

Enabling clinician engagement in safety and quality improvement

Sarah Fischer^{1,2} PhD Candidate, Lead Organisational Psychologist

Karen Patterson¹ Director, Capability and Culture

Carrie Marr¹ Chief Executive

¹Clinical Excellence Commission, Level 3, 1 Reserve Road, St Leonards, NSW 2065, Australia.

Email: karen.patterson@health.nsw.gov.au; carrie.marr@health.nsw.gov.au

²Corresponding author: Email: sarah.fischer@health.nsw.gov.au

Abstract.

Objective. The aim of this study was to determine how individual, group and leadership factors influence clinician engagement in safety and quality improvement work.

Methods. The study was conducted through an online questionnaire. Participants were alumni of Australian healthcare safety and quality improvement capability development programs. Relationships between five factors influencing clinicians' perception of value for time and effort in safety and quality improvement work were explored. The five factors were psychological empowerment; task cohesion; social cohesion; transformational leadership behaviour of project leads and sponsors; and value for time and effort for self and patients. Correlation and regression analyses were used to explore the aspects of the hypothesised model. Moderation and mediation analysis was then used to explore the relationships further. Structural equation modelling was used to determine the path model.

Results. All factors showed strong positive correlations, with psychological empowerment and transformational leadership having the strongest relationships with perceived value for effort for self and patient. The factorial structure of measures was examined, and all indicators loaded significantly on their corresponding latent constructs and the model showed a good fit to the data.

Conclusions. The findings of this study suggest that the most crucial factor to clinician engagement in safety and quality improvement at the point of care is the leader's behaviour and how that influences team dynamics and individual motivation and empowerment.

What is known about the topic? Healthcare organisations remain challenged regarding clinician engagement in safety and quality improvement. Although much is known about clinicians' perceptions of safety and quality, there is more to understand about what practically motivates clinicians to engage. Tapping into individual, group and leadership factors' influences on clinician engagement offers a deeper perspective.

What does this paper add? This study explored the individual, group and leadership factors that drive clinician engagement. The factors include the clinician's individual motivation and empowerment to participate, the group dynamics that surround the clinician and the leadership behaviours of the team's leader. The research design allowed for greater understanding about how and to what extent these factors drive clinician engagement. The study's findings can be applied in practice in capability development activities or leadership for safety and quality improvement.

What are the implications for practitioners? Rather than taking a perspective that the clinician needs to engage, this study suggests a strong onus on leadership behaviours to engage those clinicians. Focusing on the self as leader and a leader's own behaviours, as well as how those behaviours are fostering positive team dynamics and motivating and empowering individual team members, will have a great benefit on clinician engagement in safety and quality improvement. Higher clinical engagement in safety and quality improvement should translate into better value care.

Keywords: patient safety, quality improvement, motivation, empowerment, leadership, teamwork.

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Introduction

It has been nearly 20 years since healthcare organisations recognised the human elements that influence patient safety,¹ which has been a driver for healthcare safety and quality improvement work globally. Yet, healthcare organisations still experience challenges regarding maintaining clinician engagement in safety and quality improvement work.^{2–4} For the purpose of the present study, ‘clinicians’ are considered to be healthcare workers from a variety of professional backgrounds, such as medicine, nursing, pharmacy or other allied health disciplines, who provide frontline patient care where there may be ongoing care needs, where there is expertise required for care management and/or where care is provided during a defined period and circumstance.

The significance of clinician engagement for positive healthcare safety and quality improvement work outcomes has been established.^{2–5} Although the full scope of healthcare safety and quality improvement goes beyond the interactions between individuals in teams, that local cultural element is extremely important.^{4,5} To support healthcare organisations to better understand and influence clinician engagement in safety and quality at the local level, an exploration of the individual, group and leadership factors that influence that engagement was conducted. Identifying the individual, group and leadership factors was based on a deeper examination, through an inductive approach to the literature, about what drives clinician engagement in safety and quality improvement in healthcare.

Challenges to clinician engagement in safety and quality improvement

There is consistency regarding the challenges individual clinicians perceive about safety and quality improvement work.^{3,4,6,7} Taking a view from the point of care, sources suggest that the role of the leader, or manager, is crucial to enabling engagement.^{3,4,6,7} Positive leadership improves engagement, whereas negative or absent leadership decreases it.^{3,4,6} Perceptions of the purpose of engaging in safety and quality improvement work drive engagement.^{3,6} Clinicians may be wary of the intent, but they will engage if the safety and quality improvement work is deemed genuine in improving patient care.^{3,6} Moreover, engagement decreases when safety and quality improvement work is perceived as wasteful of resources or creating more harm than good.³ Finally, there may be limited universality of the concepts, methods and language among clinicians, which creates challenges around clarity and purpose.^{3,4,8} Engagement is challenged when group members lack clarity and purpose.⁹ There is a strong theme about the interpersonal interactions and perceptions of clinicians, leaders and dedicated healthcare safety and quality professionals about safety and quality improvement work in the descriptions of challenges to clinician engagement.

The ‘psychology of change’

Safety and quality improvement is about change, in either behaviour, process or both.^{10,11} Therefore, accounting for the attributes of how humans experience, accept or resist change is crucial to individual engagement in the change. Some healthcare safety and quality improvement literature¹² describes the human

element of change for safety and quality improvement using W. E. Deming’s¹³ system of profound knowledge (SoPK), and specifically what Deming refers to as the ‘psychology of change’ lens. Healthcare organisations internationally have used Deming’s SoPK to underpin their quality improvement capability development efforts to upskill leaders and employees to ultimately improve healthcare outcomes.^{12,14}

The psychology of change lens is described as leveraging individuals’ motivation, or agency, as well as the collective agency of the team and a system that enables individuals and teams to exercise that agency.^{12,14} It encompasses involving people in change, working with resistance to change, and is supported by good communication and collaboration behaviours between people.¹² The concept draws on behaviour change theories and frameworks, such as intrinsic motivation, psychological empowerment and self-determination theory.¹⁵ Further, the importance of coaching, authenticity and distributed power is emphasised,¹⁴ which are leadership behaviours that support change in others.¹⁶

Approach to the literature

This study’s inductive approach draws from various sources to form a theory that articulates a set of optimal individual, group and leadership factors for successful healthcare safety and quality improvement teamwork at the point of care. To identify the relationship between these individual, group and leader factors that support change for safety and quality improvement, this study hypothesised an empirically testable model (see Fig. 1), based on a review of literature. Understanding the relationship between these factors will support healthcare leaders to create the optimal conditions for clinician engagement and guide safety and quality improvement work in teams and organisations. Each of the factors within the model is discussed in the context of healthcare safety and quality improvement.

Individual motivation and empowerment

The significance of self-determination, motivation and psychological empowerment with regard to organisational change is well represented in the literature.^{15–18} In the context of healthcare safety and quality improvement, a requisite of productivity is the individual motivation of each member to contribute to the group’s objectives.^{15,19} Therefore, safety and quality improvement requires ‘extra-role’ behaviours.^{8,20,21} Extra-role behaviours are certain behaviours of employees that are not part of their formal job requirements, because they cannot be prescribed or required in advance for a given job, but do help in the smooth functioning of the organisation as a social system.^{21,22} Healthcare organisations may not consider safety and quality improvement work as extra-role behaviours, but when organisations do not protect time for that work in core business, then frontline patient care will always take precedence.²³ Despite being a significant enabler of effective frontline care, the work that underpins safety and quality improvement may not be allocated for in a given day for the average frontline clinician.²³

To influence extra-role behaviours, individuals need to feel engaged by a leader who can elicit individuals’ psychological empowerment, which, in this context, means the motivation and

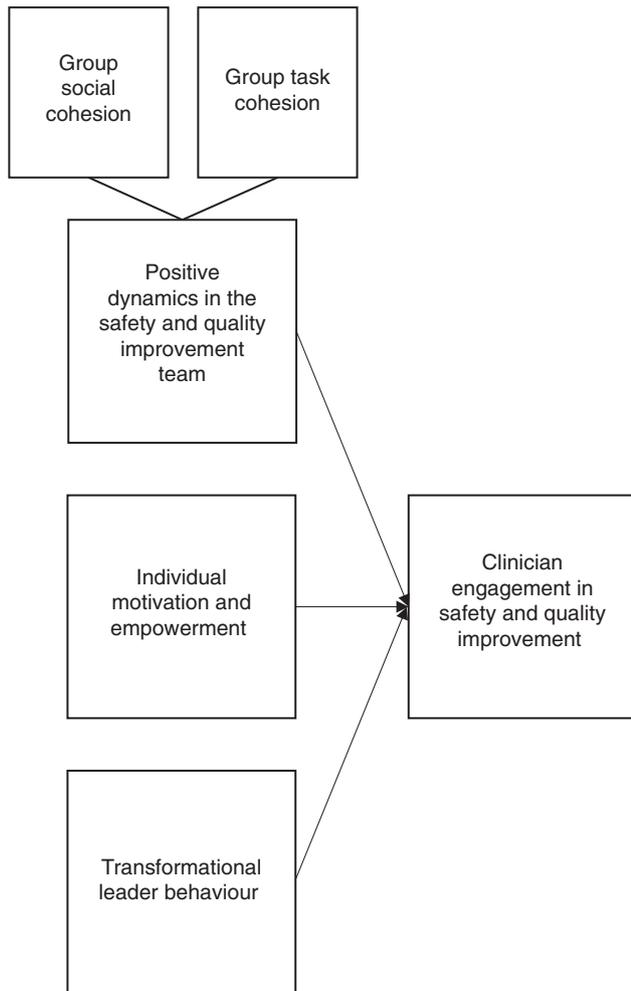


Fig. 1. Hypothesised relationship between the individual, group and leadership factors that create the conditions for clinician engagement in healthcare safety and quality improvement.

feelings of empowerment to participate in safety and quality improvement work in addition to regular duties.²⁰ Further, positive team dynamics can influence extra-role behaviours.²⁴ The role of the team and the leader is discussed next.

Positive dynamics in the safety and quality improvement team

Positive group dynamics, including task and social cohesion, is another important facet to organisational change.^{25,26} Task cohesion is the alignment a team has around the aim of the task and clarity on members’ roles to complete the task. Social cohesion means the feeling of belonging to a group or a ‘sense’ of team membership. Safety and quality improvement work may involve a formal or informal team, with a designated person that plays a ‘team leader’ role.¹⁴ To be effective as a team, the leader and team members must be cognisant and well informed regarding their understanding of how to influence positive dynamics, so that the work gets done productively. The lack of an aim and role clarity is a significant predictor of team dysfunction and low productivity.²⁷ Social cohesion is also critical

in healthcare teams that are not stagnant, as they may form and adjourn based on things like rostering or to address a patient’s specific clinical need.

Transformational leadership: a style that drives change

If safety and quality improvement is ultimately about change,^{10,11} then the style of the individual leading that change is important. Clinical staff are most likely to change their behaviour when led by leaders who demonstrate transformational leadership behaviour.^{16,28–32} These leaders are concerned about the change process and are focused on helping every member of the group succeed within the change context. Transformational leadership is a theory of leadership where a leader works with teams to identify what needs to change, create a vision to guide the change through inspiration and execute the change together with committed staff.²⁸ As the informal and formal teams form and identify a group lead, the group lead needs to be skilled at managing dynamics, inspiring participation and ensuring accountability.^{12,14}

Bass³³ defines the behaviours of transformational leaders as comprising four components, which articulate a series of behaviours that transformational leaders incorporate into their practice. The first component is intellectual stimulation, by which transformational leaders challenge the status quo and encourage creativity. The transformational leader encourages staff to explore new ways of doing things and new opportunities to learn. The second component is individualised consideration: transformational leaders offer support and encouragement to others. In order to foster supportive relationships, transformational leaders communicate openly so that team members feel free to share ideas, and so that leaders can offer direct recognition of the unique contributions of each individual. The third component is inspirational motivation, whereby transformational leaders have a clear vision that they can articulate to others. These leaders are also able to influence others with the same passion and motivation to fulfil these goals. The fourth component, idealised influence, describes the transformational leader as a role model for others. Because staff trust and respect the leader, they emulate this individual and internalise the leader’s ideals.

Operationalising clinician engagement in safety and quality improvement

Ultimately, what Deming’s psychology of change lens describes is the ability to stimulate willingness to engage in safety and quality improvement.¹⁴ To create a frame for interpreting and measuring clinicians’ willingness to engage in safety and quality improvement, concepts were adopted from the consumer behaviour field.³⁴ ‘Value for money’ is one such concept. Value for money means the judgement one makes about the quality of an experience, such as the purchase of a good or service, balanced against the cost of the effort or resources to gain that experience.³⁴ Within the context of safety and quality improvement, this study positioned willingness as a function of perceived value, with that perceived value based on the judgement a clinician makes about the value of participating in a project against the cost of effort and resources to undertake the process and achieve the outcomes.

For clinicians, value has more than one dimension. On one level, it is about perceived value for self in participating in safety and quality improvement work in terms of the time and effort for those extra-role behaviours discussed previously.³⁵ On another level, it is about perceived value for the patient, in terms of the clinician's time and effort spent on that the quality improvement activity to enhance the patient experience and outcomes beyond current practices and bedside care.^{3,35} To influence willingness to engage in safety and quality improvement, the healthcare employee must see the project as genuinely worth their time and effort for themselves and their patients.

Study aims

Fig. 1 shows the hypothesised relationship between individual, group and leadership factors that influence willingness to engage in safety and quality improvement. The aim of this study was to determine, using an empirical method, the extent to which and how these factors influence willingness to engage in safety and quality improvement work in order to support healthcare leaders in their safety and quality improvement work.

Methods

Participants and data collection

In May 2019, 171 Australian healthcare employees with recent experience leading or participating in clinical quality improvement capability development initiatives voluntarily completed an online questionnaire; the professional group breakdown of the study participants is given in Table 1. Participants may have chosen to identify as health managers over their clinical profession in the online questionnaire, therefore we do not know whether those who selected 'Health management' also represent a clinical profession. The questionnaire was sent from the NSW Health Clinical Excellence Commission (CEC) to their 3737 capability development program alumni. Researchers provided a briefing on the study objectives, as well as statements guaranteeing both confidentiality and anonymity via email. Respondents were given 2 weeks to complete the online questionnaire before it was closed.

This study was performed in accordance with the National Health and Medical Research Council of Australia's health and research ethics guidelines, and ethics approval was obtained from the Western Sydney Local Health District Human Research Committee (6017-2019/ETH00391).

Measurement

Five scales (see Appendix 1) were used to measure individual, group and leadership factors for clinician engagement in safety and quality improvement projects (for descriptive statistics, see Table 2). These scales measured: (1) psychological empowerment ($\alpha = 0.89$); (2) task cohesion ($\alpha = 0.83$); (3) social cohesion ($\alpha = 0.70$); (4) transformational leadership behaviour of project leads and sponsors ($\alpha = 0.97$); and (5) willingness to engage in safety and quality improvement, as expressed as value for time and effort for self and patients ($\alpha = 0.80$). All scales demonstrated good to excellent reliability. Participants used a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), to rate their experiences doing quality

improvement projects at work (e.g. 'I believe the improvement project will directly benefit consumers in the future') for all scales except the scale to measure transformational leadership. The scale to measure transformational leadership also used a five-point Likert scale, ranging from 1 to 5, but used frequency descriptors (e.g. 'always - 5' to 'never - 1'). Further details on the origins and reliability of the scales are given in Appendix 1.

Statistical analyses

Analyses were conducted using SPSS and Amos. Correlation and regression analyses were used to explore the relationships between the individual, group and leadership factors, which were measured as task cohesion, social cohesion, psychological empowerment and transformational leadership. Moderation and mediation analysis was conducted to explore the relationships further.³⁶ Finally, structural equation modelling was used to determine the path model.³⁷

Results

The mean \pm s.d. and zero-order correlations among variables regarding value for self and patients are given in Table 3. All factors showed strong positive correlations. As indicated in Table 4, an initial exploration of the factors using linear regression revealed that psychological empowerment and transformational leadership had the strongest relationships. This led to an examination of the mediating or moderating variables of task cohesion and social cohesion, leading to value for self and patient.

The factorial structure of measures (psychological empowerment, task cohesion, social cohesion and transformational leadership of safety and quality improvement project leads and sponsors on value for self and patient) was examined (see Fig. 2 for the path model). All indicators loaded significantly on their corresponding latent constructs ($P < 0.001$), and the

Table 1. Participant profiles

Professional group	<i>n</i>
Medical	61
Nursing	42
Pharmacy	6
Allied health	16
Health management ^A	45

^AHealth management includes those in clinical health managerial roles, such as nurse unit managers, clinical directors and allied health managers.

Table 2. Scale descriptive statistics (*n* = 171)

Scale	Mean \pm s.d.	Variance	Skewness \pm s.e.	Kurtosis \pm s.e.
Psychological empowerment	3.92 \pm 0.62	0.38	-1.18 \pm 0.19	3.45 \pm 0.37
Task cohesion	4.03 \pm 0.77	0.59	-1.27 \pm 0.19	2.17 \pm 0.37
Social cohesion	4.24 \pm 0.71	0.50	-1.06 \pm 0.19	1.96 \pm 0.37
Transformational leadership	3.52 \pm 0.86	0.75	-0.79 \pm 0.19	0.14 \pm 0.37
Value for self and patients	4.10 \pm 0.70	0.49	-1.14 \pm 0.19	2.31 \pm 0.37

model showed a good fit to the data supporting the research question ($\chi^2 = 1.45$; d.f. = 2; Normed Fit Index = 0.994; Comparative Fit Index = 1.000; Root Mean Square Error of Approximation = 0.000).

Discussion

This study aimed to determine the extent to which and how individual, group and leadership factors influenced willingness to engage in safety and quality improvement work. Those individual, group and leadership factors were defined as individual motivation and empowerment, positive team dynamics and the involvement of the transformational leader in safety and quality improvement work.

The findings of this study demonstrated validity in the hypothesised model of the factors that create the conditions for willingness to engage in safety and quality improvement work. In Fig. 3, the model has been refined to show the significant influence of the behaviours of a transformational leader on individuals' intrinsic motivation and empowerment and positive team dynamics, which then influence willingness to engage in quality improvement work. Using linear regression and structural equation modelling as analysis techniques enabled the relationships (and their direction) between factors to become evident.

The findings of this study are consistent with alternative literature that bears relevance to clinician engagement in safety and quality improvement, or any macro- or micro-organisational change. First, the literature has demonstrated the significance of the transformational leader on a positive safety climate, and specifically the influence of leaders on the psychological safety of the group.^{38,39} Psychological safety is a shared belief that the team is safe for interpersonal risk taking³⁹ or 'being able to show

and employ one's self without fear of negative consequences of self-image, status or career'.⁴⁰ Safety and quality improvement teams need psychological safety to perform, because the work requires group members to share ideas and have robust discussions with colleagues in a multidisciplinary setting. If psychological safety is compromised, then conversations about improvement can be stifled and engagement decreased.^{3,4,6}

Second, the findings of this study are supported by the literature on the significance of positive group dynamics on

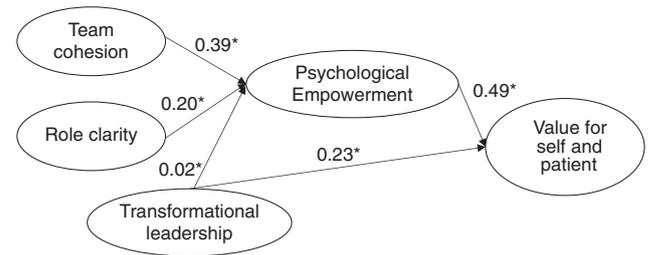


Fig. 2. Graphical representation of the results of the path analysis. * $P < 0.001$.

Table 3. Mean \pm s.d. and correlations (r) of predictors of value for self and patients ($n = 171$)
* $P < 0.01$, ** $P < 0.001$

Variable	Mean \pm s.d.	1	2	3	4	5
1. Value for self and patients	4.10 \pm 0.71	-				
2. Psychological empowerment	3.91 \pm 0.62	0.495**	-			
3. Task cohesion	4.04 \pm 0.77	0.288**	0.531**	-		
4. Social cohesion	4.24 \pm 0.70	0.413**	0.617**	0.620**	-	
5. Transformational leadership	3.52 \pm 0.86	0.383**	0.237*	0.215*	0.335**	-

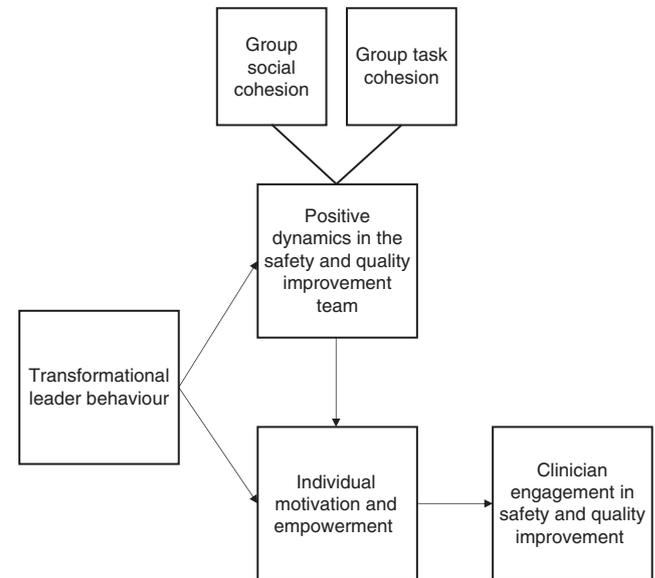


Fig. 3. Relationship between the individual, group and leadership factors that create the conditions for clinician engagement in healthcare safety and quality improvement.

Table 4. Regression analysis summary for predictors of projects being of value to self and patients
 $R^2 = 0.325$ ($n = 171$, $P < 0.000$). CI, confidence interval

	B	95% CI	β	t	P -value
	Mean \pm s.e.m.				
Psychological empowerment	0.436 \pm 0.095	0.248–0.624	0.385	3.967	0.000
Task cohesion	-0.041 \pm 0.078	-0.194–0.112	-0.044	-0.527	0.599
Social cohesion	0.115 \pm 0.093	-0.069–0.300	0.115	1.234	0.219
Transformational leadership	0.214 \pm 0.056	0.104–0.324	0.262	3.850	0.000

healthcare performance. Regarding the relationship between team members, Meltzer *et al.*⁴¹ showed the importance of social cohesion to the design of effective clinical quality improvement teams using social network analysis, which highlights the importance of the individual and collective connections of team members, both to those outside and within the team. Meltzer *et al.*⁴¹ found the relationship of team members to each other most strongly and positively influenced internal coordination, knowledge sharing and within-group communication. The second part of positive dynamics is the team's task cohesion, which includes a collective understanding of the task aim and role clarity between team members.⁴² Task cohesion has been shown to improve error management culture.^{43,44} An error management culture involves organisational practices related to communicating about errors, sharing error knowledge, quickly detecting and handling errors and helping in error situations.^{43,44} These behaviours that underpin error management culture are all essential to patient safety in health care.^{45,46}

Implications for healthcare safety and quality improvement

This study's findings have shown the importance of the transformational leader's role and the role of positive team dynamics on individual intrinsic motivation and empowerment, which together positively influence clinician engagement in safety and quality improvement work. Therefore, leaders should consider adopting the key behaviours of transformational leaders if they wish to drive change for safety and quality improvement.

Leaders should also consider how they are developing positive team dynamics, which includes two key dimensions, the first of which is about creating a sense of belonging and bonding between the project team members, or social cohesion, and the second involving having well-defined aims and roles in the team to achieve outcomes, also known as task cohesion. Transformational leaders have a natural ability to build social and task cohesion, and this is largely researched in the sports psychology and change management disciplines.^{47,48} Therefore, demonstrating transformational leadership behaviours should support the development of positive dynamics in healthcare safety and quality improvement teams.

Rather than taking a perspective that the clinician needs to engage, this study suggests the onus is on the leadership behaviours. Focusing on the self as leader and a leader's own behaviours, as well as how those behaviours are fostering positive team dynamics and individual team members' motivation and empowerment, will have a great benefit on clinician engagement in safety and quality improvement. One avenue for healthcare organisations wishing to improve clinician engagement in safety and quality improvement is through focusing on developing transformational leadership capability in their healthcare leadership development programs.

Limitations

There are study limitations that must be recognised. First, common method variance may have influenced results from the user experience, because this was not accounted for in the method. This connects with the second study limitation, which relates to the homogeneity of the sample. Although representing a mix of clinical professional groups, the participant pool may be

more homogeneous than immediately apparent, which could affect the data. The sample consisted of Australian healthcare employees who have graduated from a CEC quality improvement capability development program. Because this was the only population explored in this study, it cannot be assumed that the results are generalisable to a larger population without empirical exploration in other healthcare contexts with larger sample sizes of clinical professional groups. However, the findings in this study make a case for future exploration to understand the individual, team and leadership factors affecting clinician engagement in safety and quality.

Future research

Future research should repeat this study with an international audience to determine whether there are any cultural effects not identified that may influence perception of individual, group and leadership dynamics. This is very important because appreciation of leadership style can be cultural.^{49,50} The study's findings presented may not account for the variability in non-Western healthcare systems. Increasing the range of demographics and sample size may also address some of the concerns regarding the current sample's effect on the data.

Another area of potential future research, which may affirm these findings, is to conduct the study in conjunction with current healthcare quality improvement projects to prevent any hindsight biases. The participants in this project were asked to answer the questionnaire with the most recent quality improvement project in which they participated in mind. We did not account for any time differential between participants' project experiences and the time of survey completion. However, this was somewhat mitigated by the database's alumni population, because all potential respondents would have an experience to reflect on within the past 5 years. It would be useful to conduct this study in real time, to see whether the time difference affected responses, and thus created an unintended bias in the data.

Conclusion

The aim of this study was to determine how individual, group and leadership factors influence clinician engagement in safety and quality improvement work. Regression and structural equation modelling were used to explore the relationships between the factors to understand how and to what extent they influence clinicians' perception of value for time and effort in safety and quality improvement work, and the implications for better value care provision. These factors included an individual's sense of motivation and empowerment, task cohesion, social cohesion and the transformational leadership behaviour of leaders. The study's findings suggest that the most crucial element to clinician engagement in safety and quality improvement at the point of care is the leader's behaviour and how that influences team dynamics and individual motivation and empowerment. Therefore, healthcare organisations that wish to improve clinician engagement in safety and quality improvement must consider how these employees are being led and how they are developing their leadership, in addition to clinician awareness of safety and quality improvement.

Competing interests

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Appendix 1. Origin and reliability of the scales to measure the individual, team and leader factors that influence clinician engagement

Factor	Variable	Scale	Validation study or origin	Reliability score (α)	Reliability interpretation ⁵¹
Individual	Independent	Psychological empowerment	Spreitzer 1995. ⁵²	0.89	Better
Team	Independent	Positive group dynamics in the team	Adapted from:		
		• Social cohesion	• Beal <i>et al.</i> 2003. ¹⁹	0.70	Good
		• Task cohesion	• Bollen <i>et al.</i> 1990. ⁵³	0.83	Better
Leader	Independent	Transformational leadership – Multifactorial Leadership Questionnaire 5x	Antonakis <i>et al.</i> 2003. ²⁸	0.97	Best
Clinician engagement	Dependant	Adapted from the ‘value for money’ scale to measure value for self and patients	Adapted from: Sweeney and Soutar 2001. ³⁴	0.80	Better