures, CEO 1 decided to implement night shifts for administrative staff and stopped the night shifts of nursing supervisors. The administrators did not accept to carry out this task because the new procedures did not mention who should do this and how this 'overtime' job would be reimbursed". EJMH 3 Administrator.*

In mid-2015, CEO 1 was replaced by CEO 2. He was upto then the chief medical officer of the hospital and had quite some management experience. For instance, he was the director of EJMH between 2002 and 2006. In 2016, EJMH won the first price at the quality contest. CEO 2 had an explicit vision on leadership:

> *"I had the chance to manage the hospital in 2002. This allowed me to really know the personal and vice versa. Now, we work as a team in that sense that staff are involved in decision making. This is very important. In a real world setting, participative decision making is very important, because you avoid many problems. When you involve them, you avoid resistance. If staff is involved from the beginning, they will adopt the solution and will not feel that it was imposed on them. This will be totally different if the solution was imposed on the staff. (…) When you involve staff in decision making, you build trust relationships. Trust relationships are very important in our context, where the hospital director has little power over his staff. [….] When we explain to staff well defined objectives. They know which organisational objectives to pursue. Achieving these goals at the operational level bring legitimacy to the hospital direction. It is important that health workers know that you are thriving to achieve these objectives. This is what I call credibility." EJMH 7, CEO 2*

The perspective of staff

Leadership style

Our analysis shows that the staff found that the transactional leadership style of CEO 1 was incongruent with their professional values and their need for autonomy. This contributed to mistrust in the management team, low organisational commitment and a high level of tension with unions.

> *CEO 1, with whom I worked, was authoritative. This was not congruent with my values. I value participative decision making. I try to share with others, I need to be treated the same way by my superior. CEO 1 was just commanding: 'Do this, give this to this person'. I would have accepted and engaged with him if he would have involved me in participative decision making with other members of the hospital committee, if he would have used polite inquiries, like "Would it be possible to do this?, rather than giving orders without listening to team members or involving them in decision making." EJMH 25, pharmacist.*

The participative decision making style of CEO 2 and his consideration for individuals restored trust in the management team and reduced the tensions with the unions.

> *"Now everything works smoothly. He does things that are right. He reacts to wrong doings. He is sympathetic with all staff. CEO2 has a long experience. He knows everyone, he knows their personal characters, motivation and personal needs…. He is very successful in doing that! He knows how to reduce tensions between his close collaborators. He takes decisions smoothly. As a physician, he is able to reduce tensions between medical union representatives and internal coalitions within the medical departments. His door is open to everyone. He listens to staff. He does not rush decisions. He maintains a low level of tension within the hospital. He does not complicate things. The former CEO took rapid decisions and was facing much resistance […].CEO 2 involves his close collaborators and chiefs of departments in decision making. This way, they adhere to his decisions. He listened to them. He has a participative leadership." EJMH 25, pharmacist.*

Public Service Motivation

Frontline providers said that compassion and self-sacrifice are important components of their public service motivation.

> *"While recording electrocardiographs on patients, I was constantly communicating with them. Sometimes, women shared with me their feelings, their worries about their siblings, their fear of death, their personal life and stories about their deceased or ill husbands. They were often crying. I feel their sufferings as if I were living with them". EJMH 17, Nurse.*

We found that the intrinsic motivation of health providers is sustained by their feelings of competence and their ability to adequately apply their professional skills and competencies.

> *"I love my job. I chose deliberately to work at the emergency unit. I love working at the emergency unit. I am totally engaged. Handling serious medical emergencies is a motivation in itself". EJMH 38, Doctor.*

Participative decision making was perceived by staff as congruent with their professional identity and their public service values. It enhanced their self-esteem and satisfied their needs for autonomy and relatedness and increased their public service motivation. It also increased their perceived autonomy support.

> *"Leaders needs to be fair, listen to our needs and resolve our organizational issues. Most importantly, they need to understand my professional needs, take into consideration my suggestions and contributions to work. This make me feel satisfied. In contrast, with the former leader, I was not feeling secured. He was exerting excessive control. I suffered the martyr!. I was constantly under constant threats. I even sent an administrative correspondence to the ministry of health against the injust treatment. I was just trying to do my job correctly!". EJMH 17, Nurse.*

Summary

Our analysis showed that the transactional leadership of CEO 1 did not address the basic psychological needs of the staff and specifically the need for autonomy. This not only contributed to low organisatinonal commitment and reduced public service motivation, but also to tensions with the unions.

In contrast, CEO 2 had a transformational leadership style: he effectively understood how people are motivated, listened to them, and clearly communicated his vision and objectives to the health workers. He showed genuine concern for the needs of his staff, effectively resolving problems through a constructive dialogue with informal leaders and union representatives. He also involved his close collaborators and heads of department in decision making.

CEO 2 also stimulated the emergence of distributed leadership to lower levels of the organisation, which increased trust between the staff and the CEO, and reduced resistance to change. This was considered by mid-level managers as crucial in maintaining the "public service motivation" of staff, in particular given the perceived limited decision spaces they have over their personal work. We saw that not only senior managers but also mid-level managers engaged in distributing leadership. For the latter, participating in decision making increased their perceived leader support and satisfaction of their autonomy needs. This has enhanced their autonomous motivation (intrinsic and public service motivation).

RKM Hospital

Main leadership and management practices

This hospital has known two leadership periods since 2010. From 2010 to 2012, CEO 1 displayed transactional leadership: he assiduously monitored staff attendance, planned their shifts and dealt with his staff through administrative correspondence. He was confronted with staff resistance.

Because of shortage of intensive care anaesthetists, nurses anesthesists often take over their tasks, like sedating patients in the operating theatre without medical supervision. When they were confronted with excessive control by the director, they stopped carrying out this "medical" task. This has negatively impacted the continuity of surgical activities. In this case, nurses used their professional expertise as a source for discretionary power (e.g. ability to intubate and sedate patients in the operating theatre).

> *"(CEO1) was suspicious and was strictly applying the regulations to correct the staff absenteeism. When the cat's away, the mice will play. There were many conflicts, especially with nurse anesthesists who did not comply with the control of attendance. As a result, they stopped sedating patients and argued that they are not allowed to sedate patients without an intensive medical care anaesthetist". RKMH8, close collaborator.*

CEO2 managed the hospital between 2012 and 2018. He favoured a distant *laisser faire* leadership approach and was often absent. He would then be replaced by the chief nursing officer who adopted the same leadership style. The latter seemed overwhelmed by day-to-day operational management responsibilities. During our field work, we noted that the management of the hospital was poor. No organizational action plans were available, and there were no meetings. Strikingly, our focus group discussion with nurses was the only meeting they attended in three years. We observed high level of absenteeism among hospital staff.

The perspective of staff

Leadership style

Our analysis shows that the close collaborators, administrators and technical staff appreciated the leadership of CEO 1, because he reduced role ambiguity and job pressure. However, nurses and doctors were unhappy with his overcontrolling behaviour and engaged in resistance. Also CEO 2 was appreciated by his close collaborators, now because of his gentle wording and good interpersonal management. However, doctors and nurses perceived his *laisser-faire* leadership as non-responsive to their needs in terms of resources and working conditions. This had led to reduce their public service motivation by reducing their willingness to improve service delivery and to work for the common good. Some have expressed that laisser faire leadership has catalysed their intention to quit the public sector for good.

> *"Nowadays the strength and pace of my motivation to improve the service quality has decreased. This is essentially due to the lack of responsiveness of the hierarchy to my needs. There is no response. Even though we are engaged to improve our working conditions and the panel of services, the lack of feed back from the management teams has stopped our willingness to improve health service delivery. I found myself complaining alone. This has reduced my attraction to improve public service. This has negatively impacted my psychological well being. In all cases, I get my salary at the end of the month, however, from my personal point of view, I could not contend my self to work without thriving to improve the quality of public service at the pediatric unit. My husband is telling me that improving service delivery in the public sector is not my mission and that I am not a sort of social reformer!!. I am always told that these poor working conditions are common in the public sector and I need to stop trying to work for the common good. My motivation has decreased for while now. But I hope later to I try again with the new chief provincial hospital that has recently been appointed. Maybe, he will be more responsive to our needs than the former. If in the coming three years this does not change, I will quit the public sector and start my own private practice (RKMH 16 paediatrician)*

Respondents complained management engaging in clientelism and nepotism, which they found to conflict with their public service values.

> *"The chief of the admission office is carrying out tasks that are not his. He manages the personnel! Staff who come from the town of CEO2 are privileged compared with others. Decisions are guided by his close interpersonal relationship with them". RKMH 11, Nurse.*

> *"For instance, when I take necessary administrative measures to correct staff absenteeism, the provincial district officer takes no actions to sanction these deviant behaviours. My authority is weakened. Either you accept staff's deviant behaviours and thus participate in this "crime", or you are intransigent and staff will build an alliance against you and you will be demonised. As you may know, unions and political parties are corrupt, they seek only the interest of their members and not the general interest" RKMH 15, Administrator.*

Staff perceived that they were unable to treat adequately patients because of lack of material and ressources (e.g. laboratory tests, mobile radiology, etc.) and the inadequate organisational support to their supply needs. They did not feel self-efficacious. Some felt that they were doing more harm than good for patients. This reduced their PSM and negatively impacted their psychological well being.

"We suffer because we transfer patients for simple technical procedures that we could have handled locally" RKMH 10,Nurse.

"*We often ask relatives to help us carry patients with a fractured femur to the fixed X Ray table. By doing this, we may worsen the fracture. I feel sorry when I had to ask sick patients to go themselves to the fixed X-Ray table. No organisational support is given, despite our relentless asking the administration to provide us with a mobile X Ray system."*RKMH 14 Radiology technician

Poor management and bad working conditions led to low levels of perceived organisational support amongst nurses. Staff felt inadequately supported by their supervisors and were left to face problems in the execution of their daily tasks. This created a stressful job pressure they were unable to deal with.

" During the transfer (of a patient to the referral hospital), we do not focus on what care to give to the patient, but we are stressed by the poor conditions of the ambulance. It is not an ambulance, it is a wreck!" RKMH 12, Nurse anesthesiologist"

Reluctance of the managers to start up legal procedures against patients or families who assaulted nurses or doctors further reduced the latter's trust in the management.

"Many times, staff were assaulted. The management just forgave the assaulter, because the CEO knows him. Leaders should support staff, … support them in a sense that if someone of us is assaulted one day, I mean a nurse staff in his shift or a doctor, staff should be protected. This assault should not be considered as an assault on an individual person, it is an assault on all of us, on all health care providers cadres in general." RKMH 24, Nurse, ED.

Public Service Motivation

In this hospital, we found that frontline providers value the importance of adequately serving patients and improving health outcomes. They derive satisfaction from relieving suffering and saving lifes, or at least preventing them from developing complications. Health workers mentioned that compassion, self-sacrifice, serving the underprivileged and caring for the poor are crucial drivers of their public service motivation.

"We often sacrifice our own time for the sake of patients and for the sake of God to avoid unnecessary delays and prevent parturients from getting complications, for exemple, severe neurological and cardiac complications of post partum haemorrhage. We even help patient's families to pay for ambulance fees in order to avoid delays". RKMH 14, midwife

"Here, I work a lot with vulnerable citizens. It is a reward in itself to serve poor patients. It is my source of motivation". RKMH 3, Doctor

We noted that the *laisser-faire* and transactional leadership had a negative effect on staff with high levels of public service motivation. It led to psychological distress, low organisational commitment and self-interested behaviour. This was compounded by the perceived organisational politics (see. clientelism and nepotism).

Summary

Our analysis showed that the *laisser-faire* and transactional leadership in this hospital did not respond to the basic psychological needs of health workers. This led to reduced public service motivation with negative consequences on their psychological well-being, because of the lack of opportunities of experiencing valued patient outcomes (e.g saving lifes).

The leadership styles also contributed to low perceived organisational support, which in a context of perceived organisational politics, in turn lowered organisational commitment, and increased self-interested behaviour and mistrust between administration and staff.

SMBA Hospital

Main leadership and management practices

In SMBA hospital, one of the low-performing hospitals, there were three leadership periods. CEO 1 (2007-2010) displayed strong transactional leadership, emphasising comformity with rules and procedures and insisting on top-down hierarchal management. He carried out many performance audits and clinical supervisions, and organised training to staff. He showed high moral standards and was both respected and feared by staff. He was replaced in 2010 by CEO 2, who retired in 2013. He had some experience in management, displayed transactional leadership and stressed the conformity with rules similarly to his predecessor. In 2014, CEO 2 was replaced by CEO 3, who adopted a *laisser-faire* leadership. The hierarchical line was no longer respected. He managed the hospital poorly: no organisational action plans were available, and he did not carry any audit nor supervision. No inter-units meetings were held and the departementalisation process was halted. During our field work, we observed a strike of the clerical officers in charge of hospital admission and of the private company in charge of security in reaction to bad working conditions and perceived low responsiveness of management to their needs.

The perspective of staff

Leadership style

CEO 1 and 2 were highly appreciated by the administrators and their close collaborators. The health professionals (nurses and doctors) pointed to reduced perceived organisational support and to lack of participative decision making. Under the leadership of CEO 3, staff felt less supported by their supervisors. They said they were left to deal with problems alone. Lack of clarity of goals led health workers to perceive role ambiguity and job pressure.

Poor management and low responsiveness of leaders to staff needs in terms of improving working conditions decreased their public service motivation.

> *"Leaders do not play a role in our motivation. […]. We came to work despite constraints and poor working conditions. If we were only motivated by working conditions, we wouldn't come to work. The management team was even unable to timely replace a broken window of our reception desk counter!" SMBA 29, Reception desk officer*

Our respondents also mentioned the clientelism and nepotism of CEO3, who privileged some staff and patients over others. This led to perceived organisational politics and mistrust, and contributed to low organisational commitment, demotivation and crowding out of public service motivation.

> *"In this hospital, there are some external actors who pretend to do social work, and pretend to act as benefactors. These external actors, often members of associations, intervene illegimitely in hospital activities. They are like parasites. They definitely impact on our productivity. They are like stockbrokers. They do not care about citizens. They frequently mediate between citizens and services providers. The CEO responds quickly to patients needs when these actors are involved. This what I call clientelism. This is not fair! All citizens are equal" SMBA 21, support straff, reception desk.*

Public service motivation

Physicians and nurses perceived compassion with patients' conditions and self sacrifice as major components of their public service motivation.

> *"Patients are important for me because I got sick myself. So, I sense what the patients are feeling. My family members, my daughter and my grandmother got sick. I feel the pain patients are suffering from. I can feel their suffering. "(SMBA 35, Nurse).*

Public service motivation is also driven religious cultural beliefs including elements of fear of God and divine rewards.

> *"We work because of our sense of humanity, our own consciousness and our fear of God. One day, we will be asked about the quality of work we have done in the past. We feel sorry for patients, SMBA 29, reception desk officer"*

Staff said they were suffering from psychological distress due to poor working conditions, and experienced feelings of guilt because of their inability to perform their job adequately and to ease their patients suffering. Lack of opportunities to experience positive patients outcomes reduced their public service motivation.

> *"When you do not have necessary material you are in trouble! It is not only a constraint but a source of suffering. Instead of relieving patients' distress, it is us who get stressed." SMBA 45, Doctor.*

> *«Here, ressources are limited compared to the teaching hospital where we were trained. Real world practices are really different. When we first were assigned to this hospital we could not change things around. This is really depressing. We have the ability to provide specialised care but we do not have the necessary ressources to do it ! , SMBA 42, Doctor.*

This impacted negatively on their perceived organisational support. This led to crowding out of their public service motivation and lowered their organisational commitment and their well-being.

> *"It is really depressing. I do not want to work anymore because I do not have the necessary ressources.[…] I often cry when I watch newborns suffering from intramuscular injections because nurses are not skilled to administrater intraveineus infusions to newborns and often use instead intramuscular injection for 10 days. I am not only frustrated, I hate entering neonatology service!!!. I only grudgingly go see my patients whereas in the past I loved*

providing neonatology care. I cannot stand seeing newborn almost dying of hypoglycaemia 0.3g/l because they are not adequately fed. This is due to the acute shortage of nurses (one nurse per shift) who are unable to reconciliate between administering antibiotics and treating infections and baby feeding. I am not anymore motivated to cure newborns 'infections but I am terribly stressed avoiding newborns to die from hypoglycaemia. If babies are left alone with the feeding bottles they may die by suffocation. How can we come motivated to work in the next morning? of course not!!! SMBA 42, paediatrician.

Shortage of material reduced their ability to properly care for patients, which reduced their PSM and contributed to a reduced sense of competency, self-efficacy and autonomy.

"During my pediatric residency, I practiced neonatology and neonatal reanimation for two years, I developped many skills that I am not using now because I do not have the necessary equipments. I have only few neonatal rescuscitation tables and two sources of oxygen for 21 patients. I do not have a respirator. During my training I learned to intubate and manage cardiorespiratory distress. Now, in neonatology service instead of using unavailable syringe pumps,we manage pediatric diabetes by intraveinous perfusion. I never been thaught to do this!!". SMBA 42, paediatrician.

"I am very proud to serve my population, however I am truly unsatisfied. We have strong faith and we work eagerly to serve people. But our faith is not sufficiant. We need more ressources. For exemple, I am often called for patients with cranial trauma. We do what is possible depending on available ressources. Cerebral trauma patients need an emergency cerebral CT-scan and the golden hour must be respected. When they arrive at the hospital, often with a delay, the CT Scan is unavailable. It is often out of order. What could we do? In this case, We help teams transfer the patient to the nearby hospital in Marrakech. We often collect money to pay ambulance fuel and to avoid extradelays. I feel that my contribution to patient health is useless, despite being present for about 5 or 6 six hours at night. I feel that our contribution is hampered by organisational problems that are beyond our control". SMBA 43, intensive care anaesthetist

Summary

In this hospital, we found that leaders (like CEO 1) who are perceived as showing a high sense of moral and ethical standards, and who stimulate the awareness of staff of public service values and their contribution to society, were positively considered by some cadres. For the administrative staff, the transactional leadership displayed by CEO 1 led to higher clarity of goals, reduced job pressure and increased extrinsic motivation. However, it was negatively perceived by frontline workers because they felt it did not respond to their needs for autonomy.

Laisser faire leadership crowded out public service motivation by reducing frontline healthworkers' opportunities to help. Such management did not respond to the basic psychological needs of staff and led to low organisational commitment.

In Table 3, we present a summary of the perspectives of staff on the leadership and management practices. We present in the first column key summary data derived from the initial exploratory case study (NHMH hospital) and detailed in (Belrhiti,2019(88) in press) .

Table 3 - The perspectives of staff on the leadership and management practices

NHMH	EJMH	RKMH	SMBA
CEO 1 (2007-2013) ***Transactional leadership*** Conformity to rules and procedures, role model. Improved staff working conditions. **Staff perspective** Strong perceived leader support, which catalysed the quality culture **CEO 2 (2014-2016)** ***Transformational leadership*** Clear communication of his vision. Genuine concern for staff needs. Enhanced staff mission valence. ***Distributed leadership*** Stimulated network formation, "kind heart actions" **Staff perspective** Responsiveness to their basic psychological needs Reinforced existing clan culture. Positive organisational climate (mutual trust and team work). This led to increased organisational commitment and extra role performance, In 2016, the hospital won the second price in the national quality contest).	**CEO 1 (2012-2015)** ***Transactional leadership*** Power-assertive attritude. Overemphasis on compliance with rules and procedures **Staff perspective** Perceived distant leader. Low perceived autonomy support. Decreased organisational commitment. Mistrust, conflicts and tensions with unions. **CEO 2 (2015-2018)** ***Transformational leadership*** Good communication of vision and objectives. Genuine concern for the needs of staff. ***Distributed leadership*** Constructive dialogue to resolve professional issues. Catalysing role of mid-level managers. Participative decision making. In 2016, the hospital won the first price of the quality contest. **Staff perspective** High perceived autonomy support. Good congruence with professional and public service motives. Trust relationship between staff and management team. Reduced tensions with unions.	**CEO 1 (2010-2012)** ***Transactional leadership*** Strict application of administrative procedures **Staff perspective** Appreciated by administrators and close collaborators. Increased extrinsic motivation of staff. Nurses and doctors resisting to his overcontrolling behaviour engaging in conflicts and strikes. **CEO2 (2012- 2018)** ***Laisser faire* leadership** Often absent. Chief Nursing officer overwelmed by day to day operational management duties. **Staff perspective** Appreciated by administrators and close collaborators. Nurses and doctors unhappy about lack of responsiveness to their needs and the poor working conditions. Conflictual organisational climate, characterised by high job pressure and role ambiguity. Perceived organisational politics (nepotism and clientelism), contributing to perceived unfairness.	**CEO 1 (2007-2010)** ***Transactional leadership*** Enforcement of hierarchy. Emphasis on comformity with rules and procedures. Audit and clinical supervision. High moral standards. **Staff perspective** Highly appreciated by close collaborators and administrative staff. Nurses and doctors perceived a lack of participative decision-making and reduced perceived autonomy support. **CEO 2 (2010-2013)** ***Transactional leadership*** Enforcing conformity with rules and regulations. Close supervision, administrative sanctions. **Staff perspective** Well appreciated by administrators and close collaborators Perceived unresponsiveness to nurses' needs. **CEO 3 (2014-2018)** ***Laisser faire leadership*** Hierachical line not respected. No meetings, no clinical supervision. No inter-unit interaction. **Staff perspective** Decreased organisational commitment

CEO 3 (July 2016-Sep 2017): Laisser faire leadership Passive attitude. Reliance on administrative correspondence. Poor communication with staff. Hierchical line not enforced **Staff perspective** Role ambiguity, high job stressors. Unresponisveness to staff needs. Deterioriating working conditions. Perceived organisational politics. Demotivation, conflicts and tensions with unions. **CEO 4 (Oct 2017-March 2018)**: **Transactional leadership** Reinforcing the hierachical line. Building alliance with informal leaders. **Staff perspective** Distant leader. Reduced perceived autonomy support. Improved working conditions. Claryfing goals reduced role ambiguity and job pressures for admin. staff Reduced interaction between health units.			Inadequate woking conditions and supply of consumables. Low perceive organisational support. High role ambiguity and job pressure. High level of perceived organisational politics.

Cross case analysis and refined causal configurations

Comparing the initial programme theory with the results of the analysis of the data from the hospitals EJMH, RKMH and SMBA allowed us to refine it (table 4). We used the Intervention-Context-Actor-Mechanism-Outcome (ICAMO) configuration to structure the analysis (119). We confirmed or refuted the four causal configurations presented above.

ICAMO configuration 1: *Laisser faire* leadership and PSM

This configuration was confirmed in the RKMH (CEO 1) and SMBA (CEO 3) hospitals (See table 4 and figure 3).

> *Laisser faire* leadership [I] decreases intrinsic motivation and public service motivation [O] of health providers [A] by being less responsive to the basic psychological needs of autonomy, competence and relatedness [M] and by reducing perceived organisational support [M] in situations of reduced opportunities to experience positive patient outcomes [C].
>
> *Laisser faire* leadership [I] contributes to mistrust between administration and staff, resistance to change and tensions with unions [O] by inducing perceived job pressure and role ambiguity [M] for health providers [A]
>
> *Laisser faire* leadership [I] reduces public service motivation [O] in a context of perceived organisational politics (clientelism and nepotism) [C] by being incongruent with individual public service values [M] of all cadres [A]

Figure 3 - Laisser-faire leadership and PSM (ICAMO 1)

ICAMO configuration 2 - Transactional leadership and PSM

This configuration is confirmed by empirical data from the three hospitals (EJMH (CEO 1) , RKMH (CEO 1), SMBA (CEO 1 and 2)). As a result, we retain ICAMO 2 as follows (see figure 4):

> If transactional leadership ensures adequate support and working conditions of administrative staff [I] or if enforces a clear hierarchical line [I], it can reduce job pressure [M] and reduce role conflict [M] and thus increase the extrinsic motivation of administrative staff [O] and the level of organisational commitment [O]. If transactional leaders [I] are felt by health professionals [A] to be distant, this can reduce perceived autonomy support and reduce the satisfaction of the need for mutual respect (relatedness) [M], leading in turn to reduced motivation [O] and low organisational commitment [O].

Figure 4 Transactional leadership-PSM (ICAMO 2)

ICAMO configuration 3: Transformational leadership and PSM

Configuration 3 is confirmed only in EJMH hospital (CEO2) (Table 4 and figure 5).

> Transformational leadership understood as inspiring staff (walking the talk), infusing jobs with public service values and showing individual consideration to staff [I] increases public service motivation [O] by responding to basic psychological needs of autonomy and relatedness [M] of all staff [A] and contributes to higher organisational commitment and expressed mutual trust between staff with administration [O].

Figure 5 Transformational leadership and PSM (ICAMO 3)

ICAMO configuration 4: Distributed leadership and PSM

Distributed leadership was observed only in the high performing hospitals EJMH and NHMH (see figure 6).

> Distributed leadership in the sense of creating a supportive and open climate and good relations between staff [I] increased staff public service motivation [O] and organisational commitment [O] and led to extra role behaviours by satisfying staff basic psychological needs [M] and increasing trust in management teams [M]

Figure 6 Distributed leadership and PSM (ICAMO4)

As described in table 3 and 4, we noticed that only CEO2 in NHMH and CEO2 in EJMH displayed complex leadership understood as the balancing between transactional, transformational and distributed leadership that fits best the diversity of professional profiles, the nature of the tasks and the organisational culture. Transactional leadership fits the administrators who value role clarity and reduced job ambiguity, whereas transformational and distributed leadership addresses the basic psychological needs of health providers. The other CEOS either adopted a transactional leadership style or laisser faire leadership, which was not well received by a majority of staff.

The four ICAMOs presented above allowed us to refine our initial programme theory:

> Complex leaders, applying an appropriate mix of transactional, transformational and distributed leadership styles that fit organisational and individuals characteristics [I] can increase public service motivation, organisational commitment and extra role behaviours [O] by increasing perceived supervisor support and perceived organizational support and satisfying staff basic psychological needs [M], if the organisational culture is conducive and in the absence of perceived organisational politics [C] .

Table 4 Testing the initial configurations in the study sites

Programme theories based on literature review and the study of NHMH Hospital	EJMH Hospital	RKMH Hospital	SMBA Hospital
Laisser faire leadership decreases the levels of perceived organisational support and staff motivation by being less responsive to their basic psychological needs of autonomy, competence and relatedness. Lack of vision and goal setting contributes to a climate of ambiguity and role conflict. The inadequate enforcement of the hierarchical structure and high job pressure can contribute to mistrust between administration and staff.	Not confirmed not refuted.	Confirmed and refined: *Laisser faire* leadership decreases the levels of […]. contributes to general malaise, mistrust between administration and staff and decreases public service motivation and ***psychological well being. This mechanism is triggered by the lack of opportunities for experiencing positive patient outcomes and the perceived organisational politics***	Confirmed.
Transactional leaders can improve extrinsic motivation of staff if they offer the necessary support and ensure adequate working conditions. By improving the latter, transactional leaders reduce job pressure and by implementing a clear hierarchical line they reduce role conflicts.	Confirmed and refined. Transactional leaders are effective on staff extrinsic motivation ….. leading in turn to reduced motivation"**and low organisational commitment and tension with unions.**	Confirmed	Confirmed
By showing individual consideration and communicating clearly about mission valence, **transformational leaders** enhance self-esteem of staff, perceived supervisor support, and satisfaction of their autonomy needs. This in turn contributes to staff commitment, mutual trust and respect between the management team and staff.	Confirmed	Not confirmed nor refuted, because no transformational leadership was enacted in this hospital.	Not confirmed nor refuted because no transformational leadership was enacted in this hospital
Distributed leadership can contribute to improved communication and interaction between staff from different units, to problem solving and a reinforced clan culture. Distributing leadership roles and embedding	Confirmed	Not confirmed nor refuted, because no distributed leadership was enacted in RKMH.	Not confirmed nor refuted because no distributed

them throughout the organisation, combined with engaging staff in decision making, contributes to staff's perceived autonomy and organisational commitment, which in turn leads to extra role activities			leadership was enacted in SMBA.

Discussion

In this study, we explored mechanisms and contextual conditions by and in which leadership influences "public service motivation" of health workers.

Our study shows, in line with leadership literature (123, 124), that *laisser faire* leadership decreases intrinsic motivation and public service motivation of all cadres by being less responsive to the basic psychological needs of autonomy, competence and relatedness of staff and by reducing perceived organisational support (1, 5, 93).

Our findings suggest that *transactional* leadership, when it ensures adequate managerial support and improvement of working conditions, can enhance the extrinsic motivation of staff by reducing role ambiguity and job pressure, and by increasing perceived organisational support. This is supported by other studies (125-128). However, we also found indications that *transactional* leadership can crowd out intrinsic motivation and public service motivation of health workers by reducing the satisfaction of their needs for autonomy. This is supported by other studies in LMIC (40, 41, 129-131).

We found *transformational* leaders who clearly communicate their vision and walk the talk, infuse jobs with public services meaning, and show individual consideration can enhance PSM by responding to their need for relatedness. This is supported by recent studies, for instance (29, 56, 75, 78, 132-136). Transactional leadership can lead to higher organisational commitment and extra role behaviours (137, 138).

Distributed leadership facilitated teamwork, information flows, and team cohesion. It nurtured feelings of connectedness, enhancing the perception of autonomy support and perceived organisational support. This led to creative problems solving, collective learning and better performance at the quality assurance contest, in ways similarly to other study findings (11-15, 139).

Our study supports the hypothesis that the effect of leadership on PSM depends on the degree of responsiveness to basic psychological needs (autonomy, competency and relatedness). This points to the relevance of self-determination theory (93, 107) as a middle range theory that may frame how individual psychological mechanisms underlie the effects of leadership on staff motivation (extrinsic motivation, intrinsic motivation and PSM). It also supports the hypothesis that the effect of leadership on PSM is conditioned by the existence of a conducive organisational culture (a clan culture and absence of perceived organisational politics). This is explained by value congruence, understood as the degree of congruence between individual and organisational values, which represents a major mechanism in the integration of public service values in individual behaviours(70, 140-142).

In summary, in healthcare organisations, leaders able to adapt their leadership practices to the nature of individuals and organisational characteristics (complex leaders) are likely to be more effective. They foster networking and connections between staff by distributing leadership responsibilities and reinforcing the role of middle managers, infusing jobs with meaning and creating constructive dialogues with professional health workers (12, 89, 143-146).

Study contributions, validity and limitations

This study contributed to fill the gap in leadership studies in general (83, 147, 148) and in healthcare specifically (62, 149) by unravelling the underlying mechanisms of leadership effects on health

workers' motivation. It contributes to the study of leadership in North African muslim countries, a neglegted field of research (150).

This study contributes to the case that realist evalution can contribute to building a better understanding of complex phenomena in health systems (85). Realist evaluation proved an appropriate approach to unravell the relationship between leadership and PSM, and thus responded to calls of PSM scholars for robust research methodologies (33, 35, 37, 76, 77).

The Realist Evaluation (RE) proved to be a suitable approach for capturing the multilevel dynamic nature that evolved over time and across contexts. RE facilitated the unveiling of causal mechanisms (value congruence and satisfaction of basic psychological needs) and the contingent effect of contextual factors (organisational culture, climate and perceieved organisational politics) and the individual reasoning of different social actors (e.g. perceived supervisor and organisational support) (85, 151, 152).

By using ICAMO configurational analysis, we were able to provide evidence on the contextual nature and social construction of leadership. Adopting a situational approach on leadership help overcome the inconsistency of findings when studying leadership effectiveness in organisations(153-155)

In addition, the qualitative multiple embedded case study design proved appropriate in providing qualitative design rich, dynamic, contextual data with a focus on mechanisms rather than variables(156). Qualitative approaches are complex sensitive and allow for more research flexibility in unveiling the mechanisms and conditions underlying complex social phenomena in general and more specifically leadership effectiveness in health (99, 156-159)

The validity of our study findings derive from theoretical guidance in study design, sampling and analysis and cross-validation (160-162) and theoretical replication across cases (120). Theoretical replication allows for a retroductive process of knowledge creation (120) by constantly shuttling from theory to empirical data and by continuously refining our programme theories across negative and positive cases.

There are limitations to our study. The causal configurations developed here are the most plausible explanation for the outcomes observed in our study, but may likely not be the unique explanation. Further empirical testing in a larger set of cases would enable to further refine the programme theories. A second limitation is that we did not quantitatively measure public service motivation, organisational commitment, perceived organisational support and other variables. The time and resource limits of the PhD study , of which the study presented here is part, precluded testing and validating existing scales for these constructs.

Implications for practice

In Morocco, similarly to other low- and middle-income countries (56), the hierarchical culture within the Ministry of Health favours transactional leadership styles (49, 163) and this may impede the emergence of PSM (164-166). We raise some concerns in relation to the actual health reforms carried out in Morocco, which are inspired by New Public Management (e.g. performance-based management, contracting out and public-private partnerships) and which may have negative consequences on health workers performance by facilitating the practice of transactional leadership, focusing on extrinsic rewards (and sanctions) and crowding out the expression of PSM and self-

altruistic behaviours of frontline health workers. Policy makers should stimulate the development of complex leadership competencies (e.g. fostering network building, generative sense making, see also (89) in their capacity building programs.

Conclusion

In the context of health care organisations, the motivation of health workers relies on individual, organisational and contextual antecedents. The effectiveness of leaders depends on the degree of responsiveness to the basic psychological needs of health workers and on value congruence between organisational and individual values. Leaders should learn how to adapt their leadership practices to the organisational characteristics (nature of task, mission valence) and to type of motivation of health workers (extrinsic versus intrinsic and PSM). Further research is needed to explore the role of value congruence and to understand how the social institutions (i.e. religion, family education, professionalism) may shape the expression of public service motivation of health workers in low and middle income countries.

List of Figures :

Abreviations :

CEO : Chief Executive Officer

CQ : ”Concours Qualité”

FGD : Focus Group Discussion

ICAMO : Intervention, Context,Actor, Mechanism, Outcome.

IDI : In-depth Interview

ITM : Institute of Tropical Medicine

LMIC : Low -and Middle-Income Countries

PHO : Provincial Health Officer

PSM : Public Service Motivation

RE : Realist Evaluation

Declarations :

Ethics approval and consent to participate

The research protocol was approved by the Moroccan Institutional Review Board (n°90/16) of the Faculty of Medicine of Pharmacy, Rabat and the Institutional Review Board of the Institute of Tropical Medicine, Antwerp (n° 1204/17). All participants have been informed prior to the conduct

of the research and written consent forms were signed by the respondants and countersigned by the researcher. A signed copy was given to each respondents.

Consent for publication : « Not Applicable »

Availability of data and material : « Data sharing not applicable as no datasets generated and/or analysed for this study»

Competing interests

The authors declare that they have no competing interests.

Funding

This work was funded through a PhD framework agreement between the Belgian Directorate-General for Development Cooperation and the Institute of Tropical Medicine, Antwerp. The sponsors had no role in the study or in the writing of the paper

Authors contributions

All the four authors (ZB, BM, WVD,AB) contributed to the original design and analysis and writing of the manuscript. ZB carried out the data collection. BM cross checked the transcripts. Initial coding was done by ZB and discussed between the research team members(BM,WVD,AB). ZB edited the final draft. All authors read and approved the final manuscript..

Aknowledgement

We would like to thank NHMH, EJMH, RKMH and SMBA hospital directors, provincial health offcers, and staff who participated willingly to the study. We would kindly like to thank the reviewers Kristina Areskoug-Josefsson and Aoife McDermott for their insightful comments and suggestions that improved the quality of our manuscript

References :

1. George A, Scott K, Govender V. A Health Policy and Systems Research Reader on Human Resources for Health. Geneva: World Health Organisation 2017 15 November 2017.
2. Dieleman M, Gerretsen B, van der Wilt GJ. Human resource management interventions to improve health workers' performance in low and middle income countries: a realist review. Health Research Policy and Systems. 2009;7(1):7.
3. WHO. The world health report 2006: working together for health. Geneva: World Health Organization; 2006.
4. WHO. Health workforce requirements for universal health coverage and the Sustainable Development Goals.(Human Resources for Health Observer, 17). Geneva: World Health Organization; 2016. Report No.: 9241511400.
5. Rowe AK, de Savigny D, Lanata CF, Victora CG. How can we achieve and maintain high-quality performance of health workers in low-resource settings? The Lancet. 2005;366(9490):1026-35.

6. Haines A, Kuruvilla S, Borchert M. Bridging the implementation gap between knowledge and action for health. Bulletin of the World Health Organization. 2004;82:724-31.
7. Topp SM. Health worker performance, practice and improvement In: WHO, AHPSR, editors. A Health Policy and Systems Research Reader on Human Resources for Health. Geneva: World Health Organisation 2017. p. 73.
8. Chopra M, Munro S, Lavis JN, Vist G, Bennett S. Effects of policy options for human resources for health: an analysis of systematic reviews. The Lancet. 2008;371(9613):668-74.
9. Siddiqi K, Newell J, Robinson M. Getting evidence into practice: what works in developing countries? International Journal for Quality in Health Care. 2005;17(5):447-54.
10. WHO. The world health report 2000: health systems: improving performance: World Health Organization; 2000.
11. Fitzgerald L, Ferlie E, McGivern G, Buchanan D. Distributed leadership patterns and service improvement: Evidence and argument from English healthcare. The Leadership Quarterly. 2013;24(1):227-39.
12. Uhl-Bien M, Marion R, McKelvey B. Complexity Leadership Theory: Shifting leadership from the industrial age to the knowledge era. The Leadership Quarterly. 2007;18(4):298-318.
13. Baker GR, Denis J-L. Medical leadership in health care systems: from professional authority to organizational leadership. Public Money & Management. 2011;31(5):355-62.
14. Denis JL, Lamothe L, Langley A. The Dynamics of Collective Leadership and Strategic Change in Pluralistic Organisations The Academy of Management Journal. 2001;44(4):809-37.
15. Hooijberg R, Choi J. The impact of organizational characteristics on leadership effectiveness models :An Examination of Leadership in a Private and a Public Sector Organization. Administration & Society 2001;33(4):403-31.
16. Franco LM, Bennett S, Kanfer R. Health sector reform and public sector health worker motivation: a conceptual framework. Social Science & Medicine. 2002;54(8):1255-66.
17. Ofori-Adjei D, Arhinful DK. Effect of training on the clinical management of malaria by medical assistants in Ghana. Social science & medicine. 1996;42(8):1169-76.
18. Ross-Degnan D, Laing R, Santoso B, Ofori-Adjei D, Lamoureux C, Hogerzeil H, editors. Improving pharmaceutical use in primary care in developing countries: a critical review of experience and lack of experience. International Conference on Improving Use of Medicines, Chiang Mai, Thailand; 1997.
19. Paredes P, De La Peña M, Flores-Guerra E, Diaz J, Trostle J. Factors influencing physicians' prescribing behaviour in the treatment of childhood diarrhoea: knowledge may not be the clue. Social science & medicine. 1996;42(8):1141-53.
20. Brewer GA, Selden SC. Why elephants gallop: Assessing and predicting organizational performance in federal agencies. Journal of public administration research and theory. 2000;10(4):685-712.
21. Rainey HG, Steinbauer P. Galloping elephants: Developing elements of a theory of effective government organizations. Journal of public administration research and theory. 1999;9(1):1-32.
22. Belrhiti Z, Damme WV, Belalia A, Marchal B. Does public service motivation matter in Moroccan public hospitals?
A multiple embedded case study submitted at the international journal of equity in health (article in press) International Journal of Equity in Health 2019.
23. van Loon NM, Vandenabeele W, Leisink P. Clarifying the Relationship Between Public Service Motivation and In-Role and Extra-Role Behaviors: The Relative Contributions of Person-Job and Person-Organization Fit. The American Review of Public Administration. 2015.
24. Perry JL, Wise LR. The motivational bases of public service. Public administration review. 1990:367-73.
25. Vandenabeele W. Toward a public administration theory of public service motivation. Public Management Review. 2007;9(4):545-56.

26. Andersen LB. What determines the behaviour and performance of health professionals? Public service motivation, professional norms and/or economic incentives. International Review of Administrative Sciences. 2009;75(1):79-97.
27. van Loon NM, Leisink P, Vandenabeele W. Talking the talk of public service motivation: How public organization logics matter for employees' expressions of PSM. International Journal of Public Administration. 2013;36(14):1007-19.
28. Bellé N. Leading to Make a Difference: A Field Experiment on the Performance Effects of Transformational Leadership, Perceived Social Impact, and Public Service Motivation. Journal of Public Administration Research and Theory. 2014;24(1):109-36.
29. Bellé N. Experimental evidence on the relationship between public service motivation and job performance. Public Administration Review. 2013;73(1):143-53.
30. Bellé N, Cantarelli P. Monetary Incentives, Motivation, and Job Effort in the Public Sector. Review of Public Personnel Administration. 2015;35(2):99-123.
31. Ritz A, Brewer GA, Neumann O. Public Service Motivation: A Systematic Literature Review and Outlook. Public Administration Review. 2016;76(3):414-26.
32. Homberg F, McCarthy D, Tabvuma V. A Meta-Analysis of the Relationship between Public Service Motivation and Job Satisfaction. Public Administration Review. 2015;75(5):711-22.
33. Petrovsky N, Fabian Homberg DVTaD, Ritz A. Public service motivation and performance: a critical perspective. Evidence-based HRM: a Global Forum for Empirical Scholarship. 2014;2(1):57-79.
34. Warren DC, Chen L-t. The relationship between Public Service Motivation and Performance. In: J.Rincquist E, editor. Meta-Analysis for Public Management and Policy San Francisco, USA: John Wiley & Sons; 2013.
35. Park SM, Rainey HG. Leadership and Public Service Motivation in U.S. Federal Agencies. International Public Management Journal. 2008;11(1):109-42.
36. Paarlberg LE, Lavigna B. Transformational leadership and public service motivation: Driving individual and organizational performance. Public Administration Review. 2010;70(5):710-8.
37. Wright BE, Moynihan DP, Pandey SK. Pulling the Levers: Transformational Leadership, Public Service Motivation, and Mission Valence. Public Administration Review. 2011;72(2):206-15.
38. Vandenabeele W. Explaining Public Service Motivation: The Role of Leadership and Basic Needs Satisfaction. Review of Public Personnel Administration. 2014;34(2):153-73.
39. Anderson LB, Bjornholt B, Bro LL, Holm-Pertersen C. Leadership and motivation:a qualitative study of transformational leadership and public service motivation. International review of Administrative Sciences. 2016;0(0):1-17.
40. Mathauer I, Imhoff I. Health worker motivation in Africa: the role of non-financial incentives and human resource management tools. Human Resources for Health. 2006;4(1):24.
41. Willis-Shattuck M, Bidwell P, Thomas S, Wyness L, Blaauw D, Ditlopo P. Motivation and retention of health workers in developing countries: a systematic review. BMC Health Services Research. 2008;8(1):247.
42. Deci EL, Koestner R, Ryan RMJPb. A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. 1999;125(6):627.
43. Frey BS, Jegen RJJoes. Motivation crowding theory. 2001;15(5):589-611.
44. Frey BS, Homberg F, Osterloh M. Organizational Control Systems and Pay-for-Performance in the Public Service. Organization Studies. 2013;34(7):949-72.
45. Ministère de la Santé. Evaluation de l'impact de la politique de gratuité de l'accouchement et de la césarienne au niveau de six provinces au Maroc. Rabat: Ecole Nationale de Santé Publique, Rabat/ FemHealth/Seventh Framework Program 2014.
46. Gruenais ME. une approche qualitative de la question de la motivation des personnels de santé. Le point de vue des acteurs de la région sanitaire du grand Casablanca. Rabat, Maroc: Institut National d'Administration Sanitaire Observatoire régional de la Santé, Institut de Recherche Developpement; 2008.

47. Boffin N, De Brouwere V. Expériences de renforcement des capacités de pilotage du système de santé; étude comparative des résultats des études dans six pays. 2003.
48. Bossert TJ, Beauvais JC. Decentralization of health systems in Ghana, Zambia, Uganda and the Philipines : a comparative analysis of decision space Health Policy and Planning. 2002;17 (1):14-31.
49. Akhnif E, Macq J, Meessen B. The place of learning in a universal health coverage health policy process: the case of the RAMED policy in Morocco. Health Research Policy Systems. 2019;17(1):21.
50. Blaise P, Sahel A, Afilal R, Wahid A, Boffin N, Kegels G, editors. Ten years of quality projects and their effect on the organisational culture of the Morrocan health care system. Quality in services: higher education, health care, local government; 7th" Toulon-Verona" Conference, Toulon, France, 2-3 September 2004; 2004: [sn].
51. Blaise PJ, Dujardin B, Kegels G. Culture qualité et organisation bureaucratique, le défi du changement dans les systèmes publics de santé: une évaluation réaliste de projets de qualité en Afrique. 2004.
52. Blaise P, Kegels G. A realistic approach to the evaluation of the quality management movement in health care systems: a comparison between European and African contexts based on Mintzberg's organizational models. The International journal of health planning and management. 2004;19(4):337-64.
53. Sahel A, Alaoui Belghiti A, DeBrouwere V, Valente Soares F, Kegels G, Belkaab N, et al. A systemic approach to quality improvement in public health services : The Moroccan “quality contest”. Leadersh Health Serv (Bradf Engl). 2015;28(1):8-23.
54. Sahel A, DeBrouwere V, Dujardin B, Kegels G, Belkaab N, Alaoui Belghiti A. Implementing a nationwide quality improvement approach in health services. Leadersh Health Serv (Bradf Engl). 2015;28(1):24-34.
55. Gilson L. Everyday politics and the leadership of health policy implementation. Health Systems & Reform. 2016;2(3):187-93.
56. Okello DR, Gilson L. Exploring the influence of trust relationships on motivation in the health sector: a systematic review. Hum Resour Health. 2015;13:16.
57. Kwamie A, van Dijk H, Agyepong IA. Advancing the application of systems thinking in health: realist evaluation of the Leadership Development Programme for district manager decision-making in Ghana. Health Res Policy Syst. 2014;12:29.
58. Kwamie A. Balancing Management and Leadership in Complex Health Systems Comment on "Management Matters: A Leverage Point for Health Systems Strengthening in Global Health". Int J Health Policy Manag. 2015;4(12):849-51.
59. Kwamie A BA, Lehmann U. Leadership, management and organizational cultures. In: A G, K S, V G, editors. Health Policy and Systems Research Reader on Human Resources for Health. Geneva: WHO 2017.
60. Bass BM, Riggio RE. Transformational Leadership, . Second Edition ed2006.
61. Ford R. Complex leadership competency in health care: towards framing a theory of practice. Health Services Management Research. 2009.
62. Belrhiti Z, Nebot Geralt A, Marchal B. Complex Leadership in Healthcare: A Scoping Review. International Journal of Health Policy and Management. 2018;7(12):1073-84.
63. Plsek PE, Wilson T. Complexity, leadership, and management in healthcare organisations. British medical journal. 2001.
64. Uhl-Bien M, Marion R. Complexity leadership in bureaucratic forms of organizing: A meso model. The Leadership Quarterly. 2009.
65. Weberg D. Complexity leadership: A healthcare imperative. Nursing forum. 2012.
66. Zimmerman B, Lindberg C, Plsek P. Edgeware: Lessons from Complexity Science for Health Care Leaders 2nd ed. Edition. USA: Irving, Tex: VHA, ; 1998.

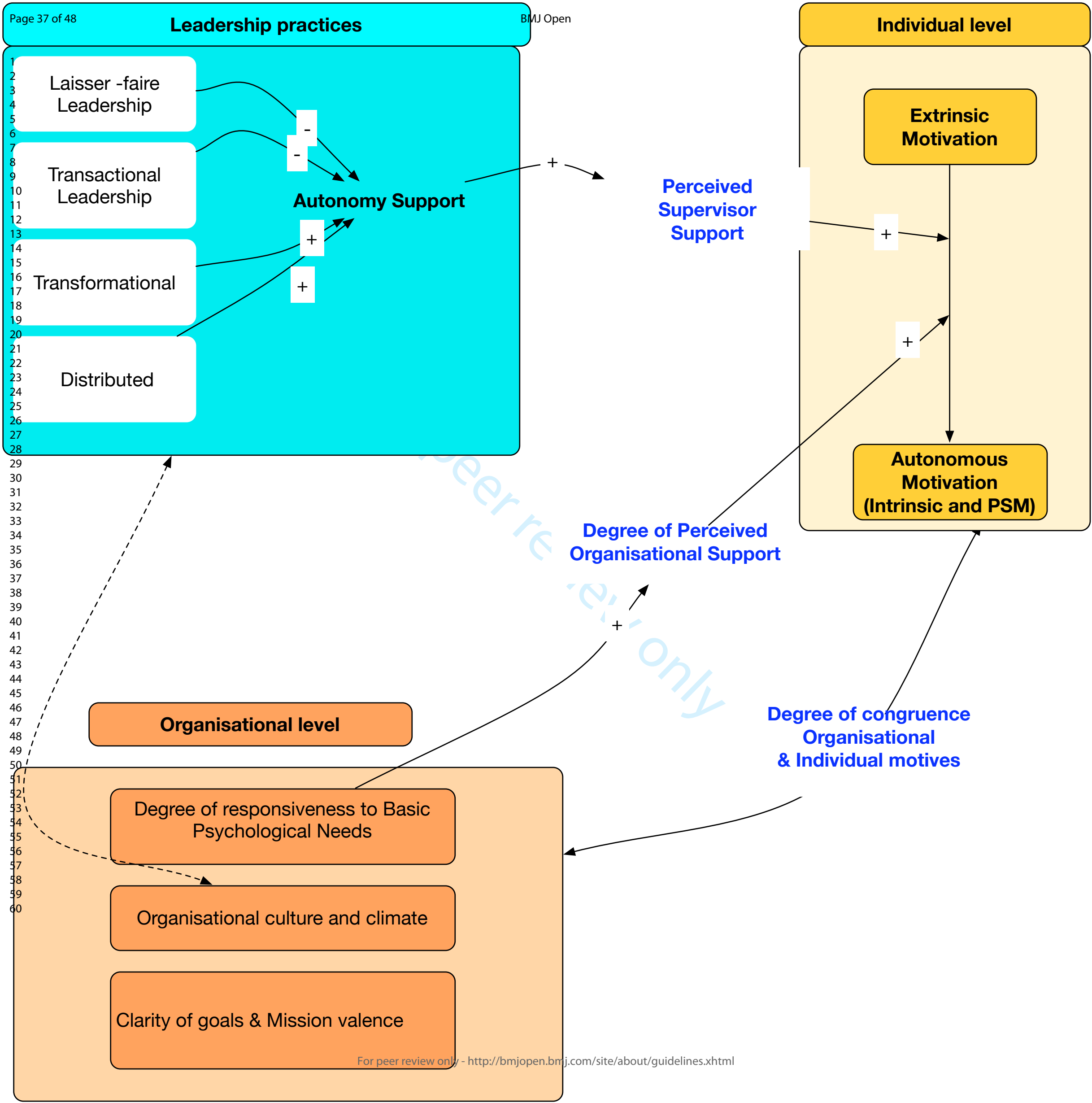
67. Ritz A, Brewer GA. Does Societal Culture Affect Public Service Motivation? Evidence of Sub-national Differences in Switzerland. International Public Management Journal. 2013;16(2):224-51.
68. Rockstuhl T, Dulebohn JH, Ang S, Shore LM. Leader-member exchange (LMX) and culture: a meta-analysis of correlates of LMX across 23 countries. J Appl Psychol. 2012;97(6):1097-130.
69. Perry J. Antecedents of public service motivation. Journal of public administration research theory. 1997;7(2):181-97.
70. Pandey SK, Stazyk ECJ. Antecedents and Correlates of Public Service Motivation. Motivation in Public Management: The Call of Public Service. Oxford: Oxford University Press; 2008. p. 101.
71. Bøgh Andersen L, Holm Pedersen L. Public Service Motivation and Professionalism. International Journal of Public Administration. 2012;35(1):46-57.
72. Vandenabeele W. Who Wants to Deliver Public Service? Do Institutional Antecedents of Public Service Motivation Provide an Answer? Review of Public Personnel Administration. 2010;31(1):87-107.
73. Camilleri E. Antecedents affecting public service motivation. Personnel Review. 2007;36(3):356-77.
74. Wise LR. Bureaucratic posture: On the need for a composite theory of bureaucratic behavior. J Public Administration Review. 2004;64(6):669-80.
75. Moynihan Dp, K.Pandey S. The role of organizations in fostering public service motivation Public Administrative review. 2007 67(1):40-53.
76. Chapman C, Getha-Taylor H, Holmes MH, Jacobson WS, Morse RS, Sowa JE. How Public Service Leadership Is Studied: An Examination of a Quarter Century of Scholarship. Public Administration. 2016;94(1):111-28.
77. Perry JL, Hondeghem A. Motivation in Public Management : The Call of Public Service. New York: Oxford University Press; 2008.
78. Moynihan DP, Pandey SK, Wright BE. Transformational Leadership in the Public Sector : Empricial Evidence of Its effects" In: Dwivedi YK, Shareef MA, Pandey SK, Kumar V, editors. Public Administration Reformation : Market Demand from Public Organizations Routeledge/ Taylor and Francis; 2014. p. 87-104.
79. McVeigh J, MacLachlan M, Gilmore B, McClean C, Eide AH, Mannan H, et al. Promoting good policy for leadership and governance of health related rehabilitation: a realist synthesis. Globalization and Health. 2016;12(1):49.
80. Brand SL, Thompson Coon J, Fleming LE, Carroll L, Bethel A, Wyatt K. Whole-system approaches to improving the health and wellbeing of healthcare workers: A systematic review. PLoS One. 2017;12(12):e0188418.
81. Paarlberg LE, Perry JL. Values management: Aligning employee values and organization goals. The American Review of Public Administration. 2007;37(4):387-408.
82. Paarlberg LE, Perry JL, Hondeghem A. From theory to practice: Strategies for applying public service motivation. Motivation in public management: The call of public service. 2008:268-93.
83. Perry JL, Hondeghem A. Directions for future theory and research. In: Press OU, editor. Motivation in public management: The call of public service. Oxford2008. p. 294-313.
84. Pawson R, Tilley N, Tilley N. Realistic evaluation: Sage; 1997.
85. Marchal B, Van Belle S, Van Olmen J, Hoerée T, Kegels G. Is realist evaluation keeping its promise? A review of published empirical studies in the field of health systems research. Evaluation. 2012;18(2):192-212.
86. Astbury B, Leeuw FL. Unpacking Black Boxes : Mechanisms and Theory Building in Evaluation. American Journal of Evaluation 2010;31(3):363-81.
87. Wong G, Westhorp G, Manzano A, Greenhalgh J, Jagosh J, Greenhalgh T. RAMESES II reporting standards for realist evaluations. BMC medicine. 2016;14(1):96.
88. Belrhiti Z, Van Damme W, Belalia A, Marchal B. Unravelling the role of leadership in motivation and performance of health workers in a Moroccan public hospital: a realist evaluation (In press). BMJ Open. 2019.

89. Belrhiti Z, Nebot Geralt A, Marchal B. Complex Leadership in Healthcare: A Scoping Review. International Journal of Health Policy and Management. 2018:-.
90. Eisenberger R, Stinglhamber F, Vandenberghe C, Sucharski IL, Rhoades L. Perceived supervisor support: Contributions to perceived organizational support and employee retention. Journal of applied psychology. 2002;87(3):565.
91. Eisenberger R, Fasolo P, Davis-LaMastro V. Perceived organizational support and employee diligence, commitment, and innovation. Journal of applied psychology. 1990;75(1):51.
92. Rhoades L, Eisenberger R, Armeli S. Affective commitment to the organization: The contribution of perceived organizational support. Journal of applied psychology. 2001;86(5):825.
93. Ryan R, Deci E. Psychological Needs. Varied Concepts and a Preliminary Description of SDT's Approach. In: Press TG, editor. Self-determination theory: basic psychological needs in motivation, development, and wellness. New York London 2017. p. 80-101.
94. Kottke JL, Sharafinski CE. Measuring perceived supervisory and organizational support. Educational
psychological Measurement. 1988;48(4):1075-9.
95. Dinh JE, Lord RG, Gardner WL, Meuser JD, Liden RC, Hu J. Leadership theory and research in the new millennium: Current theoretical trends and changing perspectives. The Leadership Quarterly. 2014;25(1):36-62.
96. Marion R, Rumsey MG. Organizational leadership and complexity mechanisms. Oxford Handbook of Leadership2012.
97. Uhl-Bien M, Marion R, McKelvey B. Complexity leadership theory: shifting leadership from the industrial age to the knowledge era (Ch 8). Leadership, Gender, and2011.
98. Uhl-Bien M. Complexity leadership :part 1. Unites States of America: Information aged publishing 2008.
99. Viitala R. Leadership in transformation: a longitudinal study in a nursing organization. J Health Organ Manag. 2014;28(5):602-18.
100. Schein EH. Organizational culture and leadership: John Wiley & Sons; 2004.
101. Casida JJ, Pinto-Zipp G. Leadership-organizational culture relationship in nursing units of acute care hospitals. Nursing Economics. 2008;26(1):7.
102. Tsai Y. Relationship between Organizational Culture, Leadership Behavior and Job Satisfaction. BMC Health Services Research. 2011;11(1):98.
103. Cameron KS, Quinn RE. Diagnosing and changing organizational culture: Based on the competing values framework: John Wiley & Sons; 2011.
104. Cameron KS, Quinn RE. Diagnosing and changing organizational culture: Based on the competing values framework: John Wiley & Sons; 2005.
105. Bock G-W, Zmud RW, Kim Y-G, Lee J-NJMq. Behavioral intention formation in knowledge sharing: Examining the roles of extrinsic motivators, social-psychological forces, and organizational climate. MIS quarterly. 2005;29(1):87-111.
106. Jones AP, James LR. Psychological climate: Dimensions and relationships of individual and aggregated work environment perceptions. J Organizational behavior
. 1979;23(2):201-50.
107. Deci EL, Ryan RM. Self-determination theory: A macrotheory of human motivation, development, and health. Canadian Psychology/Psychologie canadienne. 2008;49(3):182-5.
108. Yin RK. Case study research: design and methods, Applied social research methods series. Thousand Oaks, CA: Sage Publications, Inc Afacan, Y, & Erbug, C(2009) An interdisciplinary heuristic evaluation method for universal building design Journal of Applied Ergonomics. 2003;40:731-44.
109. Patton MQ. Qualitative Research & Evaluation Methods Thousand Oaks, London, New Delhi: Sage Publications; 2001.
110. Yin RK. Qualitative Research from Start to Finish. New York, London: The Guilford Press; 2016.

111. Ministère de la Santé du Maroc. Concours Qualité Fourth Edition 2011. Rabat: Direction des Hopitaux et Soins Ambulatoires 2011.
112. Ministère de la Santé du Maroc. Concours Qualité Sixth Edition 2016. Rabat: Direction des Hopitaux et Soins Ambulatoires 2016.
113. Krueger RA, Casey MA. Focus groups: A practical guide for applied research. Los Angeles, London, New Delhi, Singapore, Washington DC: Sage publications; 2014.
114. Morgan DL, Krueger RA. Analyzing and reporting focus group results: Sage; 1998.
115. Rubin HJ, Rubin IS. Qualitative interviewing: The art of hearing data: Sage; 2011.
116. Miles MB, Huberman AM, Saldana J. Qualitative data analysis. 3 ed. Los Angeles, London, New Delhi, Singapore, Washington DC: Sage 2016.
117. Spradley JP. Participant observation: Waveland Press; 2016.
118. Saldaña J. The coding manual for qualitative researchers. Los Angeles, London, New Delhi, Singapore, Washington DC: Sage; 2015.
119. Marchal B, Kegels G, Belle SV. Theory and realist methods In: Emmel N, Greenhalgh J, Manzano A, Monaghan M, Dalkin S, editors. Doing Realist Research. Los Angeles, London, New Delhi: SAGE; 2018.
120. Bhaskar R. A realist theory of science. London and New York Routledge; 2013.
121. Belrhiti Z, Damme WV, Belalia A, Marchal B. Does public service motivation matter in Moroccan public hospitals? A multiple embedded case study
. International journal for equity in health. 2019;18.
122. QSR International Pty Ltd. NVivo qualitative data analysis Software. 11.4 ed2014.
123. Hinkin TR, Schriesheim CA. An examination of" nonleadership": From laissez-faire leadership to leader reward omission and punishment omission. Journal of Applied Psychology. 2008;93(6):1234.
124. Judge TA, Piccolo RF. Transformational and transactional leadership: a meta-analytic test of their relative validity. Journal of applied psychology. 2004;89(5):755.
125. Lee RT, Ashforth BE. A meta-analytic examination of the correlates of the three dimensions of job burnout. Journal of applied Psychology. 1996;81(2):123.
126. Moyle P. Longitudinal influences of managerial support on employee well-being. Work & Stress. 1998;12(1):29-49.
127. Van Dierendonck D, Haynes C, Borrill C, Stride C. Leadership behavior and subordinate well-being. Journal of occupational health psychology. 2004;9(2):165.
128. Rooney JA, Gottlieb BH. Development and initial validation of a measure of supportive and unsupportive managerial behaviors. Journal of Vocational Behavior. 2007;71(2):186-203.
129. Fritzen SA. Strategic management of the health workforce in developing countries: what have we learned? Human Resources for Health. 2007;5(1):4.
130. Musinguzi C, Namale L, Rutebemberwa E, Dahal A, Nahirya-Ntege P, Kekitiinwa A. The relationship between leadership style and health worker motivation, job satisfaction and teamwork in Uganda. J Healthc Leadersh. 2018;10:21-32.
131. Zakumumpa H, Taiwo MO, Muganzi A, Ssengooba F. Human resources for health strategies adopted by providers in resource-limited settings to sustain long-term delivery of ART: a mixed-methods study from Uganda. Hum Resour Health. 2016;14(1):63.
132. Wright BE, P.Moynihan D, Pandey SK. Pulling the Levers: Transformational Leadership, Public Service Motivation, and Mission Valence. Public Administration Review. 2012;72(2):206-15.
133. Caillier JG. Toward a Better Understanding of the Relationship Between Transformational Leadership, Public Service Motivation, Mission Valence, and Employee Performance. Public Personnel Management. 2014;43(2):218-39.
134. Caillier JG. Transformational Leadership and Whistle-Blowing Attitudes: Is This Relationship Mediated by Organizational Commitment and Public Service Motivation? The American Review of Public Administration. 2013;45(4):458-75.

135. Caillier JG. Toward a Better Understanding of the Relationship Between Transformational Leadership, Public Service Motivation, Mission Valence, and Employee Performance: A Preliminary Study. Public Personnel Management. 2014;43(2):218-39.
136. Gould-Williams J. The importance of HR practices and workplace trust in achieving superior performance: A study of public-sector organizations. The International Journal of Human Resource Management. 2003;14(1):28-54.
137. Alimo-Metcalfe B, Alban-Metcalfe J. Engaging leadership: creating organisations that maximise the potential of their people: CIPD; 2008.
138. Baumeister RF, Leary MR. The need to belong: desire for interpersonal attachments as a fundamental human motivation. Psychological bulletin. 1995;117(3):497.
139. Quinn RE. Beyond rational management: Mastering the paradoxes and competing demands of high performance. San Francisco, CA, US: Jossey-Bass; 1988. xxii, 199-xxii, p.
140. P.Moynihan D, K.Pandey S. The Role of Organizations in Fostering Public Service Motivation. Public Administration Review. 2007:40-53.
141. Krogsgaard JA, Thomsen P, Andersen LB. Only If We Agree? How Value Conflicts Moderate the Relationship Between Transformational Leadership and Public Service Motivation. International Journal of Public Administration. 2014;37(12):895-907.
142. McKee MC, Driscoll C, Kelloway EK, Kelley E. Exploring linkages among transformational leadership, workplace spirituality and well-being in health care workers. Journal of Management, Spirituality & Religion. 2011;8(3):233-55.
143. Ford R. Complex leadership competency in health care: towards framing a theory of practice. Health Serv Manage Res. 2009;22(3):101-14.
144. Plsek PE, Greenhalgh T. the challenge of complexity in health care BMJ. 2001;323:625-8.
145. Hazy J. Measuring leadership effectiveness in complex socio-technical systems. E:CO. 2006;8(3):58-77.
146. Uhl-Bien M, Marion R. Complexity leadership in bureaucratic forms of organizing: A meso model. The Leadership Quarterly. 2009;20(4):631-50.
147. Kark R, Dijk DV. Motivation to Lead, Motivation to Follow: The Role of the Self-Regulatory Focus in Leadership Processes. Academy of Management 2007;32(2):500-28.
148. Avolio BJ, Walumbwa FO, Weber TJ. Leadership: Current Theories, Research, and Future Directions. Annual Review of Psychology. 2009;60(1):421-49.
149. Brady Germain P, Cummings GG. The influence of nursing leadership on nurse performance: a systematic literature review. Journal of nursing management. 2010;18(4):425-39.
150. Avolio BJ, Reichard RJ, Hannah ST, Walumbwa FO, Chan A. A meta-analytic review of leadership impact research: Experimental and quasi-experimental studies. The Leadership Quarterly. 2009;20(5):764-84.
151. Marchal B, Kegels G, Belle SV. Theory and realist methods In: Emmel N, Greenhalgh J, Manzano A, Monaghan M, Dalkin S, editors. Doing Realist Research. Los Angeles, London, New Delhi: SAGE; 2018. p. 79-90.
152. Greenhalgh T, Humphrey C, Hughes J, Macfarlane F, Butler C, Pawson R. How do you modernize a health service? A realist evaluation of whole-scale transformation in London. The Milbank Quarterly. 2009;87(2):391-416.
153. Anderson RA, Crabtree BF, Steele DJ, McDaniel RR, Jr. Case study research: the view from complexity science. Qual Health Res. 2005;15(5):669-85.
154. Marion R. Complexity theory for organizations and organizational leadership. In: Bien MU, Marion R, editors. Complexity leadership, part 1. Charlotte North Carolina: Information Age Publishing; 2008.
155. Yukl G. Contingency theories of effective leadership. In: Bryman A, Collinson D, Grint K, Jackson B, Bien. MU, editors. The SAGE handbook of leadership. 24. USA: Sage Publications; 2011. p. 286-98.

156. Yin RK. Case study research and applications: Design and methods. Thousand Oaks, California, USA: Sage publications; 2018.
157. Weberg DR. Complexity leadership theory and innovation: A new framework for innovation leadership. 2013.
158. Forbes-Thompson S, Leiker T, Bleich MR. High-performing and low-performing nursing homes: a view from complexity science. Health Care Manage Rev. 2007;32(4):341-51.
159. Plowman DA, Solansky S, Beck TE, Baker L, Kulkarni M, Travis DV. The role of leadership in emergent, self-organization. The leadership quarterly. 2007;18(4):341-56.
160. Cassell C, Symon G. Essential guide to qualitative methods in organizational research: Sage; 2004.
161. Ferlie E. Organisational studies. Studying the organisation and delivery of health services: Routledge; 2004. p. 36-51.
162. Murphy E. Micro-level qualitative research. Studying the organisation and delivery of health services: Routledge; 2004. p. 52-67.
163. Belghiti AA, Boffin N, De Brouwere V. L'espace de décision de la gestion des ressources humaines sanitaires au Maroc. Rabat: Royaume du Maroc, Ministère de la santé 2004.
164. Cox JB, Estrada SD, Lynham SA, Motii N. Defining human resource development in Morocco: An exploratory inquiry. Human Resource Development International. 2005;8(4):435-47.
165. Benson PG, Al Arkoubi K. Human resource management in Morocco. Managing human resources in the Middle East. 2006;29:273-90.
166. Al-Arkoubi K, McCourt W. The politics of HRM: waiting for Godot in the Moroccan civil service. The International Journal of Human Resource Management. 2004;15(6):978-95.



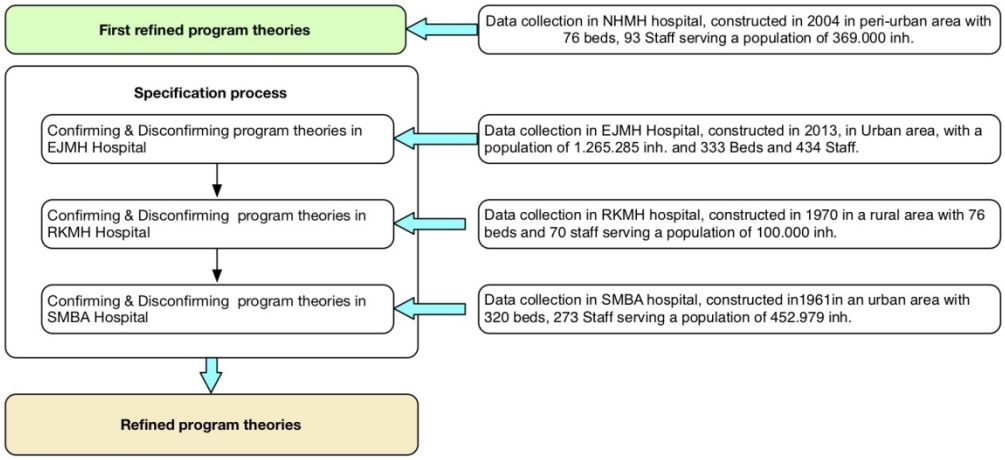


Figure 2 - Cases studies and data collection, Morocco, January-June 2018

261x118mm (150 x 150 DPI)

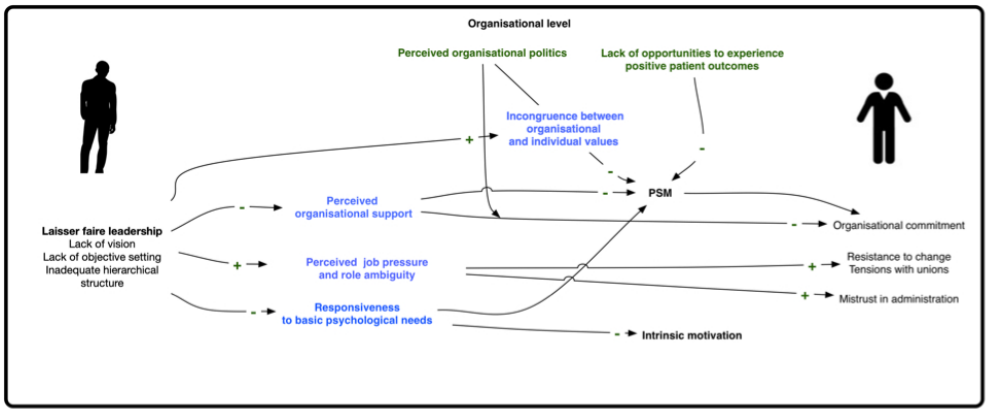


Figure 3 - Laisser-faire leadership and PSM (ICAMO 1)

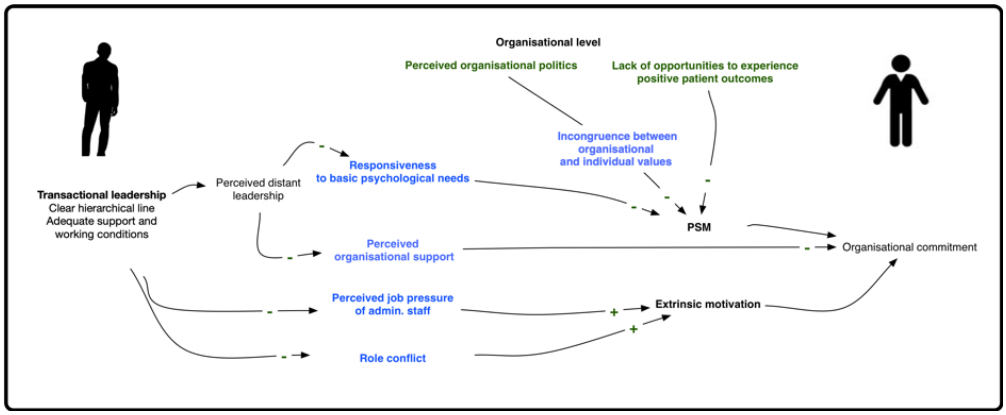


Figure 4 - Transactional leadership-PSM (ICAMO 2)

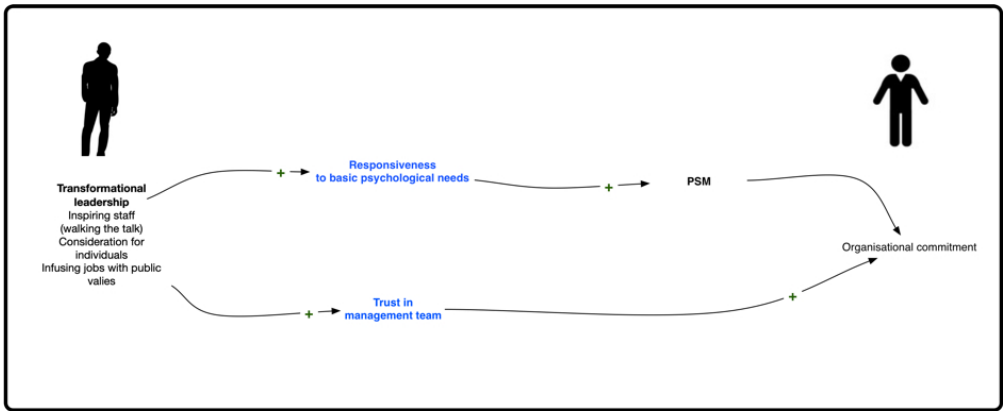


Figure 5 - Transformational leadership and PSM (ICAMO 3)

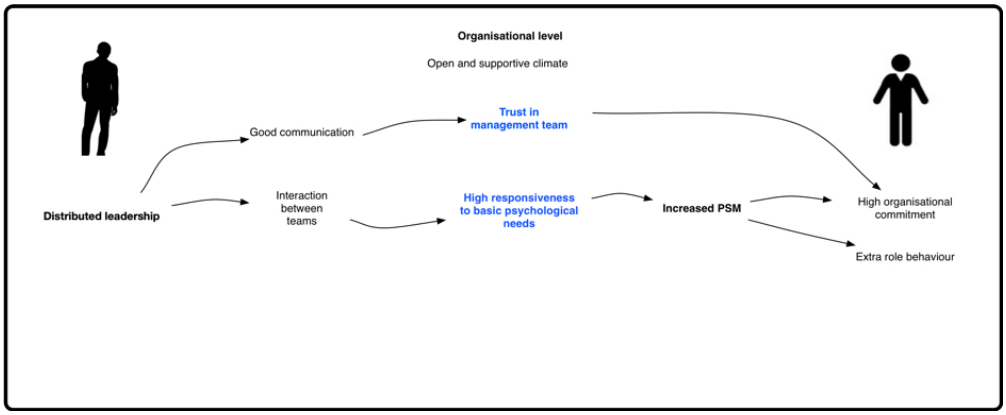


Figure 6 Distributed leadership and PSM (ICAMO4)

Supplementary file 1 Open ended interview

This interview topic guide gives an indication of the main questions that will be asked in the interviews of health service managers and providers. Core questions were adapted to meet the specificity of each category (senior managers (Questions 1 to 4), intermediate managers (Questions 1 to 5); health professional (Questions 2 to 5).

Components	Objectives/Remarks / Questions
Introduction	Researcher presentation (Name, qualification, institution)
	Interview objectives
	Explain the procedure (Time, Clarification questions, information about voluntary participation and the autonomy to respond or not to sensitive question and information about consent forms)
	Explain confidentiality and data anonymisation procedures
	Ask permission to record the interview (Audio record and notes)
	Obtain informed consent
Adjust the recording device	Make sure that equipment is functioning and the room is not noisy
General part	To get overall idea about the interviewee and make him/ her comfortable
	Q : How old are you ?
	Q : Could you describe your actual job position? Your tasks?
	Q : How long have you been working in your actual position?
	Q : How long have you been working in this hospital?
	Q : Where have you worked before? In which function?
Introduction to specific questions	Transition to core questions
1) Leadership Practices	Q : Could you describe you task?
	Q : Could you describe your role as a manager? P
	Q : What is your vision about leadership? What do a good leader means to you?
	Q : Would you give me some examples of your practice of leadership?
	Q : What challenges are you confronted with in you leadership practice ?
	Q : In your opinion, how could you describe your influence on staff behaviours ?
2)Hospital Performance	Q : In your opinion, what explain the good/bad performance of your hospital in "Concours Qualité" ?
	Q : Is it related to leadership? Does leadership matters?
3) Individual Performance	Q : In your opinion, what are the major reasons why a health professional is performant in health care provision?
	Q : According to you, what are he facilitators to individual performance?

	Q : In your opinion, what are the barriers to maintain a good individual performance for health professionals ?.
	Q : Is there a difference in the motivation between different cadres of health professionals or not?
	Q : How could you play a role in the motivation of your staff/ colleagues?
4) Public Service Motivation	**Q : Could you explain what motivates you to work in this hospital ? (Motivation intrinsic/extrinsic)**
	Q : how do you feel working in this hospital?
	Q : What attaches you to this hospitals, if any? Q: how do you describe this attachment?
	Q : serving citizens, what does it means for you?
	Q : Did you think about quitting the public service? If yes, why? If no, why?
	Q : Do you feel that you are doing tasks that go beyond your responsibilities, or not?
	Q : how could you describe you engagement about the organisational mission and vision?
	Q : Do you feel that you have the necessary information, tools and support to carry on your task, or not?
	Q : Do you engage in supplementary efforts without contingent financial rewards ? Could you give me some examples?
5) Leadership in your organisation	**Q : Could you describe leadership practices in your organisations?**
	Q : Do you feel that you are supported by your superior ? By management teams?
	Q : Could you provide some examples of leadership practices of your superior?
	Q : how could you describe relation between your interaction with your leader and your motivation?
Summary and debriefing	**During this interview you gave me useful informations that are relevant to this study.**
	Q : Is there something that you see as important regarding our topic we did not mention? If Yes we could discuss it. We do have time.
	Q: Do you have questions for me?

Supplementary file 2 Focus Group Discussion Guide (senior managers)

themes	Questions	Prompts, clarifications, vignettes
Motivation	**Q 1 : What motivates at work at this hospital?** Q 2 : How do you feel at work at the hospital?	
Public service motivation	**Q2 : Why did you choose to the work at the public sector?** You told me about your (de) motivation in the public sector? Could you explain your (de) motivation?	
	Q3 : Serving citizen, what does it mean to you ? **Give me examples from your professional experience?**	
	Q 4 : Did you think about quitting the public service? If Yes why? If no why not?	***Vignette 1*** *Mr or Dr Rachid work in this hospital for 10 years, he did not leave the public hospital to work in the private sector because he feel satisfied with the help he is providing to the local underprivileged population What do you think about Dr /Mr Rachid perspective?*
	Q 5 : Do that you are well paid according to your contribution to this hospital? If Yes why? If no why ?	***Vignette 2*** *: Dr/Mr Rachid a has accompanied many patients in medical transfers although he is not well remunerated. he continues to do it when asked. What do you think about his attiude ?*
Leadership	Q6 **: in your opinion, what does it mean a good leader?** Q 7 : How could you describe the leadership of your supervisors? Q 8 : Does managers' leadership matters for you to be performant at work?	**Vignette 3 :**A manager told me that leadership is important in the motivation of staff. Do you agree with that. ? Do you agree that leadership play a role in the staff performance?
Interaction Leadership-Motivation	Q 9 : How would you describe your the relationship between your interaction with the leader an your motivation ?	
Organisational performance	Q : According to you, what explains the good/ bad performance of your hospitals in "Concours Qualité"?	Who was involved? Who took leadership roles? Who was responsible for decision making?
	Q : What makes you perform well/bad under the leadership of Mr/Mme ?	

Table 1 frequency of leadership styles themes

	EJMH	NHMH	RKMH	SMBA
Laisser-faire Leadership	33	24	91	87
Transactional leadership	173	135	95	82
Transformational leadership	94	128	52	80
Distributed leadership	18	39	1	15
Complex leadership	142	221	40	94

Table 2 frequency of Leadership-PSM causal codes

PSM /leadership styles	Attraction to public service	Commitment to public values	Compassion	Self-Sacrifice
Laisser-faire leadership	2	12	21	5
Transactional leadership	12	20	4	4
Distributed leadership	2	0	0	0
Transformational leadership	20	16	16	8
Complex leadership	19	14	6	11

Table 3 Organisational characteristics (culture and climate) subthemes

	EJMH	NHMH	RKMH	SMBA
Market Culture	3	0	6	3
Pigeonholing	10	15	24	66
Hierarchical Culture	18	5	31	24
Conflict and ambiguity;	52	29	47	98
Job challenge, importance and variety	7	9	6	11
Perceived supervisor support	20	13	15	33
Professional and organisational esprit	104	138	94	46
Clan culture	42	74	28	60
Culture of integrity	9	28	0	3
Perceived organisational politics	27	19	36	24

Table 4 Individual motivation subthemes

Type of motivation	EJMH	NHMH	RKMH	SMBA
Amotivation	30	4	11	1
Extrinsic motivation	23	35	15	21
Intrinsic motivation	6	26	0	3
Public Service Motivation	171	241	237	326

Table 5 Basic Psychological needs subthemes

Psychological needs/site	EJMH	NHMH	RKMH	SMBA
Competency needs	8	25	20	12
Autonomy needs	6	4	2	3
Relatedness needs	17	4	15	15

	Table 1 List of items	Content to be reported in realist evaluation (Wong, 2016)	Y/N/Unclear	Page(s) in document
1	Title	In the title, identify the document as a realist evaluation	Y	Page 1 L 1
2	Summary or Abstract	Journal articles will usually require an abstract, while reports and other forms of publication will usually benefit from a short summary. The abstract or summary should include brief details on: the policy, programme or initiative under evaluation; programme setting; purpose of the evaluation; evaluation question(s) and/or objective(s); evaluation strategy; data collection, documentation and analysis methods; key findings and conclusions Where journals require it and the nature of the study is appropriate, brief details of respondents to the evaluation and recruitment and sampling processes may also be included Sufficient detail should be provided to identify that a realist approach was used and that realist programme theory was developed and/or refined	Y Y Y	Page 2 L 1 -47
	INTRODUCTION			
3	Rationale for evaluation	Explain the purpose of the evaluation and the implications for its focus and design	Y	P 4 L 18 -29
4	Programme theory	Describe the initial programme theory (or theories) that underpin the programme, policy or initiative	Y	P 4 Line 42 to Page -7 line 20 and Figure 1
5	Evaluation questions, objectives and focus	State the evaluation question(s) and specify the objectives for the evaluation. Describe whether and how the programme theory was used to define the scope and focus of the evaluation	Y	P 4 L 24-29
6	Ethical approval	State whether the realist evaluation required and has gained ethical approval from the relevant authorities, providing details as appropriate. If ethical approval was deemed unnecessary, explain why	Y	P 10 L 14-22
	METHODS			
7	Rationale for using realist evaluation	Explain why a realist evaluation approach was chosen and (if relevant) adapted	Y	P 4 L 31-35
8	Environment surrounding the evaluation	Describe the environment in which the evaluation took place	Y	P 8 L 1 to 5 and Table 1/figure 2
9	Describe the programme policy, initiative or product evaluated	Provide relevant details on the programme, policy or initiative evaluated	Y	P 7 L 9-16, Figure 1 and Page 4 L 24-29
10	Describe and justify the evaluation design	A description and justification of the evaluation design (i.e. the account of what was planned, done and why) should be included, at least in summary form or as an appendix, in the document which presents the main findings. If this is not done, the omission should be justified and a reference or link to the evaluation design given. It may also be useful to publish or make freely available (e.g. online on a website) any original evaluation design document or protocol, where they exist	Y	P 4 L 31 36 and P 7 Line 21_37
11	Data collection methods	Describe and justify the data collection methods – which ones were used, why and how they fed into developing, supporting, refuting or refining programme theory Provide details of the steps taken to enhance the trustworthiness of data collection and documentation	Y	P 8 L 10-47 to P 9 L 1 TO 12 and table 2
12	Recruitment process and sampling strategy	Describe how respondents to the evaluation were recruited or engaged and how the sample contributed to the development, support, refutation or refinement of programme theory	Y	Table 2 P 9 and data collection and p 7 l 21 to 36 (see above)
13	Data analysis	Describe in detail how data were analysed. This section should include information on the constructs that were identified, the process of analysis, how the programme theory was further developed, supported, refuted and refined, and (where relevant) how analysis changed as the evaluation unfolded	Y	P 9 L 13-18 and P 10 L 1 to 8
	RESULTS			
14	Details of participants	Report (if applicable) who took part in the evaluation, the details of the data they provided and how the data was used to develop, support, refute or refine programme theory	Y	Table 2 P 9 and data collection see above
15	Main findings	Present the key findings, linking them to contexts, mechanisms and outcome configurations. Show how they were used to further develop, test or refine the programme theory	Y	Result Section P 10 and Table 3 and 4
	DISCUSSION			
16	Summary of findings	Summarise the main findings with attention to the evaluation questions, purpose of the evaluation, programme theory and intended audience	Y	P 24 L 7 to 29
17	Strengths, limitations and future directions	Discuss both the strengths of the evaluation and its limitations. These should include (but need not be limited to): (1) consideration of all the steps in the evaluation processes; and (2) comment on the adequacy, trustworthiness and value of the explanatory insights which emerged In many evaluations, there will be an expectation to provide guidance on future directions for the programme, policy or initiative, its implementation and/or design. The particular implications arising from the realist nature of the findings should be reflected in these discussions	Y	P 24 L 48
18	Comparison with existing literature	Where appropriate, compare and contrast the evaluation's findings with the existing literature on similar programmes, policies or initiatives	Y	P24 L 7 to 46
19	Conclusion and recommendations	List the main conclusions that are justified by the analyses of the data. If appropriate, offer recommendations consistent with a realist approach	Y	P 25 l 45 -51 and P 26 L1-15
20	Funding and conflict of interest	State the funding source (if any) for the evaluation, the role played by the funder (if any) and any conflicts of interests of the evaluators	Y	P 27 l 10 to 16