

Psychosocial predictors of collaborative practice between nurses and physicians working in hospitals

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Abstract. *Background and aim of the work:* Works from healthcare management and organizational psychology prove that psychosocial variables linked to professional identity are strongly associated with nurse-physician collaborative practice. However, literature pays little attention to the role of these variables. Moreover, evidence for the relation between collaborative practice on psychosocial variables for physicians is rather sparse. The purpose of this study was to investigate the relationship among self-efficacy, team commitment, professional commitment, and collaborative practice in both nurses and physicians. *Methods:* A cross-sectional survey was adopted and questionnaire was distributed to 269 nurses and 124 physicians working in different hospitals. *Results:* The perception of collaborative practice enhanced the self-efficacy and team commitment of both professionals. For nurses, professional commitment and self-efficacy positively predicted a willingness to collaborate; for physicians, professional commitment hindered a willingness to collaborate, while self-efficacy had no effect. *Conclusions:* The study indicates that collaborative practice is an important contextual resource bolstering self-efficacy and team commitment in both professional groups. However, strong professional commitment hinders the willingness of physicians to collaborate with nurses in a way that recognizes the autonomy of nurses. (www.actabiomedica.it)

Key words: collaborative practice, self-efficacy, professional commitment, team commitment, inter-professional relations

Introduction

Contemporary approaches to healthcare recognize multi-disciplinary work as an irremissible strategy for complex problem management. In fact, an effective and helpful collaboration between physicians and nurses is essential for good healthcare.

Collaborative practice (hereafter CP) refers to the conjoint decisional process between independent partners from which a collective responsibility on results

derives (1). Weiss and Davis (2) define the CP as “the interactions between nurses and physicians that enable the knowledge and skills of both professionals to synergistically influence the patient care provided” (p. 299). Other definitions highlight the importance of mutual recognition of different professional expertise. Empirical evidence proves that a good collaboration improves many aspects of healthcare practice (3, 4, 5, 6).

Despite the fact that inter-professional collaboration is advantageous for both professionals and patients

(7), it is still not fully in place (8). Several scholars argue that one of the strong barriers to CP is the conflictual relationship between physicians and nurses (8, 9). Physicians often do not recognize nurses' expertise and knowledge, perceiving themselves as the primary actors in the healthcare decision and practice (10, 11) and defining collaboration as good when nurses follow their instructions carefully (12). Accordingly, a large cross-national survey showed that nurses were more favorable to CP than physicians, while physicians were more inclined to recognize physicians' authority (13, 14).

Synthetically, a real and effective CP seems to be still limited. Therefore, it is urgent to investigate individual and psychosocial factors relating with inter-professional collaboration. Recent studies show that factors such as self-efficacy and team commitment are important variables. A longitudinal research (15), for example, clearly demonstrated that CP was both a result and a predictor of self-efficacy and team commitment. That study (as many others) was conducted taking into account nurses' perspective only (15). Therefore, little is known about the impact of the above mentioned variables for physicians. Given that CP is reciprocal in nature, it would be important to analyze the role of psychosocial variables also for physicians. Accordingly, in the present work our attention was focused on the reciprocal effects of self-efficacy, team and professional commitment (both considered as indicators of the professional identity), and CP in both physicians and nurses.

Self-efficacy refers to the "conviction that one can successfully execute the behavior required to produce successful outcomes" (16). It is primarily a cognitive self-judgment of an individual's competence to face role request. For example, high self-efficacy relates to higher motivation, and greater effort (17). Accordingly, in a healthcare context, Le Blanc et al. (15) found that, albeit mediated by team commitment, the more nurses felt competent, the more they perceived CP in their Care Unit (CU).

Team commitment may be defined as the psychological and emotional attachment one person feels toward his/her working group (18). Team commitment is a key motivation driving individual behavior to serve team interest. Organizational psychology showed that

team commitment strongly predicts good work collaboration (19). Accordingly, in healthcare organization, Le Blanc et al. (15) found that team commitment of nurses positively predicted, and contemporarily was enhanced by, perception of CP in Intensive Care Unit (ICU).

Professional commitment, similarly to team commitment, refers to the extent to which professionals feel themselves tied with their profession. While team commitment should boost an individual's engagement in working group, professional commitment should drive professionals to act in favor of their profession. Team commitment and professional commitment should thus have different effects on CP, given that they refer to different motivations serving different groups. Team commitment refers to an intragroup situation (i.e., both nurses and physicians think themselves as members of the same teamwork), whereas professional commitment refers to an intergroup situation (i.e., nurses as opposed to physicians) that generally leads to favor one's own ingroup and to express hostility against outsiders (20).

Building the model

One question is whether we must expect a similar pattern of relations between psychosocial variables of professional identity and CP for both professionals. Literature shows that nurses and physicians are very different from each other with respect to many features, such as power and role, and have different attitudes toward CP (8, 13). Then it should be logical to expect that self-efficacy and team commitment would have, albeit in part, different effects for nurses and physicians.

Figure 1 shows our proposed models. They take into account self-efficacy, team commitment and professional commitment and two different measures of CP: professionals' perception of collaboration in the workplace (Perceived PC) and attitude toward CP (Attitude CP). The first one was intended as the antecedent (i.e., perception of good CP should favor self-efficacy and team commitment). The second, instead, was intended as the outcome. Furthermore, our models considered self-efficacy and team commitment as predictor of Attitude CP and recognize the role of

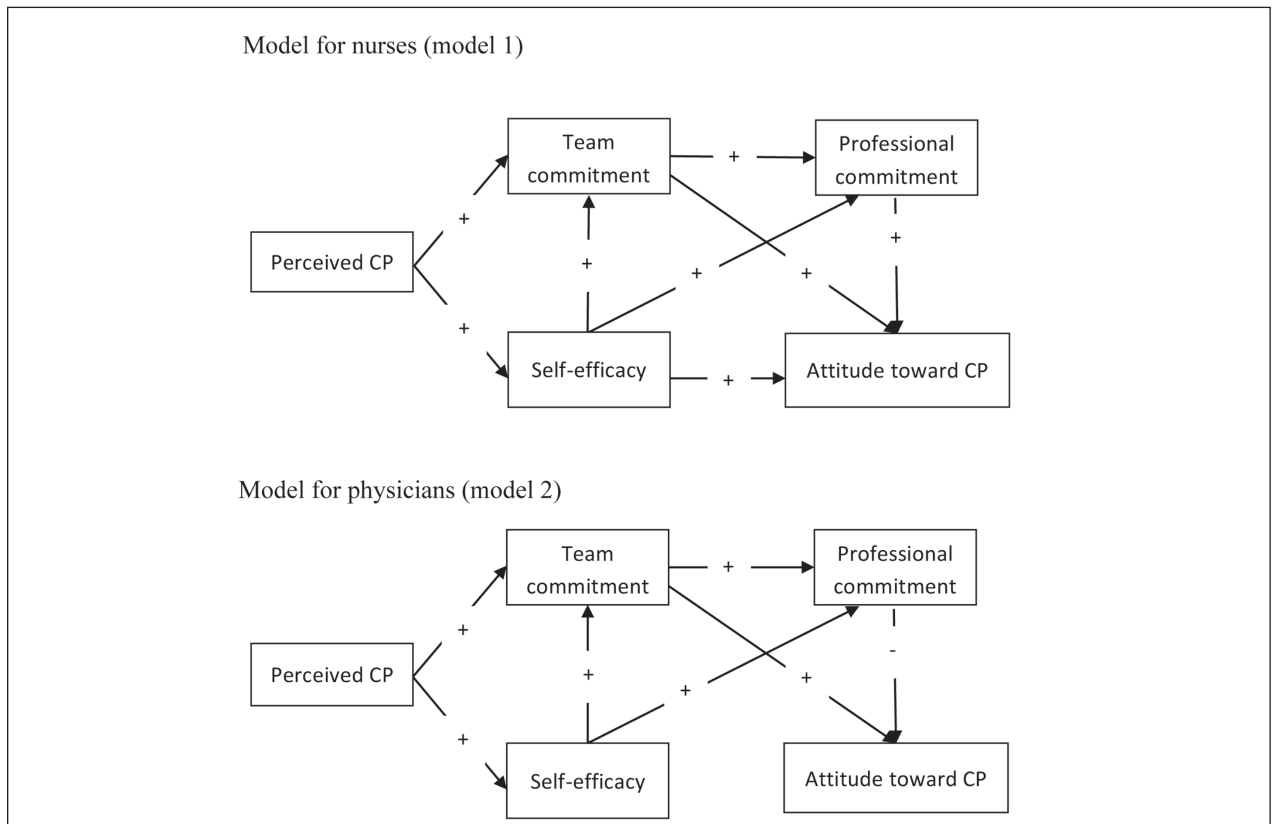


Figure 1. Expected path models for nurses and physicians

Perception CP in boosting self-efficacy and team commitment. Moreover, it is also considered professional commitment as an antecedent of the attitude toward CP. Finally, a different path of relation for nurses (model 1) and physicians (model 2) was expected.

As one can see, the left sides of two models are identical. Perception of collaboration in CU should positively affect both team commitment and self-efficacy for both professionals (*Hypothesis 1*). Several works, indeed, show that a better context of work, in terms of climate, availability of resources, and open communication, may improve workers' feeling of self-efficacy and commitment with the work group (21, 22). Moreover, it was expected that self-efficacy would predict both team and professional commitments (*Hypothesis 2*) because, according to Social Cognitive Theory (16), self-efficacy is a personal resource bolstering professionals' motivation and persistence to work toward individual's and group's goals (15).

In addition, because team commitment should serve interests of the same ingroup, it should positively affect attitude toward CP for *both* nurses and physicians (*Hypothesis 3*).

Differences between the models refer to the relations between self-efficacy, professional commitments, and attitude toward CP. Self-efficacy should predict attitude toward CP for nurses only. This is because nurses and physicians experience very different ways of job organization (23). For example, "nurses work on a strictly scheduled hourly basis, sense that a scarcity of resources exists, and are assigned work by room or bed. In contrast, physicians work on a course of illness or case basis and sense an abundance of resources" (24, p. 157). This entails that "while the physician's sense of mastery is strong, often the nurse's sense of mastery is weak" (24, p. 157). Moreover, physicians are in a dominant and powerful position with respect to nurses (25). In this sense, we can suppose that self-

efficacy of physicians is already well established and not in question, and that they have no motives to collaborate with nurses to the extent they feel to be efficacious. Thus, it is expectable (*Hypothesis 4*) that physicians do not link their individual sense of competence (i.e., self-efficacy) to CP with low status group members (i.e., nurses).

Another expectation was that professional commitment predicts attitude toward CP differently for nurses and physicians (*hypothesis 5*). Indeed, CP requires a change from the paradigm of physician dominance to a paradigm of mutual recognition and professional autonomy (26). This change could challenge physicians' power and status and then their identity as a physician, that is, their professional commitment. Accordingly, for nurses "there is much to be gained in changing a more traditional, hierarchical working relationship with physicians into egalitarian CP" (15, p. 585). For physicians, instead, CP challenges their authority and should be detrimental for their professional identity. Thus, professional commitment should favor nurses' attitude toward collaboration (who can reach more power and autonomy, *hypothesis 5a*) and hinder physicians' collaborative attitude (who must accept to reduce their power, *hypothesis 5b*). Accordingly, the last expectation was that professional commitment mediated the relation between team commitment and attitude toward CP in both professionals (*Hypothesis 6*): for nurses, professional commitment should increase the effect of team commitment (e.g., congruence) while for physicians professional commitment should decrease the effect of team commitment (e.g., incongruence).

Methods

Sample and procedure

A cross-sectional questionnaire survey was adopted. Data were collected over a 5-month period in 2011. Criteria for eligibility were to be nurses or physicians effectively working in the CU in four Italian national hospitals. CUs enrolled in this study were the randomly selected 25% of the total CUs of each hospital. Questionnaires were distributed and collected by researchers in each CU.

Instruments

Perception of CP was assessed by 20 items on a 5-point Likert-type scale (1 = never; 5 = always) taken from the Italian version of the Nurse-Physician Collaboration Scale (27, 28).

Attitude toward CP was measured by the Jefferson Scale of Attitudes toward Physician-Nurse Collaboration (8) adapted for the Italian context. The scale was composed of 15 items on a 5-point Likert-type scale (1 = strongly disagree; 5 = strongly agree).

Professional Commitment was measured by five items asking participants to indicate their agreement with statements on a 5-point Likert-type scale (1 = strongly disagree; 5 = strongly agree). Items were adapted from previously used scale (29) on group commitment (e.g., "I am proud to be a nurse/physician").

Team commitment was measured by the three-item scale (15) dealing with an individual's emotional attachment to the CU (e.g., "If I had the chance to do the same kind of work for the same pay in another unit of the hospital, I wouldn't go"). All items were scored on a 5-point Likert-type scale (1 = strongly disagree; 5 = strongly agree).

Self-efficacy was measured with the personal accomplishment subscale of the Maslach Burnout Inventory-HSS (30), adapted for the Italian context (31). The subscale measures feelings of competence and successful achievement in one's work (e.g., "I deal very effectively with the problem of my patients"). All five items were scored on a 5-point Likert-type scale (1 = never; 5 = every day).

For all scales, the total score was computed averaging all items and high scores indicate high levels of measured construct.

Data analysis

Reliability of the scales was assessed with Cronbach's alpha and the scales were then checked for violation of normality through analysis of kurtosis and asymmetry.

The expected models were analyzed with structural equation modeling (SEM) which was implemented with IBM SPSS AMOS 19 software (32). SEM allows to test how well the expected model fits the data.

Given that, in this study, two groups were considered and the models for nurses and for physicians were slightly different from each other, a multi-group analysis was performed. This kind of analysis estimates the relationship among variables inside each sub-group, but provides fit indexes for the combined sample. According with Kline (33), several fit indexes was used to test the model fit: comparative fit index (CFI), Tucker-Lewis index (TLI) and root mean square error of approximation (RMSEA). Moreover, the effect of each path was evaluated using standardized regression weight, while comparison between sub-groups was implemented comparing standardized regression weight for each group and assessing the significance of the difference with Z test.

Ethical considerations

The study was approved by the ethics committees.

Results

Sample characteristics

Participants were 506 professionals from four hospitals in a large region in northern Italy. Questionnaires with one or more missing values on the considered variables were excluded from the database. Nine questionnaires were further excluded because they had extreme values (i.e. 3 sd over the mean) on attitude toward CP. These changes left a sample of 420 professionals: 296 (70.5%) were nurses and 124 (29.5%)

were physicians. Of those, 143 (34.5%) were men and 272 (65.5%) were women; five participants did not report their gender. The sample mean age was 40.82 ($SD = 8.78$, range 23-64) years and the mean tenure was 16.06 ($SD = 9.03$, range 1-41) years.

Preliminary analysis

Preliminarily, violation of normality was checked. No measures had both asymmetry and kurtosis higher than 1 or lower than -1 indicating no violation of normality (34). Table 1 shows means, standard deviations, and reliability (Cronbach's α on the diagonal) of used variables. Reliability was generally satisfactory and above the .70 criterion (35).

Testing the model

Firstly, the fit of the model for nurses and the model for physicians were tested separately. Results indicated satisfactory fit for nurses ($\chi^2(1) = 0.24$, $p = .62$, CFI = 1.00; TLI = 1.00, RMSEA = .000, C.I. = .000 - .122, $p = .73$) and acceptable fit for physicians ($\chi^2(2) = 4.80$, $p = .09$, CFI = .962; TLI = .810, RMSEA = .107, C.I. = .000 - .233, $p = .16$). Multi-group analysis was then performed and results revealed that the models proposed in Figure 1 (according with zero-order correlations, errors of perception of, and attitude toward, CP were correlated for physicians) had good fit. All goodness-of-fit indexes, indeed, were very satisfactory ($\chi^2(4) = 6.28$, $p = .18$, CFI = .992; TLI = .961, RMSEA = .037, C.I. = .000 - .089, $p = .59$). Figure 2 shows standardized coefficient for the considered

Table 1. Means, standard deviation, number of items, and reliability of the variables

	1	2	3	4	5
1 Perception of CP	.94	.03	.26**	.23**	.41**
2 Attitude toward CP	.34**	.79	.30**	.34**	.09^
3 Self-efficacy	.19*	.00	.82	.37**	.33**
4 Professional commitment	-.03	-.12	.43**	.87	.45**
5 Team commitment	.25**	.18*	.33**	.37**	.72
<i>M (SD)</i>	3.03 (.74)	4.12 (.52)	3.66 (.67)	4.17 (.80)	3.47 (1.03)

^ $p = .05$; * $p < .05$; ** $p < .01$ one-tailed.

Cronbach's α is reported in the diagonal. The upper part refers to nurse sample (N = 296); the lower part refers to physician sample (N = 124)

paths. According to hypothesis 1, perceived CP significantly and positively predicted team commitment and self-efficacy for both professions (coefficients were not statistically different between professions: $Z = 0.92, p = .18$, and $Z = 0.43, p = .31$ respectively), indicating that the perception of a good collaboration in own CU helps professionals feel more self-efficacy and higher team commitment (Figure 2). Moreover, as predicted by hypothesis 2, self-efficacy significantly boosted team commitment (difference between professions: $Z = 0.67, p = .25$) as well as professional commitment (difference between professions: $Z = 0.83, p = .41$) for both professionals. However, contrary to hypothesis 3, team commitment did not affect attitude toward CP, albeit its effect tended to be negative for nurses ($\beta =$

$-.11, p = .06$) and positive for physicians ($\beta = .17, p = .07$; Figure 2). This difference was statistically significant ($Z = 2.51, p = .02$) suggesting that, contrary to expectations, the direct effect of team commitment tended to be different depending on considered profession. However, according with hypothesis 6, the indirect effect of team commitment on attitude toward CP via professional commitment of nurses was significant ($\beta = .11, p < .001$) indicating that professional commitment accounted for the effect of team commitment. It is worth noting that professional commitment enhanced the effect of team commitment (total effect: $\beta = -.01, p = .98$; direct effect: $\beta = -.11, p = .06$; indirect effect: $\beta = .11, p < .001$). For physicians, this mediation effect was only marginally significant ($\beta = -.05,$

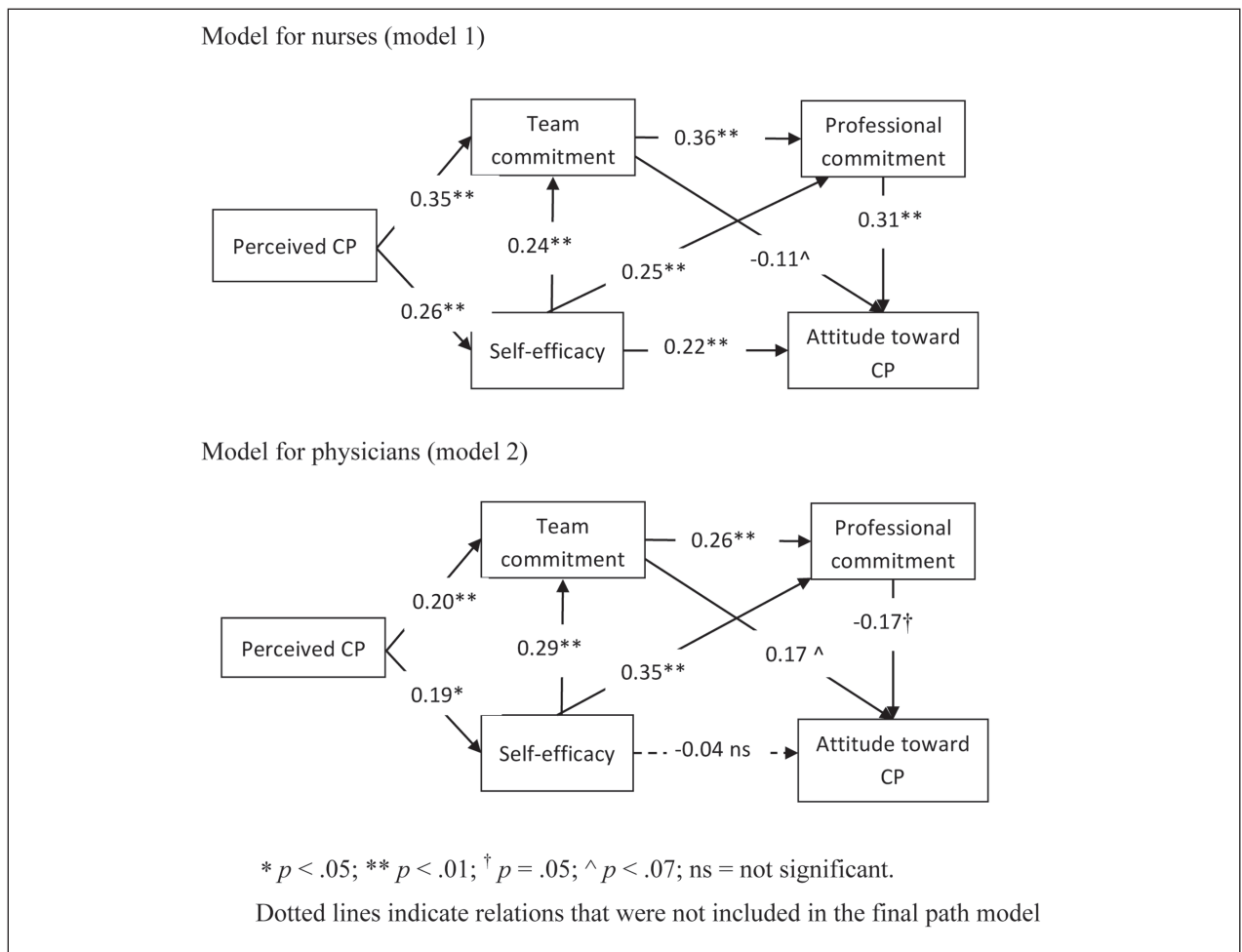


Figure 2. Structural path coefficients of the final model for nurses and physicians separately

$p = .06$). In this case, as expected, professional commitment weakened the effect of team commitment on attitude toward CP (total effect: $\beta = .12, p = .16$; direct effect: $\beta = .17, p = .07$; indirect effect: $\beta = -.05, p = .06$).

Furthermore, according to our hypothesis 4, self-efficacy positively and significantly predicted attitude toward CP for nurses only. The inclusion of this path for physician turned out to be not significant ($\beta = -.04, p = .60$) while the difference between nurses and physicians was statistically significant ($Z = 2.06, p = .04$). For nurses, contrary to previous evidence (15), team commitment did not mediate the relation between self-efficacy and attitude toward CP ($\beta = -.02, p = .08$), but this relation was instead mediated by professional commitment ($\beta = .05, p = .001$). In addition, as expected from hypothesis 5, professional commitment significantly affected attitude to the CP and this effect was positive for nurses (as expected from hypothesis 5a) and negative for physicians (as expected from hypothesis 5b). Also in this case, difference was significant ($Z = 4.00, p < .001$).

Discussion

The relation between self-efficacy, team and professional commitments, perception of CP, and attitude toward nurse-physician collaboration was investigated. This study is novel considering psychosocial dynamics related to inter-professional collaboration also for physicians. We considered the perception of CP as a contextual antecedent, and the attitude toward CP as an outcome representing the professionals' willingness to collaborate with each other. More precisely, the study analyzed the role of collaboration-as-antecedent on psychosocial factors related to professional identity, such as work self-efficacy, team commitment, and professional commitment and the direct and mediated effects of these variables on professionals' willingness to collaborate (e.g., the outcome). Starting from the different power position of nurses and physicians, we hypothesized similar but also different relations between variables depending on the considered profession.

SEM results showed that perceived CP increased team commitment and self-efficacy in both professionals. This is in line with previous research (15, 36)

and confirms that positive working conditions enhance psychological attachment to teamwork and the feeling of being efficacious. We found also that self-efficacy positively affected team and professional commitments. This is congruent with literature (15) and with processes described by the Job Demands-Resources Model (37) indicating that feeling efficacious boosts engagement with the working team. Another interesting result is that self-efficacy increased attitude toward CP for nurses only. This result replicates that obtained by Le Blanc et al. (15). Nevertheless, for physicians, self-efficacy had no effect on CP. This may rely on the different position occupied by nurses and doctors in the CU power hierarchy. As work in social psychology demonstrated, indeed, members of powerful groups tend to perceive themselves as self-determined, autonomous, and agentic (38). In this sense, physicians may not link their already established self-efficacy to collaboration with members of powerless groups such as nurses who, on the contrary, seem to be more favorable to collaboration to the extent to which they feel efficacious.

Results indicate also that team commitment had limited effect on attitude toward CP for both nurses and physicians. This is somewhat surprising and in contrast with results by Le Blanc et al. (15). However, a possible explanation of this difference is that Le Blanc et al. operationalized CP as the perception of the extent to which CP was in place in the CU. Our study, instead, analyzed the attitude toward nurse-physician collaboration, that is, the professionals' willingness to collaborate with each other. Thus, Le Blanc et al.'s results are similar to our positive and significant path linking perception of CP with team commitment. However, the reason for which team commitment did not predict attitude toward CP needs clarification. One possible explanation might refer to the reduction – for nurses – and to the enhancement – for physicians – of differences in power required by CP. In fact, being favorable to CP means recognizing a more horizontal relation between professionals in which nurses are more autonomous and physicians renounce a part of their power. Accordingly, our results indicated that, albeit not reaching significance at the usual statistical criterion, team commitment positively affected attitude toward CP for physicians and

negatively for nurses. It is possible that team commitment, which refers to intragroup interests, would lose part of its direct predictive effect on attitude toward CP, which refers to intergroup interests. In fact, data showed that team commitment affected attitude toward CP only through professional commitment that refers to professional interests. As expected, contrary and significant patterns emerged for professional commitment: it predicted attitude toward CP positively for nurses and negatively for physicians. These relations are relatively novel findings in the field of healthcare and organizational management, but are a well-known phenomenon in the field of intergroup relations, and in accord with Social Identity Theory (39) and Self-Categorization Theory (40). CP entails the mobilization of professional interests (professional identity) that can affect differently attitudes toward intergroup situations such as those entailing CP: while nurses see CP as an opportunity to improve the positive distinctness of their professional group, physicians may see collaboration as a threat to their powerful professional position. This result seems to confirm that an effective CP involves more than “working together” or individual skills, implying professional identities of different professionals and, more importantly, the differential of power between nurses and physicians.

Conclusion

The present study supports previous findings on the beneficial and reciprocal effects of self-efficacy beliefs and team commitment in the work setting, in particular regarding CP. However, it clearly showed that these patterns are different for nurses and physicians. Interestingly, being attached to one's own profession seems to facilitate willingness to collaborate for nurses, but simultaneously hinders willingness to collaborate for physicians: a difference that may rely on the different interests that nurses and physicians put in the inter-professional collaboration.

In practical terms, our findings emphasize once more that in order to create a work environment with an effective CP, it is necessary to enhance team commitment and self-efficacy, regardless of nurses or physicians. In fact, CP represents a contextual resource

conducive to better work conditions, satisfaction, and involvement with CU's goals. Our findings, however, show also a dark side to the process of making good CP. The reaching of this goal implies the restructuring of hierarchical relation between nurses and physicians (26). Findings seem to suggest that physicians' professional commitment should be discouraged, favoring instead awareness about the complementarity of the roles of both professionals. This may be obtained through common educational programs that train both nurses and physicians to collaborate with each other in an effective way. As several scholars highlighted (40, 42), education of nurses and physicians is strongly differentiated, and socialization to collaborative work starts only when professionals enter the workplace. This delay facilitates the development of professional commitment more than team commitment, and it can break the virtuous circles linking CP to higher team commitment, self-efficacy, and willingness to collaborate.

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