Perception of Interprofessional Collaboration and Co-Location of Specialists and Primary Care Teams in Youth Mental Health

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Abstract

Objectives: Interprofessional collaboration is a cornerstone of youth mental health collaborative care models. This article presents quantitative results from a mixed-methods study. It analyses the organizational predictors of the perception of interprofessional collaboration of professionals comparing two models of services within recently constituted youth mental health collaborative care teams. Methods: Professionals (n=104) belonging to six health and social services institutions completed an online survey measuring their perceptions of interprofessional collaboration through a validated questionnaire, the PINCOM-Q. Results: Results suggest that the integrated model of collaborative care in which specialized resources are co-located with the primary care teams is the main significant predictor of positive perception of interprofessional collaborations in the youth mental health team. Conclusion: More research on the relation between service delivery models and interprofessional relations could help support the successful implementation of collaborative care in youth mental health.

Key Words: interprofessional collaboration, youth mental health, collaborative care models, organizational culture

Résumé

Objectif: La collaboration interprofessionnelle est un pilier des modèles de soins en collaboration en santé mentale des adolescents. Cet article présente les résultats quantitatifs d’une étude à méthodes mixtes. Il analyse les prédicteurs organisationnels de la perception de la collaboration interprofessionnelle de professionnels en comparant deux modèles de services au sein d’équipes de soins en collaboration récemment constituées en santé mentale des adolescents. Méthode: Les professionnels (n = 104) qui appartenaient à six institutions de services sociaux et de santé ont répondu à un sondage en ligne mesurant leurs perceptions de la collaboration interprofessionnelle à l’aide d’un questionnaire validé, le PINCOM-Q. Résultats: Les résultats suggèrent que le modèle intégré des soins en collaboration dans lequel les ressources spécialisées cohabitent avec les équipes des soins de première ligne est le principal prédicteur significatif de la perception positive des collaborations interprofessionnelles dans l’équipe de santé mentale des adolescents. Conclusion: Plus de recherche sur la relation entre les modèles de prestation des services et les relations interprofessionnelles pourrait contribuer à soutenir la réussite de la mise en œuvre des soins en collaboration en santé mentale des adolescents.

Mots clés: collaboration interprofessionnelle, santé mentale des adolescents, modèles de soins en collaboration, culture organisationnelle

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Introduction

In the last decades, the relative paucity of specialized youth mental health (YMH) resources and the recognition of the importance of interdisciplinary work in this domain have led decision makers to increasingly favor collaborative care models to address the mental health needs of children and adolescents (Servili, 2012). In YMH collaborative care, specialized professionals (usually child psychiatrists or psychologists) support primary care professionals in community health centers through different models of services. In many cases, a child psychiatrist visits the community health center and offers direct (with the patient and family) or indirect (case discussion) consultations to either a family doctor or an interdisciplinary team. In other cases, a child psychiatrist is co-located with other YMH professionals in community health centers (Gale & Vostanis, 2003; Nadeau, Jaimes, et al., 2012). Co-location, which is defined as having an office and spending more time in the primary care setting, is not sufficient in itself to ensure collaboration (Kates et al., 2011). Further integration of services is attained when co-location is associated with administrative ties, a feeling of belonging to the institution, effective communication channels and shared clinical work (Williams, Shore, & Foy, 2006). In a co-location model with such integration, child psychiatrists are more available for informal consultations as they are spending more time in the community centers. The literature on interprofessional teams suggests that this physical proximity may contribute to improved mutual knowledge, strengthen interpersonal relationships and ultimately enhance collaborations (Xyrichis & Lowton, 2008). There is, however, no research comparing the influence of the different types of collaborative models in YMH on interprofessional collaboration. This article presents quantitative results from a mixed-methods study. It analyses the perceptions of interprofessional collaboration of YMH clinicians working in primary care facilities in the newly established YMH teams in Quebec, comparing two models of collaborative care: the visiting child psychiatrist and the co-location model.

Interprofessional relations, organizational culture, and youth mental health

Although the importance of interprofessional collaboration is well-recognized, notably in terms of patient outcomes (Zwarenstein, Goldman, & Reeves, 2009), there are different definitions of interprofessional collaborations which try to capture the multiple dimensions of these professional interactions (Reeves, Lewin, Espin & Zwarenstein, 2010). Interprofessional collaborations refer to the diverse ways through which professionals work together in a complementary fashion in order to enhance their patient outcomes and service delivery efficiency (Leathard, 2004; Ödegård & Björkly, 2012). Even if interprofessional collaborations are very often mentioned in the literature, there is still a relative lack of research studies on the validity of this construct (Reeves, Goldman, Gilbert, Tepper et al., 2010). Because of the difficulties in measuring the complexity of these professional interactions and their quality through objective indicators, interprofessional collaborations have been mostly studied through the subjective perceptions that the involved professionals have of their collaborations with other professionals.

There is a consensus that poor interprofessional collaboration may negatively affect the delivery of health services. A systematic review of the literature (Zwarenstein et al., 2009) suggests that practice-based interventions tailored to improve interprofessional collaborations decrease hospitalization lengths, improve prescribing patterns and improve globally the quality of care. There are no randomized controlled studies on the impact of interprofessional relations on patient outcomes in YMH. Qualitative studies however indicate that the quality of interprofessional relations is a key aspect of collaborative care models in YMH (Nadeau, Jaimes, et al., 2012). Multiple factors can influence the perception of these relations, among which organizational aspects, professional identity issues and personal characteristics of care providers (San Martin-Rodriguez, Beaulieu, D’Amour, & Ferrada-Videla, 2005).

In a literature review on interprofessional relations in YMH, team structure and team processes emerged as key factors contributing to the quality of interprofessional collaborations. At the structural level, the fact of sharing a common space is associated with enhanced communications (more information sharing) and improved interpersonal relations (Rutherford & McArthur, 2004). The team size and the professional diversity also influence interprofessional relations (Borrell, West, Shapiro, & Rees, 2000). Leadership issues can be challenging for the interdisciplinary teams because in collaborative care they often experience a shift from a traditionally hierarchical health care model in which physicians are the designated leaders to a collaborative and shared leadership model. Organizational support from the wider institution is also identified as key and may influence, positively or negatively, the interprofessional teams working in those systems (Borrell et al., 2000). Finally, team stability in regards to its members contributes to effective team work (Cashman, Reidy, Cody, & Lemay, 2004). These structural dimensions are thought to influence the overall organizational culture, which in turn influences interprofessional relations.

Defining the concept of organizational culture and its relationship with quality of services comes with many challenges that necessarily impact approaches to how it has been researched (Doherty, Loughrey, & Higgins, 2013). According to Brown (1998), organizational culture refers to the pattern of beliefs, values and expected ways of coping with difficulties that are constantly developing and shared among members during the course of an organization’s history. In their review of the literature, Doherty et al.
(2013) suggest that improving organizational culture could enhance safety and quality of services. According to this study, shared leadership, meaningful engagement of staff, effective team working and communication are the cornerstones on which such change could be built. Although research on the relationship between organizational culture and performance in the healthcare setting could still be considered in its infancy (Doherty, et al., 2013), emerging evidence supporting its importance is now available (Davies, Mannion, Jacobs, Powell, & Marshall, 2007; Lok, Rhodes, & Westwood, 2011). The work of Glisson et al. (2008; Glisson, Green, & Williams, 2012) on youth-serving agencies in the USA indicates that mental health and social service organizations present an array of organizational culture and climate profiles. Through a randomized controlled trial, they demonstrated that positive organizational culture and climate profiles are associated with better treatment outcomes, higher service quality, lower staff turnover, more positive attitudes toward the use of evidence-based practices (EBPs), and greater sustainability of new programs (Glisson, Hemmelgarn, Green, & Williams, 2013). In summary, structural factors, including geographical proximity and the team physical facilities, may contribute to shaping an organizational culture which can improve interprofessional relations in YMH services.

**Aim of Paper**
The general objective of this paper is to study the association between organizational factors and the perception of interprofessional collaboration in recently established YMH collaborative care teams. It addresses the following questions: First, is there an association between the model of collaborative care, defined in terms of co-location and of visiting specialist, and the perception of interprofessional collaboration? Second, if there is such an association, what dimensions of interprofessional collaboration perceptions, as measured by the PINCOM-Q, are associated with the different models? Finally, is the amount of time since establishment of the model associated with the perception of interprofessional collaboration?

**Setting**
Because of shortage of specialized resources, which was associated with long wait lists and difficulties to access YMH services, the province of Quebec has reorganized services according to a government plan, “le Plan d’action en santé mentale” (the Mental Health Action Plan - MHAP). This plan (initially 2005-2010) implemented collaborative care teams in YMH in all Quebec community health and social services centers and promoted service and expertise exchanges between primary care and second and third lines of services. According to this plan, child psychiatrists, who were practicing in hospital-centered clinics, had to provide consultation services to the community health center YMH team. This reform generated a lot of upheaval and resistance. On one hand, community center professionals were concerned that they would be submerged by difficult cases which belonged to the second and third lines. While on the other hand, child psychiatrists were worried about both a possible decline in the overall standards of care and the definition of their new community role. In order to overcome these obstacles, the reform was implemented at different times and with different models of collaboration across the province. On the island of Montreal, a first study of the implementation of this reform showed that the newly created YMH teams had more positive perceptions of their interprofessional collaborations than other youth teams in the same community centers (Rousseau, Nadeau, Laurin-Lamothe, & Deshaies, 2012).

**Methods**

**Study design**
In order to document the efficiency of the collaborative care reform in Quebec a large multisite mixed methods longitudinal study was launched by the present research team. This paper reports on the cross-sectional quantitative component of the study, while longitudinal data is still being collected and qualitative results will be presented elsewhere. It analyses data collected at baseline in the participating institutions and draws on findings from a previous qualitative study on the same care model (focus groups with professionals) to support the interpretation of the results. Within the larger study, on-going collection of quantitative and qualitative data will subsequently provide information on the relation between the perceptions of the quality of interprofessional collaborations and patient outcomes, as reported by two informants.

**Participants**
Six YMH teams servicing six community health centers in Montreal (Quebec, Canada) participated in the research. All the YMH team clinicians and administrators were invited to complete an online survey (Lime Survey) on their perception of interprofessional collaboration. The survey was sent to 167 professional, 104 completed it with a participation rate ranging from 47% to 80% depending on the institutions.

**Instruments**
The perception of interprofessional collaboration was measured by a standardized scale, the Perception of Interprofessional Collaboration Model questionnaire (PINCOM-Q) (Ødegård & Strype, 2009). This instrument was constructed specifically to address the specificities of interprofessional relations in YMH. The scale is composed of three dimensions assessing individual, group and organizational collaborations, each measured by four constructs (subscales). A lower score indicates a more positive perception of collaboration. The individual dimension of collaboration includes professional power, role expectations, personality style,
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and work motivation. The group dimension is composed of leadership, coping abilities, communication and social support. Finally, the organizational dimension of the collaboration targets organizational aims, organizational domain, organizational culture and organizational environment. The 48 items of the scale are rated on a 7-degree Likert scale. Because of the difficulty associated with the research operationalization of this concept, Ødegård and Bjørkly (2012) emphasize the importance of construct validity in the study of interprofessional collaborations. The PINCOM-Q has been validated through a multi-step mixed method research in which the dimensions identified in a qualitative study were confirmed through a quantitative survey (Ødegård & Bjørkly, 2012; Ødegård & Strype, 2009). These sub-dimensions were supported by a generalizability theory analysis (Ødegård, Hagtvet, & Bjørkly, 2008). In our study, Cronbach Alpha for the PINCOM-Q global score was $\alpha = .90$, $\alpha$:.78 for the individual score $\alpha$: .86 for the group score and $\alpha$: .77 for the organizational score.

Sociodemographic information (age, gender, place of birth, language) as well as a profile of the participating clinicians’ professional practice (discipline, years of experience within the team and years of experience within the institution) were also collected.

The following organizational variables were studied: collaborative care models (visiting versus co-location of child psychiatrists within YHM team); time since the implementation of the YMH team; and, differences between institutions in management and work climate. Because the interdisciplinary composition of all the teams was very similar, team composition was not considered as a variable.

### Analysis

Bivariate analyses (student t-test and chi square) were conducted to study the relation between the PINCOM-Q scores and the individual, professional and organizational variables. We selected the variables which, at the bivariate level, were associated ($p < 0.1$) with the PINCOM-Q global score or subscores to be entered into the linear regression models of the global score and subscores. Although the same model was tested with all the PINCOM-Q subscores, only the subscore regressions which explained some of the variance of the global score are presented in the tables. The model of collaborative care (co-location vs. visitor) was completely co-linear with the sites (there were no other significant differences between sites). Thus, we entered only the model of care into the regression analysis and decided not to force the site variable in the model.

### Results

The sample was composed of 85% females, with a relatively even distribution of ages (20 to 65) (Table 1). In terms of disciplines, 48.5% of the participants were social workers, 17.5% psychologists, 15.5%, psychoeducators, 5.2% nurses, 5.2% medical doctors, 4.1% art therapists and 4.1% others. The collaborative care system had been put in place six months to five years before the survey in the six institutions. Age, discipline and time since the collaborative care model was implemented were not significantly associated with PINCOM-Q global score or subscales.

The multiple regression results indicate that the co-location model of collaborative care is significantly associated with a more positive perception of interprofessional collaboration ($B = .337; p = .001$), and explains the largest part of the variance of the global score model (Table 2). Some of the PINCOM-Q subscales are associated with different predictors. Motivation is significantly predicted by gender ($B = .219; p = .031$) (stronger in females), while Communication and Organizational Culture are predicted by seniority in the team ($B = .277; p = .025$ and $B = .335; p = .005$) and

| Table 1. Sociodemographic profile of the youth mental health professional participants |
|------------------------------------------|--------|--------|
| Variables                               | n      | %      |
| Gender                                  |        |        |
| Female                                  | 85     | 83.3   |
| Male                                    | 17     | 16.7   |
| Age                                     |        |        |
| 20-29 years old                         | 13     | 12.7   |
| 30-39 years old                         | 34     | 33.3   |
| 40-49 years old                         | 20     | 19.6   |
| 50-59 years old                         | 25     | 24.5   |
| 60 years old and over                   | 10     | 9.8    |
| Field of study                          |        |        |
| Social work                             | 47     | 48.5   |
| Psychoeducation                         | 15     | 15.5   |
| Psychology                              | 17     | 17.5   |
| Art therapy                             | 4      | 4.1    |
| Medicine                                | 5      | 5.2    |
| Nursing                                 | 5      | 5.2    |
| Other                                   | 4      | 4.1    |
| Seniority in the team                   |        |        |
| Less than 1 year                        | 27     | 26.5   |
| 1-5 years                               | 50     | 49     |
| More than 5 years                       | 25     | 24.5   |
| Seniority in the institution            |        |        |
| Less than one year                      | 19     | 18.6   |
| 1-10 years                              | 58     | 56.9   |
| More than 10 years                      | 25     | 24.5   |
| Responding professionals’ model         |        |        |
| Integrated                              | 35     | 34.3   |
| Visiteur                                | 67     | 65.7   |
the co-location model of collaborative care (B = .231; p = .026 and B = .259; p = .010). The co-location model of collaborative care is also a predictor of participants’ perception of having more professional power (B = .226; p = .031). Predictors were not significantly associated with the other subscales.

**Discussion**

Results indicate that the co-location model of collaborative care is significantly associated with a more positive perception of interprofessional collaboration for YMH professionals. This overall positive association with the PINCOM-Q global score, is the result of associations with the Motivation, Communication, Organizational Culture and Professional Power subscales. At the individual level, this model of service is associated with the participants’ perception of having more professional power, defined as having influence on the group processes (Professional Power subscale) (Ødegård, 2006). At the team level, the co-location model is associated with a perception of improved communication, as measured by the Communication subscale, while at the organizational level it is associated with a more positive score on the Organizational Culture subscale, indicating a better perception of the organizational culture. The positive effects of the co-location model on YMH professional perceptions of these different dimensions of the interprofessional collaborations may be associated with more frequent contacts between the primary care team and the specialized resources, and the subsequent development of mutual appreciation and of a common care culture. A qualitative study of the same co-location model indicates that primary care YMH professionals identify the
on-site presence of the child psychiatrist as one of the factors facilitating partnership with specialized resources and as a source of support for their clinical work (Nadeau, Rousseau, & Measham, 2012). By providing a comparison with the perception of interprofessional collaboration in the visitor model, these results suggest that the co-location model may contribute to improve the perceptions of interprofessional collaborations. This is in line with the conclusions of Xyrichis et al. (2008) who identify team structure and in particular team physical facilities as a key element to facilitate interprofessional team work. In the co-location model, child psychiatrists become members of the team without assuming an administrative leadership. It is possible that this position promotes a more horizontal model of transdisciplinary collaboration in which mutual understanding and the recognition of specific expertise could be facilitated by the absence of hierarchical power relations.

In agreement with the Ódegård & Strype (2009) study, the results also confirm that gender is a significant correlate of some aspects of the perception of interprofessional collaboration, in this case motivation, which is significantly greater in females. It has been suggested that women’s motivation towards interprofessional collaboration could be linked to the fact that hierarchical healthcare systems are designed by men and for men. This often provides women with less influence on their working conditions than more horizontal systems (Wilhelmsson, Ponzer, Dahlgren, Timpka, & Faresjö, 2011).

The fact that discipline was not associated with perceptions of interprofessional relations also coincides with Ódegård and Strype (2009) findings in YMH teams. However, results from a qualitative study suggest that interprofessional hierarchies and roles are in fact an issue in collaborative care teams in Quebec (Nadeau, Jaimes et al., 2012), an observation which is supported by previous research in Quebec (Sicotte, D’Amour, & Moreault, 2002) and internationally (Axelsson & Axelsson, 2009). Without minimizing these tensions, the present results suggest that the overall team dynamic may be a better predictor of perceptions of interprofessional relations than a particular professional framework. Contrary to our expectations, time since establishment of the model was not associated with positive perception of interprofessional relations. This suggests that although time may consolidate relations it may also undermine them depending on the work climate, and that a linear relation cannot be assumed.

**Limitations**

This study has a number of limitations. First, although the overall response rate is quite good (63.3%), the uneven rate of responses by institution may be an indication of some site bias. The uneven representation of the two models of collaboration may also have influenced the observation. However, the fact that the co-location sites had higher response rates than the others could be seen as another indication of professionals’ major commitment to team issues. Second, the study did not include a measure of the organizational support of the team by the institution, although it was clear from previous qualitative findings on the same care model that this played an important role in the team climate. Finally, our study does not allow for a distinction between the impact of the co-location model and other components of the organizational culture of these sites.

**Conclusion**

Taking into account these limitations, these results add to the literature that emphasizes that organizational variables are associated with levels of job satisfaction and commitment for childcare workers (Glisson et al., 2012). The results nonetheless suggest that co-location may improve the quality of interprofessional collaboration in YMH and that more attention should be given to the models of collaborative care which are implemented, and in particular to the geographical proximity among team members, the level of administrative and clinical integration, and to the feeling of belonging to a common institution which may be associated with the co-location model of care. This model, which has often not been considered because of the dominance of the hospital centered model of specialized care, appears to be a promising avenue which deserves more attention and research (Nadeau, Jaimes, et al., 2012). The relation between co-location, interprofessional collaborations and service efficiency remains to be established.

**Acknowledgements / Conflicts of Interest**

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**References**


