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Development and Testing of a Conceptual Framework for Interprofessional Collaborative Practice

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Abstract

INTRODUCTION Validated conceptual frameworks are needed to guide interprofessional research in order to build a systematic body of knowledge of interprofessional collaborative practice (ICP). A conceptual framework derived from an extensive review of the interprofessional literature was developed. In the framework, constructs that include personal factors (i.e., beliefs in interprofessional collaboration, flexibility, trust, cooperation, and communication skills) and situational factors (i.e., leadership, empowerment, and support structures) are posited to influence effective ICP. ICP is conceptualized as understanding of roles, interdependence, knowledge exchange, and collective ownership of goals. Consequences of ICP include improved patient, organizational, and team and personal work behaviours and attitudes.

METHODS A preliminary study was conducted to determine the relationships among the constructs in the conceptual framework with a sample of 117 interprofessional practitioners in Manitoba, Canada. Participants completed a survey derived from modified existing measures.

RESULTS Exploratory factor analyses provided construct validity for the measures, and Cronbach alpha reliabilities were acceptable.

CONCLUSION There is encouraging preliminary empirical support for the conceptual framework with trust, cooperation, communication skills, and support structures predictors of ICP, and ICP a predictor of all outcomes identified in the framework.

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Implications for Interprofessional Practice

- Healthcare leaders can use the proposed conceptual framework as a guide for facilitating interprofessional collaborative practice in organizations to enhance patient safety and quality.
- Interprofessional education can be strengthened with a validated framework for interprofessional collaborative practice.
- With a validated framework, clinical professionals will become more aware of the importance of individual attitudes and behaviors and team interactions to improving patient safety and quality

Introduction

The interprofessional literature has been described as atheoretical (Reeves et al., 2011). Elements of interprofessional collaboration are poorly conceptualized, and a consistent theoretical framework to guide research and build a body of evidence to inform interprofessional education (IPE) and interprofessional collaborative practice (ICP) is missing (Reeves et al.). In this paper, we present a conceptual framework for ICP derived from an extensive review of the existing interprofessional literature. The results of a preliminary study designed to test the validity of this framework in a Canadian healthcare setting are described.

Literature Review/Conceptual Framework

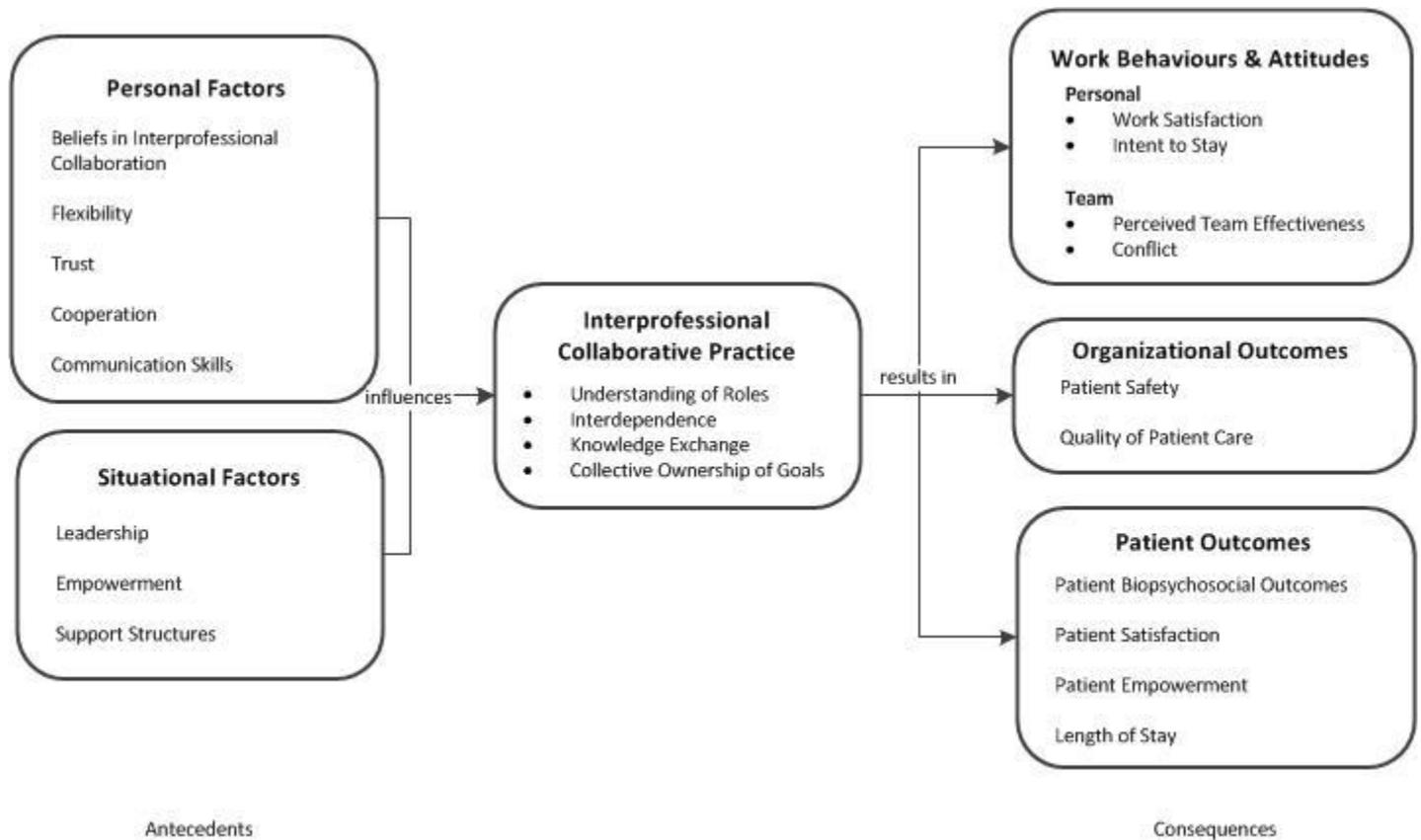
Numerous databases including PubMed, Scopus, Embase, CINAHL, and PsycInfo were searched to examine theoretical and research papers relating to IPE and ICP. Main keywords included *interprofessional collaboration*, *interprofessional relations*, *interdisciplinary collaboration*, *interprofessional education*, *teamwork*, and *patient care team*. Of the 900 electronic abstracts reviewed, only research-based papers were selected for further review. Our proposed conceptual framework for ICP (see Figure 1, following page) was formulated by synthesizing concepts from 97 research papers and key national and international reports. We posit antecedents, that include personal and situational factors, influence ICP. ICP in turn results in a variety of consequences including improved work behaviors and attitudes, organizational outcomes, and patient outcomes. See Table 1 (page 3) for definitions/descriptions of terms.

Antecedents of ICP

Researchers identified several antecedents to ICP. We separated the antecedents into personal factors that are controlled internally by an individual, and situational factors that professionals are exposed to within the workplace that either support or deter ICP. For ICP to be successful, interprofessional practitioners must first truly believe in the concept of ICP (Oandasan & Reeves, 2005; Parker Oliver, Wittenberg-Lyles, & Day, 2007) and have experience with being able to negotiate an interprofessional plan when disagreements occur (Bronstein, 2003; McGrail, Morse, Glessner, & Gardner, 2009).

Relational skills are a precursor to ICP (McGrail et al., 2009), and interprofessional practitioners must have already developed strong cooperation (Gaboury, Lapierre, Boon, & Moher, 2011) and communication skills (Atwal & Caldwell, 2002; Havens, Vasey, Gittell, & Lin, 2010). Trust is critical, and according to D'Amour, Goulet, Labadie, San Martin-Rodriguez, and Pineault (2008), ICP is possible only when there is trust in each other's competencies. D'Amour et al. claim that professionals place themselves in vulnerable positions all the time and take risks in trusting each other; however, when there is high uncertainty or low trust, professionals will avoid collaboration and hold onto their own responsibilities for patient care. Overall, it is important that individuals are comfortable with themselves and their own competencies before relying on others (Clark, 2011).

Situational antecedents that either support or deter ICP include leadership (Canadian Interprofessional

Figure 1. *Conceptual framework for interprofessional collaborative practice*

Health Collaborative [CIHC] 2010; D'Amour et al., 2008; Oandasan & Reeves, 2005), empowerment (Tresolini & Pew-Fetzer Task Force, 1994), and support structures (Clark, 2011; McGail et al., 2009). Both central and local leadership is needed to promote collaboration, eliminate barriers (D'Amour et al., 2008), and promote an effective team culture (Clark, 2011). Leadership is also needed to create an empowering environment that includes having access to information, support, resources, and the opportunity for growth and mobility (Kanter, 1977; 1997). Support structures necessary for ICP include having adequate time for sharing knowledge and patient-related information (Atwal & Caldwell, 2002; Clark, 2011; Gaboury, Bujold, Boon, & Moher, 2009) and integrating daily collaborative behaviors into day-to-day functioning (Ottawa Hospital, n.d.). Support can also take the form of emotional support, helpful advice, or hands-on assistance from superiors, peers, or interprofessional practitioners (Kanter, 1977; 1997). Additional support structures include having formal procedures and mechanisms for facilitating dialogue (Parker Oliver et al., 2007) such as written

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policies and/or guidelines and various educational opportunities such as in-services and grand rounds.

Interprofessional Collaborative Practice

The World Health Organization (2010) defines collaborative practice as occurring “when multiple health workers from different professional backgrounds provide comprehensive services by working with patients, their families, carers, and communities to deliver the highest quality of care across settings” (p. 13). This definition is consistent with the model of Relationship-Centered Collaborative Care (RCC) that includes three key relationships necessary for effective patient care: (a) the patient-practitioner relationship, (b) the practitioner-practitioner relationship, and (c) the community-practitioner relationship (Tresolini & Pew-Fetzer Task Force, 1994). In the patient-practitioner dimension, the essential role of the patient as a partner in the interprofessional care process is emphasized, while in the practitioner-practitioner dimension, collaboration among healthcare providers is stressed. In the community-practitioner dimension, the need

Table 1. Survey Subscales, Definition/Description, Sample Survey Items, Final Number of Survey Items, and Alpha Reliabilities

Scales/Subscales	Definition/Description	Sample Survey Items	Final #	<i>a</i>
Antecedents: Personal				
Beliefs in IPC ²	Extent to which professionals identify strengths in interprofessional collaboration.	At my workplace, interprofessional collaboration is a better answer than non-collaborative care to meet the patient's/family's biopsychosocial needs.	4	0.88
Flexibility ¹	"Deliberate...role-blurring...and includes reaching productive compromises in the face of disagreement" (Bronstein, 2003, p. 300-301).	I am willing to take on tasks outside of my job description when that seems important.	2	0.69
Trust ²	The confidence and reliance that interprofessionals have with one another.	I never have to double-check information given to me by other team members.	5	0.83
Cooperation ²	The manner in which interprofessionals work together for a common goal.	I coordinate my efforts with professionals from other disciplines.	2	0.67
Communication ³	The ease and effectiveness with which interprofessionals communicate with each other.	I find it easy to ask the advice of others in my team.	3	0.68
Antecedents: Situational				
Leadership ³	A team leader's ability to foster ICP and "set and communicate clear goals and expectations and facilitate their implementation" (Temkin-Greener et al., 2004, p. 481).	The team leader fosters professionals from different disciplines to work together.	3	0.76
Empowerment ⁵	Having access to information, support, resources, and the opportunity for growth and mobility (Kanter, 1977; 1997).	Overall, my current work environment empowers me to accomplish my work in an effective manner.	2	0.87
Support Structures ^{1,4}	Having the physical space, time, policies and procedures, and formal mechanisms to support ICP.	Within my workday, I have time to meet with professionals from other disciplines to discuss patient care.	5	0.77
ICP				
Overall definition of ICP	"When multiple health workers from different professional backgrounds provide comprehensive services by working with patients, their families, carers and communities to deliver the highest quality of care across settings" (WHO, 2010, p. 13).	As per below four subscales.	13	0.78
<i>Four subscales of ICP:</i>				
• Understanding of Roles ¹	Professionals' knowledge and understanding of their role and the roles of others within an interprofessional collaborative environment.	My colleagues from other professional disciplines do not treat me as an equal.	3	0.65

Legend

¹Parker Oliver et al. (2007), ²Gaboury et al. (2011), ³ Temkin-Greener et al.(2004), ⁴ Ottawa Hospital (n.d.), ⁵ Laschinger et al. (2001), ⁶ Sicotte et al. (2002). Definitions/descriptions without a reference are developed by the authors of this paper.

Table 1 (cont'd). *Survey Subscales, Definition/Description, Sample Survey Items, Final Number of Survey Items, and Alpha Reliabilities*

Scales/Subscales	Definition/Description	Sample Survey Items	Final #	<i>a</i>
ICP (continued)				
• Interdependence ¹	“The occurrence of and reliance on interactions among professionals whereby each is dependent on the other to accomplish his or her goals and tasks” (Bronstein, 2003, p. 299).	Working with professionals from other disciplines is not important in my ability to help patients/families.	3	0.54
• Knowledge Exchange ²	Perception of the extent to which knowledge is shared between professionals in a given environment (Van den Hooff & De Ridder as cited in Gaboury et al., 2011).	When I need specific clinical information, I ask my colleagues in other disciplines about it.	3	0.55
• Collective Ownership of Goals ¹	“Shared responsibility in the entire process of reaching goals, including joint design, definition, development, and achievement of goals...and includes a commitment to client-centered care/[relationship-centered care] whereby professionals from different disciplines and clients and their families are all active in the process of goal attainment” (Bronstein, 2003, p. 301).	Professionals from other disciplines with whom I work encourage family members’ participation in the treatment process.	4	0.76
Consequences: Work Behaviours & Attitudes				
Work Satisfaction ²	Overall satisfaction with work.	In general, I don’t like my job at this health-care facility.	2	0.78
Intent to Stay ^{2,4}	Intent to stay in one’s current job.	If I could, I would get another job within another healthcare facility.	3	0.86
Perceived Team Effectiveness ³	“The perceived effectiveness of the team with respect to...the ability to meet patient (and family) care needs and outcomes (Temkin-Greener et al., 2004, p. 481).	Our team does a good job in meeting patient and family member needs.	3	0.84
Conflict ³	The degree to which disciplines disagree over the sharing of responsibilities and group decisions.	Interprofessional relationships are often perceived as having winners and losers (if one group wins, another loses).	4	0.76
Consequences: Organizational Outcomes				
Patient Safety and Quality ⁴	Global perceived rating of patient safety and quality.	Overall, how would you rate the quality of patient care in your clinical area?	2	-
Additional Items for Concurrent/Construct Validity				
Level of Collaboration ⁶	Global perceived rating of degree of collaboration among disciplines.	Please indicate your perception of the degree of collaboration that exists between the different disciplines in your primary care setting?	2	-

Legend

¹Parker Oliver et al. (2007), ²Gaboury et al. (2011), ³Temkin-Greener et al.(2004), ⁴Ottawa Hospital (n.d.), ⁵Laschinger et al. (2001), ⁶Sicotte et al. (2002). Definitions/descriptions without a reference are developed by the authors of this paper.

to consider the patient's community, including one's family situation and available community resources to support health goals is highlighted. At a higher level, the role of the practitioner in enhancing community relationships and health is emphasized. Overall, the RCC model forms the underlying basis for ICP in our framework, because we see these relationships as foundational for comprehensive patient care in any setting. In examining other existing models and definitions of ICP, we found that effective relationships were either explicitly or implicitly identified as a fundamental component of ICP (Bronstein, 2003; CIHC, 2010; D'Amour et al., 2008; Orchard, Curran, & Kabene, 2005; Safran, Miller, & Beckman, 2006). Although the RCC model has been used primarily to guide education and practice, it has been used in rare cases for interprofessional research (Dix, Steggle, Baptiste, & Risdon, 2008; Gaboury et al., 2011).

Based on the literature, we conceptualized ICP as a four dimensional construct including *understanding of roles, interdependence, knowledge exchange, and collective ownership of goals*. Understanding of roles is key to the practitioner-practitioner dimension of RCC and the other two relationships where the patient's role must be understood (Tresolini & Pew-Fetzer Task Force, 1994). We found that interprofessional practitioners that work collaboratively are comfortable explaining their own role to other professionals, they put aside turf and role issues (Clark, 2011), they are aware of their own and other's limitations, and they have professional maturity and intellectual curiosity (Gaboury et al., 2009).

Regarding interdependence and knowledge exchange, interprofessional practitioners talk about the need for equality in terms of power relationships between professionals (Gaboury et al., 2009) and their willingness to share information (Atwal & Caldwell, 2002). Respect for others and their knowledge is important (Clark, 2011), as well as an understanding of the value base of other professionals (Atwal & Caldwell, 2002). Interdependence and knowledge exchange among interprofessional practitioners and the patient is required for all three dimensions of RCC to be effective (Tresolini & Pew-Fetzer Task Force, 1994).

Collective ownership of goals is essential for effective ICP (Atwal & Caldwell, 2002). A vital component in developing and achieving healthcare goals is that

patients and their families are active participants in the process (Bronstein, 2003). In our framework, the *patient*, which is a collective term referring to the patient, client, family, and/or community, is considered a key decision maker in terms of ownership of goals. Orchard et al. (2005) agree that the integral role of the patient in care planning and decision making is often overlooked in explanations of ICP. When looking at the relationship to RCC, we believe that collective ownership of goals transcends the patient-practitioner and community-practitioner dimensions (Tresolini & Pew-Fetzer Task Force, 1994).

Consequences of ICP

Consequences of ICP include patient and organizational outcomes (WHO, 2010), and a change in work behaviors and attitudes that are both personal and team in nature. If ICP is effective, professionals experience work satisfaction (Gaboury et al., 2011; Hall, Weaver, Gravelle, & Thibault, 2007) and their intent to stay in their jobs increases (Gaboury et al., 2009; 2011). In addition, professionals will perceive team effectiveness to be higher (CIHC, 2010; Clark, 2011; Temkin-Greener, Gross, Kunitz, & Mukamel, 2004), and will experience less team conflict (CIHC, 2010; Temkin-Greener et al., 2004). With enhanced ICP, patient safety will improve along with quality of patient care. Enhanced patient outcomes as a result of ICP include a variety of bio-psychosocial outcomes (Zwarenstein, Goldman, & Reeves, 2009), patient satisfaction (San Martin-Rodriguez, D'Amour, & Leduc, 2008), patient empowerment (Laschinger, Gilbert, Smith, & Leslie, 2010), and decreased length of stay (Blewett, Johnson, McCarthy, Lackner, & Brandt, 2009; Cowan et al., 2006).

Methods

Design and Sample

A preliminary study, using a descriptive correlational design, was used to test the proposed relationships in the model excluding patient outcomes. The sample included 364 healthcare professionals currently employed in a regional health authority (RHA) in northern Manitoba, Canada. Sites included three hospitals, three long-term care facilities, and four primary healthcare centers. Participants were regulated direct care providers/supervisors who were involved in planning care and/or team decision making.

Procedure

After ethical approval from the University of Manitoba, survey packages were couriered to an onsite research manager who distributed the packages. Survey respondents received a letter of information and a \$2.00 gift card was included. Anonymous surveys were returned directly to the research team and data were entered into a statistical analysis program.

Instrument

We constructed the Interprofessional Collaborative Practice Survey (ICPS) using selected items from existing instruments to measure all constructs in the framework including ICP and its antecedents and consequences (see Table 1). ICP is measured by four subscales and 13 items corresponding to the model constructs (i.e., understanding of roles, interdependence, knowledge exchange, and collective ownership of goals). Two items, based on Sicotte, D'Amour, and Moreault's (2002) work, measuring perceived degree of collaboration, were used to establish concurrent/construct validity of the newly developed measure of ICP. The total ICP score was significantly correlated to collaboration in both primary care and regional settings ($r=0.60$ and $r=0.48$ [$p<.05$] respectively). Personal antecedents are measured by five subscales (16 items), while situational antecedents are measured by three subscales (10 items). Six subscales (16 items) are used to measure ICP consequences. Due to length, redundant items were removed from original scales with further items deleted as a result of reliability testing and factor analysis. Minor wording changes were made for applicability to the population. The final tool consists of 55 items with nine demographic items.

High scores on the ICPS (including conflict) indicate a higher level of the construct with items rated on a 5-point scale of strongly disagree (1) to strongly agree (5). Scores are summed and averaged for each subscale. Twelve items are reverse coded. Perceptions of the state of patient safety, quality of care, and degree of collaboration were rated on a 5-point scale from low (1) to high (5). Patient safety (1 question) and quality of patient care (1 question) scores are averaged, while collaboration (2 questions) scores are summed and averaged.

Data Analysis

The Statistical Package for the Social Sciences (SPSS) was used to generate descriptive statistics and examine initial correlations between ICP and its antecedents and consequences using Pearson product-moment correlation coefficient. Armstrong (1981) supports the use of parametric statistics with ordinal level data. Due to the number of changes to original subscales, the ICPS was essentially considered a new instrument; therefore, exploratory factor analyses (EFA) were used to examine the construct validity of the instrument and reliability was estimated using Cronbach's coefficient α . Path analysis techniques in AMOS (Arbuckle, 2005) were used to test the hypothesized paths in our conceptual framework. Path analysis within structural equation modeling analysis allowed us to test all hypothesized paths simultaneously and to take errors into account to get more precise estimates of the effects (Kline, 2011).

Results

Sample Description

The response rate was 32% ($N=117$) with 95 females, 21 males, and one not indicating his/her gender. Participants were 23 to 68 years of age ($M=43.40$, $SD=11.77$) with 0.5 to 40 years of experience ($M=15.51$, $SD=12.45$). Seventy-five percent were nurses, 17% allied health professionals, and 8% physicians. The majority worked in acute care (59%), with 34% in community care, and 7% in long-term care. Seventy-two percent worked full time, 24% part-time, and 4% casual. Seventy-eight percent worked in direct patient care, 13% were in a supportive role to direct patient care providers, and 9% were in a direct patient care leadership role.

Factor Analyses and Reliability of ICPS

Four principal components EFAs with Varimax rotation were conducted. For the ICP measure, the EFA yielded 4 factors with Eigenvalues greater than 1.00 which accounted for 59.73% of the cumulative variance (see Table 2, following page). For personal antecedents, 5 factors had Eigenvalues over 1.00 explaining 71.44% of the cumulative variance (see Table 3, following page), while three factors explained 67.50% of the cumulative variance for situational

Table 2. *Rotated factor loadings for interprofessional collaborative practice*

Scales/Question #	Ownership of Goals	Understanding of Roles	Interdependence	Knowledge Exchange
Goals 37	.880			
Goals 39	.789			
Goals 40	.674			
Goals 38	.522	.451		
Roles 32		.794		
Roles 35		.744		
Roles 33		.623		
Interdependence 31			.788	
Interdependence 34			.633	
Interdependence 30		.475	.584	
Knowledge 44				.828
Knowledge 41				.705
Knowledge 43			.466	.473

Table 3. *Rotated factor loadings for antecedents: Personal factors*

Scales/Question #	Beliefs in ICP	Trust	Communication	Flexibility	Cooperation
Belief 2	.903				
Belief 4	.859				
Belief 3	.830				
Belief 1	.760				
Trust 10		.795			
Trust 11		.782			
Trust 9		.770			
Trust 8		.756			
Trust 14		.563		.470	
Communication 15			.825		
Communication 16			.706		.329
Communication 17		.381	.634		
Flexibility 5				.856	
Flexibility 6				.737	.324
Cooperation 12					.865
Cooperation 13	.321	.346			.628

factors (see Table 4). Four factors explained 74.71% of the cumulative variance for work behaviors and attitudes (see Table 5). Reliability of the ICPS was adequate with values ranging from 0.67 to 0.88 for antecedent and consequences scales, and 0.78 for the overall ICP scale (see Table 1).

Descriptive Statistics for Major Study Variables

As seen in Table 6 (following page), the overall mean for interprofessional collaborative practice was moderate ($M=3.76$, $SD=0.43$). Interprofessional practitioners' ratings of the ICP dimensions were moderate to moderately high: understanding of roles ($M=3.15$, $SD=0.75$); interdependence ($M=4.24$,

$SD=0.47$); knowledge exchange ($M=3.98$, $SD=0.50$); and collective ownership of goals ($M=3.43$, $SD=0.69$). Means for personal ICP antecedents were moderate to moderately high with beliefs in interprofessional collaboration rated highest ($M=4.41$, $SD=0.63$) and trust lowest ($M=3.29$, $SD=0.78$). Situational ICP antecedents were also moderate with leadership rated highest ($M=3.32$, $SD=0.81$) and ICP support structures lowest ($M=3.25$, $SD=0.81$). All antecedents except for flexibility were significantly correlated with ICP, as were all outcomes.

In the path analysis, 3 of 5 paths for personal factors were significant predictors of ICP, with communication skills highest ($\beta=0.33$) and trust the lowest ($\beta=0.17$).

Table 4. *Rotated factor loadings for antecedents: Situational factors*

Scales/Question #	Support	Leadership	Empowerment
Support 24	.763		
Support 25	.708		
Support 23	.659	.425	
Support 27	.557		.370
Support 26	.398		.599
Leadership 21		.876	
Leadership 20		.799	
Leadership 22	.359	.702	
Empowerment 29			.880
Empowerment 28	.315		.858

Table 5. *Rotated factor loadings for consequences: Work behaviours and attitudes*

Scales/Question #	Conflict	Team Effectiveness	Intent to Stay	Work Satisfaction
Conflict 59	.767			
Conflict 57	.722			.475
Conflict 60	.715			
Conflict 58	.691			.378
Team Effectiveness 55		.870		
Team Effectiveness 54		.768	.364	
Team Effectiveness 56		.728		.356
Stay 49			.884	
Stay 51			.870	
Stay 50		.306	.587	.581
Work Satisfaction 52				.783
Work Satisfaction 53		.363	.369	.681

Beliefs in interprofessional collaboration and flexibility were not significant predictors. Access to ICP support structures was the only significant situational predictor ($\beta=0.33$). Overall ICP was a significant predictor of all individual, team, and organizational outcomes ($\beta=0.42-0.66$) (see Figure 2, following page). The model had a fair fit for a newly developed framework (Comparative Fit Index [CFI] 0.81, Normed Fit Index [NFI] 0.77, and Root Mean Square Error of Approximation Index [RMSEA] 0.14).

Discussion

Given that the participants had not been exposed to workplace-based IPE, it is encouraging that each of the four constructs making up ICP were at moderate to moderately high levels. Exposure to IPE may have provided them with a greater understanding of each other’s roles and the need for interdependence and

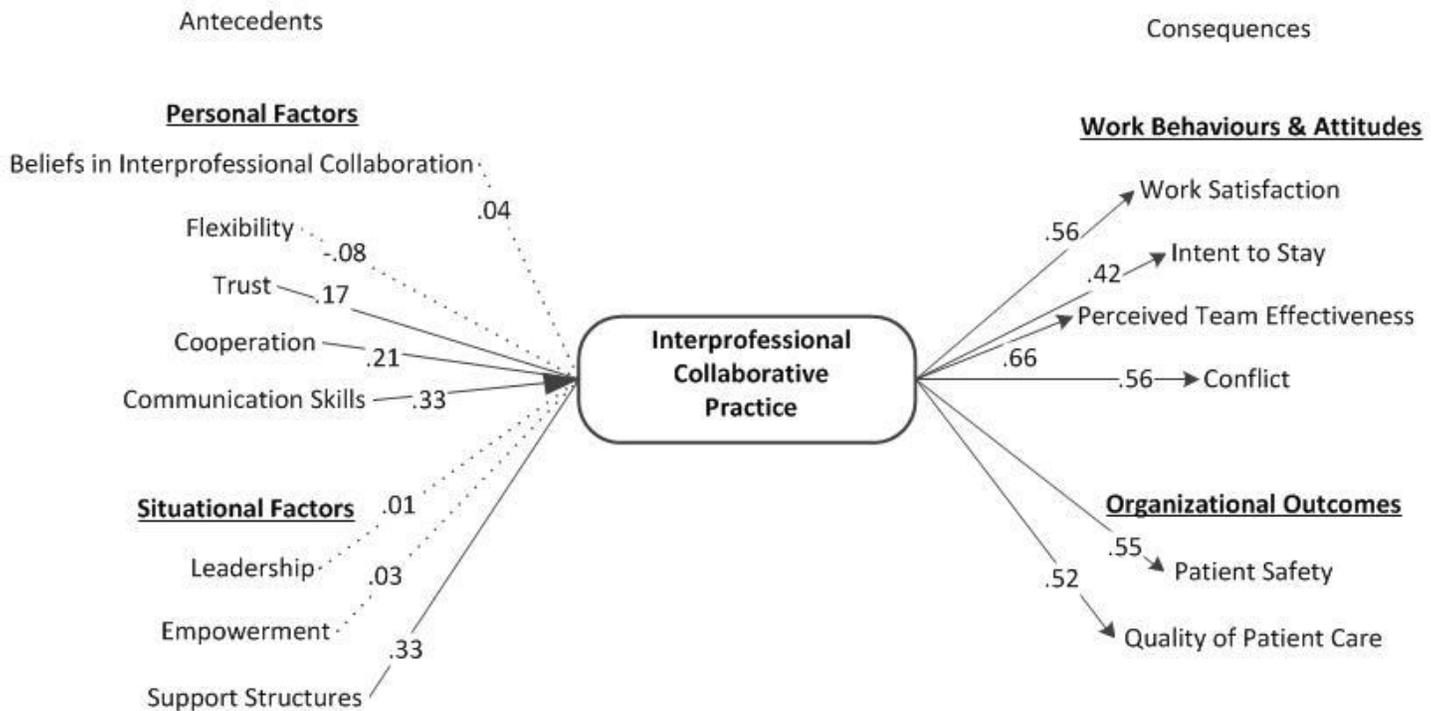
knowledge exchange to collectively generate patient goals that result in better patient outcomes.

The strongest personal predictors of ICP included trust, cooperation, and communication skills. The influence of personal factors/relational skills as critical antecedents to ICP is consistent with the literature (Atwal & Caldwell, 2002; CIHC, 2010; D’Amour et al., 2008; Gaboury et al., 2011; Havens et al., 2010; Safran et al., 2006; Temkin-Greener et al., 2004), and McGrail et al. (2009) indicated that without strong relational skills, ICP will not be as effective. Beliefs in interprofessional collaboration was not found to be a significant predictor of ICP, which was surprising in light of previous research. Although interprofessional practitioners held strong beliefs in ICP, they were not predictive of the degree of ICP they experienced in their work setting. It is possible that the restricted range of this variable may have been a factor. Similarly,

Table 6. Means, Standard Deviations, Cronbach’s Coefficient Alpha Reliabilities, Number of Subscale Items, and Pearson Product-moment Correlations

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Personal Factors																
1. Beliefs in IPC	4.41	.63	-													
2. Flexibility	4.17	.66	.22*	-												
3. Trust	3.29	.78	.23*	.21	-											
4. Cooperation	4.09	.59	.30*	.25	.42*	-										
5. Communication	3.62	.69	.34*	.05	.44*	.19*	-									
Situational Factors																
6. Leadership	3.32	.81	.10	-.04	.38*	.10	.47*	-								
7. Empowerment	3.27	1.01	.26*	.14	.47*	.16*	.46*	.46*	-							
8. Support Structures	3.25	.81	.25*	.08	.37*	.19*	.35*	.42*	.63*	-						
Work Behaviours & Attitudes																
9. Work Satisfaction	3.75	.89	.26*	.06	.36*	.25*	.35*	.34*	.63*	.40*	-					
10. Intent to Stay	3.45	1.10	.16*	.10	.34*	.12	.37*	.35*	.46*	.24*	.62*	-				
11. Team Effectiveness	3.71	.72	.22*	-.09	.43*	.16*	.55*	.43*	.51*	.49*	.52*	.51*	-			
12. Conflict	3.05	.73	.42*	.06	.55*	.29*	.43*	.33*	.34*	.31*	.40*	.27*	.48*	-		
Organizational Outcomes																
13. Patient Safety	3.79	.90	.27*	-.03	.35*	.20*	.35*	.25*	.36*	.36*	.42*	.31*	.55*	.43*	-	
14. Quality of Patient Care	3.88	.83	.21*	-.06	.30*	.10	.50*	.35*	.46*	.41*	.46*	.47*	.76*	.37*	.67*	-
Interprofessional Collaborative Practice																
15. ICP	3.76	.43	.33*	.07	.53*	.40*	.59*	.41*	.50*	.57*	.52*	.43*	.65*	.56*	.55*	.52*

* significant at $p < .05$

Figure 2. Path analysis results

Note: Dotted lines represent non-significant paths

the non-significant influence of flexibility on ICP was not anticipated. Previous researchers identified the importance of the need for professionals to be flexible and willing to sacrifice a degree of autonomy to reach productive compromises when disagreement exists (Bronstein, 2003; McGail et al., 2009; Parker Oliver et al., 2007).

Support structures was the strongest situational factor influencing ICP; therefore, it would be prudent for administrators to ensure that: (a) interprofessional practitioners have the physical space and time to meet to discuss patient care; (b) collaborative behaviors are integrated into day-to-day functioning; (c) necessary policies and/or guidelines are in place to facilitate interprofessional practitioners working together; and (d) formal mechanisms exist for facilitating dialogue between interprofessional practitioners. The finding that empowerment and leadership were not significant predictors of ICP was not in keeping with the literature where researchers found that empowerment and leadership should be predictors of ICP (CIHC 2010; D'Amour et al., 2008; Oandasan & Reeves, 2005; Tresolini & Pew-Fetzer Task Force, 1994). Leadership plays an

important role in creating empowering environments that support effective practice (Laschinger et al., 2010), and that includes putting in place necessary support structures to facilitate ICP. In the sample, managers belonged to the same union as front-line workers; therefore, the managers may not have yielded the same type of transformational leadership as was described in the literature. Replication in another sample in which managers are non-unionized may yield different results.

Consistent with the literature, ICP was a strong predictor of all outcomes measured, highlighting the significance of ICP. Patient safety and quality were only measured by perceptions of interprofessional practitioners; therefore, it will be important to incorporate other measures of safety and quality in future studies. The importance of ICP to work behaviors and attitudes is particularly important to managers that frequently need to deal with staff turnover, unsatisfied workers, poor performing teams, and individual and team conflict. In the sample, although conflict was low relative to other variables, it was still at a moderate level. If managers and IPE educators focus their attention on interventions to

facilitate ICP, then it is possible that negative work behaviors and attitudes may subside.

Limitations

Limitations included a small sample size and low response rate (32%). The small sample size limited the type of analysis that could be completed, and structural equation modeling would be used in the future with a large sample. Factors that may have decreased the response rate included distribution over the summer months, the length of the survey, the sensitive nature of the questions, and the concern of potentially being identified, given low numbers of allied health professionals, in particular. The results are potentially biased as those who completed the survey may have different feelings about ICP compared to those that elected not to complete the survey. The distribution of types of interprofessional practitioners in the sample is not equal, and only one health region was used to obtain the sample. Continual refinement and validation of the ICPS tool is needed including the addition of items measuring patient outcomes. Further validation of the framework will assist in broadening our understanding of ICP and its influence on quality of patient care. Finally, it is critical that patient outcomes be captured in future studies.

Conclusion

We have encouraging empirical support for our proposed ICP conceptual framework. Such a framework allows researchers to continue to build a sound body of evidence related to interprofessional practice that can be used by healthcare leaders, educators, and clinical professionals at all levels.

Healthcare leaders can use the framework as a guide for facilitating ICP in healthcare organizations to improve patient outcomes and enhance patient safety and quality of care. Specifically, leaders need to ensure that professionals are exposed to a working environment that enhances the development of personal factors/relational skills such as trust, cooperation, and communication skills. Healthcare leaders need to model effective leadership, provide the necessary support structures to enhance ICP, and create an empowering work environment. Within an empowering work environment, professionals will be better able to understand each other's roles,

work interdependently, exchange knowledge, and collectively develop patient care goals.

The framework can be used by educators to strengthen IPE curricula by focusing education on specific skill development such as communication skills, or ICP concepts such as understanding of roles. During clinical placements, students need to be exposed to effective ICP so that they can learn how to work as an interdependent team that freely exchanges knowledge and works together to develop collaborative care plans.

Clinical professionals can ensure that those relational skills that are known to improve outcomes are self-assessed and enhanced if needed. Clinical professionals know about deficiencies in support structures in their work environments and can address those deficiencies by bringing them to the attention of their leaders. In addition, clinical professionals can make a concerted effort to focus on the four constructs of ICP in their everyday practices.

A primary goal for developing the conceptual framework for ICP was to be able to provide a guide that could be used to ultimately improve patient outcomes, patient safety, and quality of patient care. With further research and validation, it is hoped that the proposed conceptual framework for ICP will be a valuable tool used by healthcare leaders, educators, and clinical professionals in meeting that goal.

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