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THEMED REPORT

The relationship between team climate and interprofessional collaboration: Preliminary results of a mixed methods study

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ABSTRACT

Relational and organisational factors are key elements of interprofessional collaboration (IPC) and team climate. Few studies have explored the relationship between IPC and team climate. This article presents a study that aimed to explore IPC in primary healthcare teams and understand how the assessment of team climate may provide insights into IPC. A mixed methods study design was adopted. In Stage 1 of the study, team climate was assessed using the Team Climate Inventory with 159 professionals in 18 interprofessional teams based in São Paulo, Brazil. In Stage 2, data were collected through in-depth interviews with a sample of team members who participated in the first stage of the study. Results from Stage 1 provided an overview of factors relevant to teamwork, which in turn informed our exploration of the relationship between team climate and IPC. Preliminary findings from Stage 2 indicated that teams with a more positive team climate (in particular, greater participative safety) also reported more effective communication and mutual support. In conclusion, team climate provided insights into IPC, especially regarding aspects of communication and interaction in teams. Further research will provide a better understanding of differences and areas of overlap between team climate and IPC. It will potentially contribute for an innovative theoretical approach to explore interprofessional work in primary care settings.

Introduction

Effective interprofessional collaboration (IPC) among healthcare providers has been regarded as essential for delivering high-quality care (e.g., Fox & Reeves, 2014). In Brazil, the Family Health Strategy (FHS) is a public health policy with the aim of substituting the traditional model of care (based on medical specialists) with a collaborative interprofessional approach. Each family healthcare team is composed of a nurse, a general practitioner, a dentist, several nursing assistants, dental technicians, and community health workers. These teams are organised in geographic areas covering populations of up to 1,000 households. In 2014, 62% (120 million people) of the Brazilian population was covered by the FHS (Macinko & Harris, 2015).

However, operationalisation of IPC has been difficult. Despite the increasingly widespread application of FHS in the population and the need to develop a collaborative approach to it, there is little research carried out in the Brazilian healthcare system about the characteristics of IPC in primary healthcare.

Previous studies have highlighted relational and organisational factors as key elements of IPC (San Martín-Rodriguez, Beaulieu, D'amour, & Ferrada-Videla, 2005) and team climate (Anderson & West, 1998). These factors are amenable to evaluation using the Team Climate Inventory (TCI; Anderson & West, 1998). Team climate is defined as employees' shared perceptions of organisational events, practices, and procedures (Anderson & West, 1998) and provides an indication of the attitudes and behaviours of team members (West & Richter, 2011).

Understanding healthcare professionals' attitudes and behaviours helps in the study of IPC, but few studies have explored the relationship between team climate and IPC.

This article presents quantitative data from Stage 1 and preliminary qualitative findings from Stage 2 of this study, which aimed to address the following research aims: to assess team climate in primary care teams and to analyse perceptions of these professionals towards IPC.

Methods

This study adopted a two-stage explanatory sequential mixed methods approach.

Setting

The study was conducted in a city in the metropolitan region of São Paulo, capital of the most populous state in Brazil. The city has a population of nearly 253,000, and its healthcare system is composed of 16 primary care units and 30 teams. Nine of these units and their 18 teams are part of the FHS.

Stage 1

The team climate of participating healthcare teams was assessed using the TCI alongside demographic data to characterise teamwork practice. The TCI is composed of four factors: participative safety, vision, task orientation, and support for innovation. This

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scale was previously transculturally adapted and validated in the Brazilian context and includes 38 items and 4 subscales (Silva et al., 2016).

The sample for Stage 1 was composed of 159 professionals from 18 primary care teams employing the FHS (*n* = 18 teams). Our sampling strategy aimed to ensure representation of each of the healthcare professions represented in the primary care team. Team members were eligible to participate if they had a minimum of 6 months experience with their current team.

Data collection took place during team meetings. All team members completed the questionnaire individually and anonymously. SPSS software version 20.0 was used to manage and analyse the data. The TCI scores of individual members were aggregated to provide an overall team climate score based on the mean of the individual team members. In order to identify similarities between team scores, cluster analysis was applied (Ward's method). Comparative analyses between different clusters were produced (*t*-test and Mann–Whitney test) to identify significant differences ($p < 0.005$). The reliability was assessed by Cronbach's alpha (≥0.7).

Stage 2

This stage consisted of multiple case studies involving teams that participated in the first stage of the study. Cluster analysis from Stage 1 revealed two different groups, consisting of nine teams characterised by highest mean scores for team climate (A) and nine teams with lowest mean scores for team climate (B). Four teams with the most contrasting scores in clusters A (Team 1 and Team 2) and B (Team 3 and Team 4) were selected to participate. Health professionals from these teams were selected purposively to be interviewed. The researchers interviewed 16 health professionals (nurse, general practitioner, dentist, and community worker) and 4 healthcare service managers.

Data were collected using face-to-face, in-depth, and semi-structured interviews, following a topic guide developed in accordance with study aims and review of literature. Grounded theory techniques (coding, constant comparison, memos, diagrams, theoretical sampling, and theoretical saturation) were employed in the collection and analysis of qualitative data.

Two conceptual lenses were used to help analyse the qualitative data. The first was the four-factor approach of team climate for innovation (West, 1990), which hypothesises that objectives, participative safety, task orientation, and support for innovation are the four major dimensions of team climate and predictors of innovation/innovative potential in teamwork (an approach which was used to develop the TCI). The other lens was Reeves and colleagues' (2010) model of interprofessional teamwork which contains four key teamwork domains: relational, processual, organisational, and contextual. These domains convey the complexity of interprofessional teamwork and provide an approach which aims to increase our understanding of conceptual and methodological aspects of research about IPC.

Findings from both stages of research (quantitative and qualitative) will be analysed to investigate the relationships between IPC and team climate, and based on this, to elaborate a conceptual model of IPC incorporating the appropriate aspects of team climate.

Ethical considerations

The project was approved by the Ethics Committee of University of São Paulo and by the Ethics Committee of the Secretary of HealthCare in São Paulo. Written and verbal informed consent was obtained from all participants before each stage of data collection.

Findings and discussion

In Stage 1, the analysis of the difference between clusters revealed significant differences in TCI scores (Table 1). The mean scores from cluster A were significantly higher on all dimensions than those of teams in cluster B. The dimension in which teams in cluster A and teams in cluster B differed most was "participative safety". Participative safety relates to issues of interaction among team members, sharing information/decisions, and mutual influence.

Preliminary findings from the ongoing qualitative stage indicated potential differences between cluster A and cluster B in participative safety, particularly in communication and mutual support. Team members from cluster A reported seeking consensus in the team and holding discussions aimed at shared decision-making and mutual support between team members. As the following quotes indicate:

> We hear everyone and seek consensus [...] we think it is important to consider any different viewpoint in our team. (Nurse Team 2)

> I do not discuss things with one community worker alone. Cases are discussed in our team meeting, then everyone knows about the case [...] everyone informs themselves about the area of the other, this is very nice. (Nurse Team 1)

Interviewees from cluster B reported anxieties about how much their opinion was considered by other team members. They reported problems of communication evidenced by a lack of opportunities to participate and express themselves within their team. They perceived that decision-making processes were not well negotiated or shared, and that team members tended to prefer actions taken alone rather than team support:

> Nowadays we give our opinion, but I am not sure if it is taken seriously. In the past we had more opportunities to express ourselves [...] we had more respect and freedom to speak. (Community worker Team 3)

> Why do we not make this action plan? [...] I speak with the whole team and no one wants it, why? No one will do the work of other community worker. They think: I was hired to do this and I will do just this. (Community worker Team 4)

Teams from cluster A appeared to communicate better and have more effective forms of interaction to facilitate team participation and enable negotiation and shared decision-making. These

Table 1. Comparison of clusters A and B on TCI scores.

Scales	Cluster A			Cluster B			
	Mean	SD	Range	Mean	SD	Range	*p* value
Participative safety	49.5	3.1	12–60	41.7	1.9	12–60	< 0.001
Support for innovation	31.7	2.9	8–40	27.5	0.9	8–40	0.002
Objectives	60.6	4.2	11–77	52.7	2.4	11–77	0.001
Task orientation	37.7	4.2	7–49	32.2	2.9	7–49	0.015

findings suggest a more positive team climate, particularly in terms of participative safety, in cluster A, reinforcing quantitative findings from Stage 1 and providing an insight into aspects of team climate that are relevant to IPC.

Further analysis of the data from both stages of the study will provide a better understanding of differences and areas of overlap between team climate and IPC.

Concluding comments

Findings from Stage 1 and preliminary findings from Stage 2 suggest that the aspects of participative safety, together with other dimensions of the TCI, have the potential to increase understanding of the role of team characteristics in the development of IPC. In this way, the assessment of dimensions of team climate (participative safety, objectives, support for innovation, and task orientation) provides strategic information to support the development of collaboration within and between teams in primary healthcare.

In this study, data from the TCI were helpful in elaborating the interview topic guide and the protocol for the subsequent qualitative study as they provided an overview of relational and organisational factors relevant to teamwork. Preliminary findings from the qualitative stage have indicated differences between the two contrasting clusters, as identified in the quantitative stage, especially in terms of participative safety.

The construction of a model of IPC that takes into account varying team climates will provide a better understanding of this aspect of primary care and contribute to future studies of the operationalisation of collaboration.

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

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