frontiers | Frontiers in Organizational Psychology

TYPE Original Research
PUBLISHED 03 June 2025
DOI 10.3389/forgp.2025.1578835

OPEN ACCESS

EDITED BY
Hasan Oudah Abdullah,
University of Basrah, Iraq

REVIEWED BY
Maria Rita Sergi,
University of G.'d'Annunzio, Italy
Ghada Taher Al-lami,
University of Sciences and Arts in Lebanon, USAL, Lebanon
Akram Fayez,
University of Basrah, Iraq
Sammar Abbas,
Abdullah Al Salem University, Kuwait

*CORRESPONDENCE
Sabrina Chevalier
✉ sabrina.chevalier@student.uliege.be

RECEIVED 18 February 2025
ACCEPTED 13 May 2025
PUBLISHED 03 June 2025

CITATION
Chevalier S, Perot A, Klenkenberg S, Dumoulin F, Declaye J, Stipulante S, Ghuysen A and Paquay M (2025) Emotional intelligence, transformational leadership, and team satisfaction during the COVID-19 period in Belgium. *Front. Organ. Psychol.* 3:1578835. doi: 10.3389/forgp.2025.1578835

Emotional intelligence, transformational leadership, and team satisfaction during the COVID-19 period in Belgium

Sabrina Chevalier[1,2]*, Antoine Perot[3], Sophie Klenkenberg[1], Florence Dumoulin[1], Joséfine Declaye[1], Samuel Stipulante[1], Alexandre Ghuysen[1,3] and Méryl Paquay[1,3]

[1]Department of Public Health, University of Liège, Liège, Belgium, [2]Intensive Care Unit, Clinique Notre-Dame De Grâce, Charleroi, Belgium, [3]Emergency Department, Liège University Hospital, Liège, Belgium

Introduction: Healthcare crises such as the COVID-19 pandemic have intensified the need for effective leadership. While transformational leadership (TL) and emotional intelligence (EI) are known to support team resilience, little is known about how they interact in high-stress environments. Understanding this relationship is essential to improve leadership responses in future disruptions. This study explored the link between EI and TL during a crisis and examined how leadership profiles influenced team satisfaction with the interventions implemented.

Methods: Using a mixed-method, exploratory sequential design, the study included 209 participants (16 head nurses and 193 nursing staff) in Belgium. Interviews with head nurses identified key crisis interventions, which informed the development of a satisfaction questionnaire. In the quantitative phase, head nurses completed EI and TL assessments, while their teams rated satisfaction. Analyses were conducted using RCommander.

Results: EI and TL were positively associated. However, high TL scores did not consistently predict higher team satisfaction. Leaders with high EI more frequently used participatory strategies appreciated by staff, such as debriefings and team reflection tools.

Discussion: In crisis contexts, emotionally intelligent leaders appear better able to adapt their approach, combining structure and support. TL alone may not suffice to meet evolving team needs. These findings support targeted leadership development and call for further experimental studies to understand underlying mechanisms.

KEYWORDS

leadership, emotional intelligence, hospitals management, crisis management, organizational learning

1 Introduction

The COVID-19 pandemic has placed unprecedented pressure on healthcare systems worldwide, exposing long-standing vulnerabilities in the nursing workforce. Across contexts, nurses reported high levels of emotional exhaustion, psychological distress, and intention to leave the profession (Rossettini et al., 2021). During the crisis, anxiety prevalence ranged from 24.1 to 44.6% among nurses (Vizheh et al., 2020), and recent studies continue to highlight significant burnout levels in the post-pandemic

period (Bruyneel et al., 2023). While many structural and organizational factors contribute to these outcomes, the quality of leadership appears to play a particularly influential role. Supportive leadership has been associated with reduced stress and improved wellbeing among nursing staff (Bruyneel et al., 2023; Kelly et al., 2021), whereas negative leadership dynamics are often linked to dissatisfaction and turnover (Trybou et al., 2014). Among the various leadership styles, transformational leadership (TL) has gained increasing attention in healthcare. Defined by Bass and Avolio in 1994, TL emphasizes vision, inspiration, and individualized support, offering a relational and empowering approach that contrasts with more transactional or managerial styles (Fischer et al., 2018). Studies suggest that TL contributes to more positive work environments and greater staff engagement and retention (Alzahrani and Hasan, 2019).

Understanding the factors that support effective leadership in times of crisis is increasingly important as healthcare systems are expected to face more frequent and complex disruptions—whether sanitary, environmental or organizational.

2 Literature review

2.1 Emotional intelligence and transformational leadership

Emotional intelligence (EI) refers to the ability to perceive, understand, and regulate emotions (Mayer and Salovey, 1997). In leadership research, EI has been positively associated with leader authenticity, interpersonal effectiveness, and the ability to create cohesive teams (Issah, 2018; Tyczkowski et al., 2015). Several theoretical models of EI have been proposed, notably the ability-based model (Mayer and Salovey, 1997) and the trait model, developed by Petrides (2009), which focuses on individuals' self-perceived emotional dispositions (Petrides, 2009). The present study adopts this latter approach, as operationalized through the Trait Emotional Intelligence Questionnaire (TEIQue). Trait-based EI has been shown to display stronger associations with leadership behaviors than ability-based EI (Korakis and Poulaki, 2025).

Transformational leadership (TL), defined by Bass and Avolio (1994), is characterized by vision, inspiration, and individualized consideration. TL has been widely recognized for its role in promoting staff engagement and retention in healthcare settings (Alzahrani and Hasan, 2019). Several studies suggest a positive correlation between EI and TL across professional environments (Coronado-Maldonado and Benítez-Márquez, 2023; Ursan, 2023), and recent meta-analyses confirm that this relationship is particularly robust when EI is measured through trait-based instruments (Korakis and Poulaki, 2025). EI may thus serve as a foundational personal attribute enabling the emotional and relational demands of TL.

Abbreviations: EI, emotional intelligence; HL, Hospital 1; HY, Hospital 2; HM, Hospital 3; TL, transformational leadership.

Hypothesis 1 (H1): There is a positive association between emotional intelligence and transformational leadership during crisis periods.

2.2 Leadership characteristics and team satisfaction during crisis

Beyond the link between EI and leadership style, several studies have emphasized the importance of understanding how leadership is experienced by teams, particularly in times of crisis (Alonazi, 2020). While TL is generally associated with higher engagement, job satisfaction, and team cohesion (Fischer et al., 2018), its effectiveness in high-pressure contexts may depend on how well it aligns with the evolving expectations of healthcare staff. In these situations, EI may represent a key resource enabling leaders to adapt their approach, respond to emotional demands, and foster team stability. Recent research has also suggested that trait-based EI, by reflecting deeper emotional dispositions, may influence how leaders are perceived and how their behavior translates into team outcomes (Tommasi et al., 2023). Moreover, the perception of leadership by team members can be shaped by broader contextual and organizational factors. Studies such as those by Perets et al. (2025) and Bindel Sibassaha et al. (2025) underline how educational environments and organizational culture can influence leadership efficacy, perceived legitimacy, and psychological safety. These findings suggest that leadership is not only a matter of style but also of context-sensitive responsiveness and mutual trust.

Hypothesis 2 (H2): Teams led by individuals scoring highly in both emotional intelligence and transformational leadership report greater satisfaction.

Despite growing evidence on the link between emotional intelligence and transformational leadership, this relationship remains underexplored in real-world crisis contexts, where emotional demands and leadership expectations are particularly high (Alonazi, 2020). Moreover, most studies have focused exclusively on leaders' self-perceptions, neglecting how leadership behaviors are perceived and experienced by their teams during such periods.

To date, experimental investigations in this area remain scarce. While our study does not follow an experimental protocol, its contextual anchoring and dual perspective—linking leadership profiles with team perceptions—provide a valuable contribution toward understanding the actual impact of leadership characteristics in high-pressure situations.

This study aims to address this gap by examining the relationship between emotional intelligence and transformational leadership during a crisis, and by exploring how nursing teams perceived the leadership interventions implemented. Using a mixed-methods exploratory sequential design, we draw on data collected from both nurse leaders and frontline staff during the post-COVID period. As healthcare systems face increasingly frequent and complex disruptions—whether sanitary, environmental, or organizational—developing robust, adaptive

leadership capacities has become critical to sustaining effective, resilient care teams.

3 Methods

3.1 Study design

The study employed a mixed method and an exploratory sequential design approach. First, a minor qualitative phase via semi-structured interviews with nursing leaders was conducted. The interview with the latter allowed the collection of personal responses regarding the interventions implemented during the crisis. This qualitative phase allowed us to create a questionnaire to measure the team's satisfaction about the actions taken by their manager. Next, the quantitative phase was carried out with unit managers and their teams. This approach was performed using TL and EI measurement scales for the leaders and a satisfaction questionnaire for the teams. These quantitative tools provided standardized responses to the overall population samples, as well as samples from other studies using the same tools.

3.2 Study site

Data was collected from 16 units of a single Belgian hospital, which includes three geographically separated facilities: HY, HL, and ML. The ML facility is a secondary care hospital situated in a suburban area, whereas the HY and HL are urban tertiary hospitals. The three sites combine a total of 948 hospital beds and 210 day-patient places.

3.3 Qualitative phase: identifying implemented interventions

3.3.1 Study population

For this phase, the study population consisted of unit managers who had worked in COVID-19 or non-COVID-19 care units during the first waves of the pandemic, across three facilities (HY, HL, and ML). Inclusion criteria were: (1) having worked as a unit manager during the COVID-19 crisis; (2) being employed in one of the three facilities at the time; and (3) having provided informed consent. A convenience sampling approach was used. Eligible managers were identified with the support of the nursing directorates of the three facilities and invited to participate on a voluntary basis.

3.3.2 Data collection and analysis

Semi-structured interviews, with a mean duration of 45 min, were performed to identify specific actions taken by unit leaders during the COVID-19 crisis. A single question was asked to the participants: "What were the interventions you implemented within your department during the COVID-19 crisis?". Interviews continued until the saturation of the data. The researcher audio-recorded the interviews and thoroughly transcribed them. This transcription highlighted the different interventions expressed by the chiefs. The research team reviewed each interview and assigned a code to each significant segment. Each new code appearing from the data was added to the code grid. The entire corpus was then systematically reviewed by a member of the study team and validated by a second member. Using an iterative process, the reviewers decreased both the number of codes and the number of analog codes by logically merging them. Final data were revised into a "COVID Interventions List" which then served as input for the satisfaction questionnaire on these interventions used for the quantitative phase.

3.4 Quantitative phase: linking LT, EI, and interventions implemented

3.4.1 Population

For this second phase, the study population included both the unit managers who had participated in the qualitative phase and the nursing teams (nurses and nurse assistants) who worked under their supervision during the same period. Only staff from units whose head nurse had taken part in the first phase were eligible. Inclusion criteria for nursing staff were: (1) having worked during the COVID-19 crisis; (2) being employed as a nurse or nurse assistant in one of the three participating facilities (HY, HL, and ML); (3) not working as temporary staff; and (4) having provided informed consent. A non-probabilistic convenience sampling method was used. Questionnaires were distributed within the identified departments to the eligible staff and managers.

3.4.2 Data collection

To address the study's two hypotheses, three instruments were used across two distinct participant groups: unit managers and nursing staff. H1 (the relationship between emotional intelligence and transformational leadership) was assessed through standardized questionnaires completed by the unit managers. H2 (the relationship between leadership characteristics and team satisfaction) was evaluated based on the team's perception of interventions implemented during the crisis.

For the nurse leaders, two questionnaires were used. First, leadership was assessed using the Multifactor Leadership Questionnaire—Form 6S (MLQ Form 6S), a validated short version of the original instrument developed by Bass and Avolio. This tool explores seven key dimensions of leadership behavior, including transformational, transactional, and laissez-faire styles, and is widely used in healthcare leadership research (Bass and Avolio, 1990). Each item is rated on a 5-point Likert scale (from 0 = not at all to 4 = frequently, if not always). The total scores of each factor are classified into three categories: high (9–12), moderate (5–8), and low (1–4). The MLQ Form 6S has shown good internal consistency, with Cronbach's alpha values ranging from 0.74 to 0.94 in previous studies.

The second questionnaire chosen is the Trait Emotional Intelligence Questionnaire—Short Form (TEIQue-SF; Mikolajczak et al., 2007; Petrides, 2009), developed by Petrides and Furnham in 2003 (Petrides, 2009), which measures the degree of EI. It

measures the degree of emotional intelligence based on self-perceived emotional abilities. The instrument includes 30 items rated on a 7-point Likert scale (from 1 = completely disagree to 7 = completely agree), producing a global trait EI score. The higher the score, the more EI is important. The TEIQue-SF has been validated in French and demonstrates excellent psychometric properties, with a Cronbach's alpha of 0.90 reported in validation studies.

For the nursing teams, a separate questionnaire was developed to assess their satisfaction with the specific interventions implemented by their unit manager during the COVID-19 crisis. This instrument does not aim to assess leadership style directly but rather captures how leadership actions were perceived and experienced by the team. It was created based on the results of the qualitative phase, in which head nurses described the main actions and strategies used to support their teams. The questionnaire includes 20 items covering key dimensions such as communication, emotional support, cohesion, and psychological safety. Each item is rated on a scale from 0 (not at all) to 10 (completely), and the median score of the team was used in the analysis.

This design allows us to explore how the profiles of unit leaders (in terms of EI and TL) relate to team satisfaction, thus addressing our second hypothesis (H2).

Other control variables were collected such as socio-demographic variables including age, intervention site and department.

3.4.3 Data analysis

Qualitative variables were summarized with counts and percentages. Median and interquartile range (P25–P75) have been displayed for quantitative variables, due to non-normal distributions confirmed by visual inspection as well as skewness and kurtosis indicators. Associations between variables of interest and potential explanatory variables were assessed using bivariate analyses. Relationships between qualitative and quantitative variables were assessed using nonparametric Kruskal-Wallis tests, and associations between two quantitative variables were analyzed using Spearman's correlation coefficients. This method was preferred over Pearson's correlation because of the small sample size ($n = 16$), the non-normal distribution of several variables, and the nature of the expected associations. In addition, since the comparison between non-COVID-19 and COVID-19 units is of particular interest, the homogeneity of the other potential explanatory variables was compared using Chi-squared (or exact Fisher's) tests and Mann-Whitney tests. Statistical significance is achieved at 95% confidence (p-value significance < 0.05). All tests are two-sided. The statistical software used is R version 4.1.2.

The TEIQue and the MLQ were used to assess emotional intelligence and leadership style, respectively. In our sample, internal consistency was high for both tools, with a Cronbach's alpha of 0.91 for the TEIQue global score and 0.86 for the MLQ total score. The 20-item satisfaction questionnaire developed from the qualitative phase also showed excellent internal consistency ($\alpha = 0.94$), supporting the robustness of the tool in capturing staff perceptions of leadership interventions during the crisis.

3.5 Ethics

In both phases of the study, anonymity was maintained, and all personal data were anonymized. The questionnaire and/or interviews were completed on a voluntary basis. In both cases, a summary of the purpose of the study was provided (written for the questionnaires and in written and oral form for the interviews), and a consent form was requested. This study was validated by the Ethics Committee of CHU Liège, Reference Number: 2020/339.

4 Results

4.1 Study sample

A total of 209 nurses participated in this study. For the qualitative phase, 16 nurse leaders from the three hospitals participated in the interviews. For the quantitative phase, the same 16 head nurses and 193 nurses from their team responded to the questionnaires. Table 1 presents the sociodemographic data of nurse's team and head nurses.

4.2 Qualitative results: identifying implemented interventions

4.2.1 Thematic analysis

During the interviews of the 16 head nurses, we recorded 38 verbatims. These verbatims enabled to identify 8 themes: listening to the team and managing emotions, crisis-specific communication, organizational learning, changes in work organization, solidarity and mutual support within the team, team safety, pride and encouragement and managerial difficulties. Then, these themes were refined into a list of 20 interventions made by the leaders during the pandemic period: pride felt, listening to proposals, expressing fears, maintaining cohesion, help received, following the leader, safety, maintaining team dynamics, team debriefing, means of communication, sufficient information, delegate working differently, defending, responsibility in the event of a problem, help in adapting, support in the face of unusual things, encouragement and explanation of equipment, psychological preparation, support during the crisis and crisis that welded the team together.

4.3 Quantitative results: linking EI, TL, and implemented interventions

- Emotional intelligence and transformational leadership (H1)

Scores related to EI and TL were positively and significantly associated (Spearman's correlation = 0.64, p-value = 0.008).

- Emotional intelligence and team satisfaction (H2)

Only the intervention 12 ("Delegate different work") was significantly related to EI ($r_S = 0.55$, p-value = 0.032; Table 2). It seems that the higher the chief's emotional intelligence score, the

TABLE 1 Sociodemographic data of nurse's team and head nurses.

Variable	Modality	Non-COVID-19	COVID-19	Total	Mean ± SD Median (P25–P75)
Head nurses					
Age (years)				16	48.5 (41.75–53.25)
Gender	Male (%)	1 (17%)	5 (83%)	6 (37%)	
	Female (%)	4 (40%)	6 (60%)	10 (63%)	
Seniority as a nurse (years)		27 (24–31)	25 (19–32.5)	16	26.06 ± 8.54
Seniority as a chief (years)		13 (8–17)	6 (4–21)	16	9.5 (5–21)
Hospital	HL (%)	0 (0%)	2 (100%)	2 (12.5%)	
	HY (%)	2 (50%)	2 (50%)	4 (25%)	
	ML (%)	3 (30%)	7 (70%)	10 (62.5%)	
Units COVID-19	No			5 (31%)	
	Yes			11 (69%)	
Nurses team					
Age (years)				193	37.85 ± 10.75
Hospital	HL (%)	0 (0%)	22 (100%)	22 (11.4%)	
	HY (%)	26 (52%)	24 (48%)	50 (25.91%)	
	ML (%)	37 (30%)	84 (70%)	121 (62.69%)	
Units COVID-19	No			63 (32.64%)	
	Yes			130 (67.36%)	

HL, Hospital 1. HY, Hospital 2; HM, Hospital 3.

more their team members felt that they were being delegated a different job.

Results of bivariate analyses between EI and characteristics variables are provided in Table 3. Gender and hospital were found to have a significant impact on EI. Indeed, female head nurses scored higher than their male counterparts did. On the other hand, chiefs in HY showed the highest scores, while those in HL showed the lowest.

- Transformational Leadership and team satisfaction (H2)

Interventions 5 ("Support provided"), 10 ("Means of communication"), and 11 ("Being well-informed") were significantly and negatively related to TL (Table 2). Although other correlations were not significant, it should be noted that they were all negative, except for the intervention 12 ("Delegate different work"; $r_S = 0.27$) and 18 ("Psychological preparation"; $r_S = 0.00$). The higher the leader's TL score, the less his or her team members feel that they are provided with support, means of communication and that they are well informed.

5 Discussion

This mixed-methods study first analyzed the relationship between TL and EI among unit managers. Second, interventions implemented by those managers during the COVID-19 crisis were investigated to determine their relationship with staff satisfaction, EI and TL.

5.1 Emotional intelligence and leadership during crisis

Our results confirm the first hypothesis: the positive association between EI and TL remains valid in crisis situations. This finding echoes previous work among nurse leaders (Baba et al., 2021; Coronado-Maldonado and Benítez-Márquez, 2023; Crowne et al., 2017; Tyczkowski et al., 2015; Wang et al., 2018). While some studies have raised doubts about the consistency of this relationship (Crowne et al., 2017; Echevarria et al., 2017), our findings suggest that emotional intelligence becomes especially valuable under high-stress conditions. Leaders who can perceive and regulate emotions—both their own and those of their teams—appear better equipped to guide their teams through complexity. This challenges the idea that TL primarily stems from stable personality traits (Abu Awwad et al., 2020) and supports the notion that emotionally intelligent leaders can adapt their behaviors in response to dynamic demands. Korakis and Poulaki (2025) further show that the EI–TL relationship is stronger when trait-based models are used, while Tommasi et al. (2023) position EI as closer to personality than to fluid intelligence, suggesting that it may serve as a form of emotional robustness in unstable environments. In our study, emotionally intelligent leaders were more likely to implement bottom-up strategies such as debriefings, whiteboards, support groups and Gemba walks. These practices are not *ad hoc* but often embedded in the unit's continuous improvement approach. They aim to foster team participation, activate collective intelligence, and strengthen operational safety. Their function extends beyond emotional support: they help clarify

TABLE 2 Spearman's correlations between emotional intelligence, transformational leadership, and satisfaction scores.

Satisfaction items	Emotional intelligence		Transformational leadership	
	Spearman's correlation	*P*-value	Spearman's correlation	*P*-value
Satis_1	−0.23	0.406	−0.15	0.600
Satis_2	−0.18	0.517	−0.46	0.088
Satis_3	0.15	0.590	−0.03	0.904
Satis_4	0.12	0.664	−0.22	0.428
Satis_5	−0.14	0.618	−0.55	**0.035**
Satis_6	0.26	0.349	−0.16	0.581
Satis_7	−0.06	0.845	−0.47	0.074
Satis_8	0.08	0.780	−0.22	0.425
Satis_9	−0.03	0.903	−0.31	0.253
Satis_10	−0.10	0.731	−0.63	**0.011**
Satis_11	−0.41	0.126	−0.55	**0.035**
Satis_12	0.55	**0.032**	0.27	0.327
Satis_13	0.10	0.725	−0.35	0.194
Satis_14	0.08	0.774	−0.15	0.601
Satis_15	−0.14	0.618	−0.34	0.222
Satis_16	−0.49	0.065	−0.46	0.083
Satis_17	−0.14	0.616	−0.37	0.175
Satis_18	0.45	0.094	0.00	0.992
Satis_19	−0.17	0.540	−0.29	0.295
Satis_20	−0.06	0.823	−0.16	0.574

Satis, satisfaction item. *p-significant value.

priorities, promote shared problem-solving and secure transitions. These strategies are likely more accessible to emotionally intelligent leaders, who can identify emerging needs—emotional, relational, or organizational—and respond accordingly. Such an environment aligns with the concept of psychological safety (Edmondson, 1999), in which team members feel free to speak up or propose changes without fear of judgment. EI may thus facilitate the conditions for this climate to emerge, enhancing team cohesion and resilience.

Our findings also reveal a gender difference in EI, with women leaders scoring higher. This aligns with prior studies indicating stronger interpersonal EI skills among women, such as empathy and emotional awareness (Fischer et al., 2018). Perets et al. (2025) highlight that such differences may be influenced by early educational and social experiences, suggesting that leadership self-efficacy is shaped from a young age by school environments and societal expectations. These findings invite further reflection on how pedagogical models influence the development of leadership capacity.

5.2 Transformational leadership, emotional intelligence, and team satisfaction

Our second hypothesis—that teams led by individuals with high scores in both EI and TL would report higher satisfaction—was only partially confirmed. While higher EI was associated with greater satisfaction, higher TL scores were unexpectedly linked to lower satisfaction. This result suggests that TL, though widely valued, may not always align with team needs during a crisis. In such contexts, staff often seek clarity, structure, and quick decision-making rather than visionary guidance. This may explain why TL, on its own, was not perceived as fully effective. Bindel Sibassaha et al. (2025) also observed that TL was insufficient to foster innovation in digitally transforming organizations, pointing to the need for context-sensitive leadership. Some leaders in our sample may have maintained transformational behaviors without adapting them to the evolving expectations of their teams. This highlights the importance of flexible leadership capable of integrating multiple styles. A more directive approach—understood here as offering clear expectations, rapid decisions and a sense of stability—may be better suited to crisis periods. Recent literature confirms that effective crisis leadership often blends directive, compassionate and situational elements to maintain team functioning (Catania et al., 2021; James and Bennett, 2020). In this context, emotional intelligence appears again as a key enabler. It allows leaders to read the emotional climate and adapt their communication and decisions accordingly—providing either structure or support depending on what their teams need most.

6 Practical and theoretical implications

This study reinforces the idea that emotional intelligence acts as a flexible driver of leadership behaviors in high-pressure contexts, particularly in healthcare. It contributes to the theoretical understanding of EI as a mediator of adaptive leadership and

TABLE 3 Influence of socio-demographic data on emotional intelligence (/210).

Variable	*N*		*p*-value
Gender			
Male	6	152 (141–159)	**0.030**
Female	10	172 (163–178)	
Age	16	$r_S = -0.12$	0.653
Seniority as nurse	16	$r_S = -0.06$	0.822
Seniority as chief	16	$r_S = -0.07$	0.809
Hospital			
HL	2	130 (125–134)	**0.015**
HY	4	176 (173–182)	
ML	10	162 (152–168)	
COVID-19 unit			
No	5	170 (151–179)	0.532
Yes	11	163 (148–172)	

HL, Hospital 1; HY, Hospital 2; HM, Hospital 3. *p-significant value.

supports the relevance of trait-based EI models in real-life crisis situations. Our results also challenge the assumption that TL is uniformly effective in crisis settings. The observed association between high TL scores and lower team satisfaction suggests that leadership effectiveness depends on contextual responsiveness. This reinforces the need for flexible leadership models and supports theories advocating situational or blended styles.

6.1 Recommendations for practice

It is essential to develop leadership training programs that emphasize emotional intelligence, self-awareness, and effective communication, particularly in contexts characterized by uncertainty. Our findings indicate that emotionally intelligent leaders are more likely to implement bottom-up strategies—such as debriefings, Gemba walks, peer support groups, and whiteboards—practices perceived positively by their teams. These interventions should therefore be supported as integrated tools to enhance quality improvement, team empowerment, and psychological safety. This aligns with previous research showing that structured debriefings during the COVID-19 crisis not only supported team functioning, but also contributed to the development of leadership skills and relational competencies among healthcare professionals (Paquay et al., 2023). Importantly, they must be strategically aligned with the unit's overarching objectives, rather than being perceived as isolated initiatives or merely emotionally driven actions.

6.2 Recommendations for future research and theory

Future research should employ experimental or quasi-experimental designs to rigorously assess the causal effects of different leadership profiles on team satisfaction and performance, particularly in times of crisis. Given our findings, further studies should investigate the role of EI as a moderating or mediating variable in the relationship between leadership behavior and team outcomes. Mediation models are also recommended to examine the mechanisms through which emotional intelligence (EI) shapes the relationship between leadership style and team outcomes. Building on the work of Bindel Sibassaha et al. (2025), future studies might investigate whether EI enhances leadership adaptability directly, or whether its effects are mediated by factors such as team trust, psychological safety, or perceived organizational support (Bindel Sibassaha et al., 2025). Moreover, it is crucial to extend these investigations across diverse organizational and cultural contexts to evaluate the generalizability and transferability of the findings.

7 Limits

The COVID-19 pandemic's successive waves made it difficult to engage directly with unit managers, reducing team availability. To address this, interviews were scheduled based on managers' limited availability, and teams were given extra time to complete questionnaires. A potential bias arises from the need for unit managers to encourage team participation to improve response rates. Another limitation of this study is the use of a single instrument to measure both EI and leadership scores. To counter this, we applied a mixed-methods approach, using triangulation to strengthen the data's rigor and provide deeper insights.

8 Conclusion

This study confirmed the link between emotional intelligence and transformational leadership in times of crisis. Emotionally intelligent leaders were more likely to implement participatory strategies valued by teams. However, transformational leadership alone did not always increase satisfaction, highlighting the need for adaptive leadership. These findings support EI-focused training and call for further research using experimental and mediation-based designs.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving humans were approved by Ethics Committee of CHU Liège (Reference Number: 2020/339). The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

SC: Writing – original draft, Writing – review & editing. AP: Writing – review & editing. SK: Writing – review & editing. FD: Writing – original draft, Writing – review & editing. JD: Writing – review & editing. SS: Writing – review & editing. AG: Writing – review & editing. MP: Writing – original draft, Writing – review & editing.

Funding

The author(s) declare that no financial support was received for the research and/or publication of this article.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Generative AI statement

The author(s) declare that no Gen AI was used in the creation of this manuscript.

Publisher's note

Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/forgp.2025.1578835/full#supplementary-material

References

Abu Awwad, D., Lewis, S. J., Mackay, S., and Robinson, J. (2020). Examining the relationship between emotional intelligence, leadership attributes and workplace experience of australian chief radiographers. *J. Med. Imag. Radiat. Sci.* 51, 256–263. doi: 10.1016/j.jmir.2020.01.002

Alonazi, W. B. (2020). The impact of emotional intelligence on job performance during COVID-19 crisis: a cross-sectional analysis. *Psychol. Res. Behav. Manag. Vol.* 13, 749–757. doi: 10.2147/PRBM.S263656

Alzahrani, S., and Hasan, A. A. (2019). Transformational leadership style on nursing job satisfaction amongst nurses in hospital settings: findings from systematic review. *Glob. J. Health Sci.* 11, 25. doi: 10.5539/gjhs.v11n6p25

Baba, M. M., Makhdoomi, U. M., and Siddiqi, M. A. (2021). Emotional intelligence and transformational leadership among academic leaders in institutions of higher learning. *Global Bus. Rev.* 22, 1070–1096. doi: 10.1177/0972150918822421

Bass, B. M., and Avolio, B. J. (1990). Developing Transformational Leadership: 1992 and beyond. *J. Eur. Indus. Train.* 14, 21–27. doi: 10.1108/03090599010135122

Bass, B. M., and Avolio, B. J. (1994). *Improving Organizational Effectiveness Through Transformational Leadership*. Thousand Oaks, CA: Sage.

Bindel Sibassaha, J. L., Pea-Assounga, J. B. B., and Bambi, P. D. R. (2025). Influence of digital transformation on employee innovative behavior: Roles of challenging appraisal, organizational culture support, and transformational leadership style. *Front. Psychol.* 16, 1532977. doi: 10.3389/fpsyg.2025.1532977

Bruyneel, A., Bouckaert, N., Maertens De Noordhout, C., Detollenaere, J., Kohn, L., Pirson, M., et al. (2023). Association of burnout and intention-to-leave the profession with work environment: a nationwide cross-sectional study among Belgian intensive care nurses after two years of pandemic. *Int. J. Nurs. Stud.* 137, 104385. doi: 10.1016/j.ijnurstu.2022.104385

Catania, G., Zanini, M., Hayter, M., Timmins, F., Dasso, N., Ottonello, G., et al. (2021). Lessons from Italian front-line nurses' experiences during the COVID-19 pandemic: a qualitative descriptive study. *J. Nurs. Manag.* 29, 404–411. doi: 10.1111/jonm.13194

Coronado-Maldonado, I., and Benítez-Márquez, M.-D. (2023). Emotional intelligence, leadership, and work teams: a hybrid literature review. *Heliyon* 9, e20356. doi: 10.1016/j.heliyon.2023.e20356

Crowne, K. A., Young, T. M., Goldman, B., Patterson, B., Krouse, A. M., and Proenca, J. (2017). Leading nurses: emotional intelligence and leadership development effectiveness. *Leaders. Health Serv.* 30, 217–232. doi: 10.1108/LHS-12-2015-0055

Echevarria, I. M., Patterson, B. J., and Krouse, A. (2017). Predictors of transformational leadership of nurse managers. *J. Nurs. Manag.* 25, 167–175. doi: 10.1111/jonm.12452

Edmondson, A. (1999). Psychological safety and learning behavior in work teams. *Admin. Sci. Quart.* 44, 350–383. doi: 10.2307/2666999

Fischer, A. H., Kret, M. E., and Broekens, J. (2018). Gender differences in emotion perception and self-reported emotional intelligence: a test of the emotion sensitivity hypothesis. *PLoS ONE.* 13, e0190712. doi: 10.1371/journal.pone.0190712

Issah, M. (2018). Change leadership: the role of emotional intelligence. *SAGE Open* 8, 215824401880091. doi: 10.1177/2158244018800910

James, A. H., and Bennett, C. L. (2020). Effective nurse leadership in times of crisis. *Nurs. Manag.* 27, 32–40. doi: 10.7748/nm.2020.e1936

Kelly, L. A., Gee, P. M., and Butler, R. J. (2021). Impact of nurse burnout on organizational and position turnover. *Nurs. Outlook* 69, 96–102. doi: 10.1016/j.outlook.2020.06.008

Korakis, G., and Poulaki, I. (2025). A systematic literature review on the relationship between emotional intelligence and transformational leadership—a critical approach. *Businesses* 5, 4. doi: 10.3390/businesses5010004

Mayer, J.D., and Salovey, P. (1997). *Emotional Development and Emotional Intelligence: Implications for Educators. In What is Emotional Intelligence?* (New York, NY : Basic Books), 3–31.

Mikolajczak, M., Luminet, O., Leroy, C., and Roy, E. (2007). Psychometric properties of the trait emotional intelligence questionnaire: factor structure, reliability, construct, and incremental validity in a French-speaking population. *J. Pers. Assess.* 88, 338–353. doi: 10.1080/00223890701333431

Paquay, M., Diep, A. N., Kabanda, Z., Ancion, A., Piazza, J., and Ghuysen, A. (2023). Impact of the COVID-19 crisis on the hospital work environment and organization: a mixed-methods study. *Int. J. Healthcare Manag.* 17, 398–408. doi: 10.1080/20479700.2023.2190252

Perets, S., Davidovitch, N., and Lewin, E. (2025). Students' perceptions of schools' influence on the leadership self-efficacy of adolescent girls: religious and secular post-primary schools in Israel. *Front. Psychol.* 16, 1488270. doi: 10.3389/fpsyg.2025.1488270

Petrides, K. V. (2009). "Psychometric properties of the trait emotional intelligence questionnaire (TEIQue)," in *Assessing Emotional Intelligence: Theory, Research, and Applications*, eds. C. Stough, D. H. Saklofske, and J. D. A. Parker (New York, NY: Springer Science), 85–101. doi: 10.1007/978-0-387-88370-0_5

Rossettini, G., Conti, C., Suardelli, M., Geri, T., Palese, A., Turolla, A., et al. (2021). COVID-19 and health care leaders: how could emotional intelligence be a helpful resource during a pandemic? *Phys. Ther.* 101, pzab143. doi: 10.1093/ptj/pzab143

Tommasi, M., Sergi, M. R., Picconi, L., and Saggino, A. (2023). The location of emotional intelligence measured by EQ-i in the personality and cognitive space: are there gender differences? *Front. Psychol.* 13, 985847. doi: 10.3389/fpsyg.2022.985847

Trybou, J., De Pourcq, K., Paeshuyse, M., and Gemmel, P. (2014). The importance of social exchange to nurses and nurse assistants: impact on retention factors. *J. Nurs. Manag.* 22, 563–571. doi: 10.1111/jonm.12039

Tyczkowski, B., Vandenhouten, C., Reilly, J., Bansal, G., Kubsch, S. M., and Jakkola, R. (2015). Emotional intelligence (EI) and nursing leadership styles among nurse managers. *Nurs. Admin. Quart.* 39, 172–180. doi: 10.1097/NAQ.0000000000000094

Ursan, S. (2023). A short review of meta-analyses about emotional intelligence and transformational leadership. *J. Public Admin. Finan. Law* 29, 513–519. doi: 10.47743/jopafl-2023-29-43

Vizheh, M., Qorbani, M., Arzaghi, S. M., Muhidin, S., Javanmard, Z., and Esmaeili, M. (2020). The mental health of healthcare workers in the COVID-19 pandemic: a systematic review. *J. Diab. Metab. Disord.* 19, 1967–1978. doi: 10.1007/s40200-020-00643-9

Wang, L., Tao, H., Bowers, B. J., Brown, R., and Zhang, Y. (2018). When nurse emotional intelligence matters: how transformational leadership influences intent to stay. *J. Nurs. Manag.* 26, 358–365. doi: 10.1111/jonm.12509