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Résumé

Le niveau d'éducation des infirmières autorisées : son impact sur la collaboration et le lien entre celle-ci et l'identité professionnelle

Jean L. Miller

Ce projet comportait deux objectifs : (1) déterminer si le niveau d'éducation (diplôme/baccalauréat, maîtrise/doctorat) exerce une influence sur l'attitude des infirmières à l'égard de la collaboration interprofessionnelle et (2) établir s'il existe un lien entre collaboration et identité professionnelle. Des infirmières sélectionnées par échantillon aléatoire stratifié ont répondu à une enquête par correspondance, dans le but d'évaluer 4 dimensions de la collaboration (respect des préoccupations collectives, pouvoir/mainmise, clarté des objectifs de prise en charge des patients et sphères de pratique) et de l'identité professionnelle. On a constaté qu'un niveau élevé d'éducation avait une influence positive sur les trois premières dimensions. Le faible rapport établi entre identité et collaboration indique que le niveau d'éducation a une influence négative sur le degré de collaboration. Les résultats suggèrent que les milieux qui dépendent de la coopération interprofessionnelle auraient avantage à intégrer des infirmières ayant un diplôme d'études supérieures au sein de leurs équipes et que les infirmières travaillant dans un contexte de ce type pourraient envisager la possibilité d'intégrer une formation aux cycles supérieurs à leur plan de carrière. Les conclusions de l'étude réaffirment en outre la nécessité d'offrir une formation relative à la collaboration interprofessionnelle, particulièrement aux cycles supérieurs.

Mots clés : collaboration, éducation, identité professionnelle

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Level of RN Educational Preparation: Its Impact on Collaboration and the Relationship Between Collaboration and Professional Identity

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This study had a dual purpose: to determine (1) whether level of education (diploma/baccalaureate, master's/doctoral) affects nurses' perceptions of their interprofessional collaboration, and (2) whether there is a relationship between collaboration and professional identity. A stratified random sample of nurses completed a mailed survey assessing 4 dimensions of collaboration (mutual safeguarding of concerns, power/control, clarity of patient-care goals, and practice spheres) and professional identity. Higher level of education was found to impact positively on the first 3 dimensions. Weak relationships between identity and collaboration suggest that higher education levels negatively affect collaboration. Based on these findings, settings relying on interprofessional cooperation would do well to include graduate-prepared nurses in their staff mix, and nurses working in such areas might consider graduate preparation in their career plans. The findings reinforce the need for interprofessional education, particularly at the graduate level.

Keywords: collaboration, education, professional identity

Registered nurses are acutely aware of the importance of collaboration. Because their focus is holistic, they know that if they are to meet the complex needs of their patients/clients they must continually engage in cooperative efforts with other health professionals. However, little is known about the factors that contribute to effective collaboration, such as personality, setting, or role-related factors. The focus of this study was one role-related factor, educational preparation. It has been proposed that if nurses' education is in line with that of other professions, collaborative rather than hierarchical relationships will prevail. However, research to date does not inform us whether this is so. Although some studies on collaboration have considered educational preparation, in no study has this been the primary variable of interest. Additionally, most studies on collaboration have been highly contextualized, focusing on a particular interprofessional relationship (most often nurse/physician) or context, thus limiting the generalizability of the findings.

The purpose of this study was to determine whether level of education (initial as opposed to graduate) impacts on nurses' perception of

their collaboration with other health professionals. It was anticipated that the results would assist nurses engaged in practice, education, and administration in making decisions about the appropriate education level for various nursing roles. This is a crucial factor because professional education is both costly and time-consuming, particularly in times of nursing shortages.

A descriptive, comparative study was carried out with registered nurses in one Canadian province to determine whether (a) level of RN education affects nurses' perceptions of their collaboration with other health professionals, and (b) there is a relationship between perceptions of collaboration and professional role identity. The study was guided by three research questions: (1) *How do two groups of nurses (diploma/baccalaureate-prepared and master's/doctoral-prepared) perform on four instruments assessing specified dimensions of collaboration and one instrument assessing professional role identity?* (2) *Do the groups differ significantly on these measures?* (3) *Is there a relationship between each group's professional identity scores and those on the instruments assessing collaboration?* This study was grounded in role theory. It was assumed that each health profession has a particular perspective and that its members have particular role attributes. It was also assumed that there is a degree of stability in these attributes, regardless of context.

Theoretical Considerations

An analysis of descriptions and dimensions of collaboration in the literature revealed considerable overlap in dimensions, suggesting reasonable congruence of thought on this complex concept. The conceptualization of collaboration chosen for the study was based on the American Nurses Association (1980) definition: "Collaboration is a true partnership, in which power on both sides is valued by both, with recognition and acceptance of separate and combined spheres of activity and responsibility, mutual safeguarding of the legitimate interests of each party, and a commonality of goals that is recognized by both parties" (p. 7). This definition captures the dimensions of collaboration, is commonly shared and communicated, and has been used in previous research.

Both the functionalist and the symbolic interactionist approaches to role theory are pertinent to studying collaboration. Role clarity and predictability of action can best be understood from the functionalist perspective, and equality of status and role flexibility from the interactionist perspective. Although these two perspectives are often seen as competing, Conway (1988) indicates that theorists are attempting to develop conceptual frameworks that include elements of both, as neither fully accounts for "the wide variety of human responses possible in the numerous and ambiguous situations where human actors confront each

other" (p. 72). Both approaches are also likely at play throughout a nurse's education. In Reutter, Field, Campbell, and Day's (1997) longitudinal study with baccalaureate nursing students, the functionalist perspective predominated early in the program and the interactionist perspective in later years. In studies with nurses pursuing a second credential, the interactionist perspective (Lynn, McCain, & Boss, 1989) and perspective transformation (Maltby & Andrusyszyn, 1997) were the preferred views of socialization. The intended result of the socialization process is professionals who are clear about their role and as a result have a sense of power and control — foundational elements for interaction with other professionals (Loxley, 1997). This clarity develops during the professional socialization process, which is established upon entry to practice and evolves over the course of one's professional life (Lum, 1988).

Literature Review

The literature indicates that in order to collaborate effectively, professionals must have a thorough understanding of their own role (Benson & Ducanis, 1995; Jones, 1991; Mariano, 1989). Those who understand their role are able to relate their disciplinary strengths, limitations, and contributions to the work of the team as a whole (Mariano). Mariano contends that "security in one's own discipline allows each member the freedom to be truly interdisciplinary" (p. 286). Professionals also need a good understanding of others' roles (Jones) and, in addition to recognizing their own boundaries and those of others, must be able to accept areas of role overlap (American Nurses Association, 1980; Jones). It is thought that those who are confident in their own role and are comfortable with role overlap will be less defensive when others appear to be encroaching on their territory.

In collaboration studies that have included education as a factor, the findings pertaining to education level are inconsistent. Baggs and Ryan (1990) investigated the importance of collaboration to nurse satisfaction and the relationship of collaboration and satisfaction to education and other factors; this descriptive study with 68 medical intensive-care nurses found that education level was not related to collaboration. In a random sample study with 95 nurses and 94 physicians conducted to establish the reliability and validity of Weiss and Davis's (1985) Collaborative Practice Scales, nurses with a baccalaureate degree or higher had significantly higher collaboration scores than those with a diploma or associate degree. In a cross-sectional survey of staff from six medical units, Hansen, Bull, and Gross (1998) examined the extent to which nurse, physician, and social worker characteristics and views on collaboration predicted perceptions of discharge-planning communication for older adults; for

the 97 RN participants, education level was the only characteristic associated with discharge planning, and nursing was the only group for which education was included in the final predictive model. Jones (1991) sought to determine whether nurses and physicians differ in their perceptions of four collaboration indicators and whether any of the indicators are related to each other and a number of demographic characteristics; in the random sample of 59 nurses and 67 physicians, the only significant education differences were for the physicians — those with post-medical degrees were more likely to consider goals to be RN goals rather than jointly shared goals. All but one of these studies focused on nurse/physician collaboration, and while the findings are informative for that particular relationship, they may not be a true indication of nurses' collaboration in the broader health-care arena.

Method

A stratified random sample of nurses whose highest level of nursing preparation was a diploma or baccalaureate degree and a stratified random sample of nurses whose highest level was a master's or doctoral degree completed a self-administered paper-and-pencil survey comprising demographic questions and instruments measuring collaboration and professional identity. The sample for each stratum was drawn from the membership of a provincial nursing association. Prior to drawing the samples, the researcher removed association members who were unlikely to interact with professionals in other disciplines on matters of patient care. These included nursing education administrators, those not in the labour market, those employed in another field, and those employed by associations or government bodies. In determining sample size, consideration was given to power, membership size (study population), and return rates for mailed surveys. A small effect size was assumed (.20), for two reasons: there were no published studies in which effect size had been calculated, and it was impossible to calculate effect size from the reported data; and the possibility of extraneous variables increased score variability. Based on non-parametric analysis, with a significance level of .05, four degrees of freedom, a power of .80, and effect of .20, along with an anticipated survey return rate, the sample size for each stratum was set at 400.

The four dimensions of collaboration that have evolved from the above definition (patient-care goals, mutual safeguarding of concerns, clarity concerning practice spheres, and a sense of power/control) were studied. Reliable and valid research instruments for each dimension were used. As this was not a study of nurse-physician collaboration or of a particular setting, a number of the items in Jones's (1991) instrument were revised. Also, because of the holistic interests of all health professions, the

"nursing" and "another profession" categories were relabelled as "primarily nursing" and "primarily another profession." For example, physicians are not uninterested in the diet of a diabetic person even though this is mainly the concern of the nutritionist. Content validity of the adapted goals instrument was established using Lynn's (1986) judgement-quantification process. Instrument items were based on Gordon's (1994) Functional Health Care Patterns. For each of 48 items, participants indicated whether they thought the goal was "primarily in the domain of nursing," "shared with other professionals," or "primarily in the domain another profession." The more goals judged to be nursing goals, the greater the clarity about patient-care goals. As this was not a study of nurse/physician collaboration, Jones's safeguarding of mutual concerns instrument was modified by replacing "physicians" with "other health professionals." This instrument had 19 Likert items: 9 measuring assertiveness and 10 measuring cooperativeness. The scores for each were plotted on a two-dimensional grid resulting in a mutual concerns score of 0 (avoidance), 1 or 2 (competitiveness, compromise, or accommodation), or 3 or 4 (collaboration). Practice spheres was measured using Ducanis and Golin's (1979) Interprofessional Perception Scale. This instrument had 15 true/false items to which participants responded twice (how they viewed nurses and how they thought others viewed nurses), resulting in two sets of answers. For each item, a score of 1 was assigned to the answer (true or false) that would contribute positively to collaboration, and a score of 0 was assigned to the answer (true or false) that would not contribute positively. This resulted in two sets of scores, each between 0 and 15: one for how they viewed nurses and the other for how they thought others viewed nurses. The higher the score, the more positive their view of collaboration. Consistency between these sets of answers was considered indicative of recognizing, accepting, and respecting both separate and combined practice spheres. Power was measured using Guilbert's (1972) Health Care Work Powerlessness Scale (Revised). This instrument has 14 items, each a paired forced-choice, dichotomous statement: one statement representing a sense of power and control over workplace events or decisions (scored as 0), the other representing a sense of powerlessness and no control (scored as 1). Individual scores were totalled, resulting in a score ranging from 0 to 14, with 0 representing no powerlessness and 14 representing powerlessness. Scores were also categorized into three levels of powerlessness: low, moderate, and high.

Professional Identity was assessed using Lawler's (1988) modification of Stone's Health Care Professional Attitude Inventory, an instrument based on Dumont's conceptualization of new professions (as cited in Lawler) as having six components: being consumer orientated and having a growing concern with credentialling, a sense of super ordinate purpose,

an attitude of criticism, impatience with the rate of change, and being motivated by compassion for people's needs. Stone's instrument consists of 38 Likert-scaled items (1 = strongly agree; 5 = strongly disagree). Items were totalled, with the minimum score being 38 and the maximum 190. The higher the score, the more professional the nurse's attitude. Content and construct validity of the tool were established by Lawler. Reliability, based on Cronbach's alpha, is reported as .73 (Lawler).

To maximize survey returns, Dillman's (1978) technique for attaining high response rates to mailed surveys was used. Of the 800 surveys mailed, 395 (49%) were returned. Sixteen of these were unusable. In the remaining 379 surveys, 174 were from nurses prepared at the diploma/baccalaureate level and 205 from nurses prepared at the master's/doctoral level. Prior to data analysis, reliability of the five instruments was assessed using Cronbach's alpha coefficients, with the following results: mutual concerns .93, patient-care goals .87, practice spheres .79, power/control .87, and professional identity .64. Descriptive and inferential statistical tests (parametric and non-parametric) in SPSS were used to analyze the data.

As close to 75% of the undergraduate group were diploma-prepared and over 90% of the graduate group master's-prepared, within-group comparisons were carried out to determine whether the predominance of diploma- or master's-prepared nurses influenced the results for each respective group. It was found that this disproportion did not account for the significant differences between the groups. The master's/doctoral group had more years of experience, worked in more diverse settings, and had held a broader range of positions than the diploma/baccalaureate group. The diploma/baccalaureate nurses had been in their place of employment longer, which was likely to be a care facility where they held the position of staff nurse. Although the diploma/baccalaureate group worked with a somewhat wider range of health professionals, the groups were similar with respect to the disciplines with which they worked.

Results

The findings for three of the four dimensions of collaboration suggest that both groups were likely to collaborate effectively with other health professionals. Both groups were concerned about meeting others' needs as well as their own, brought a sense of power/control to their interprofessional relationships, and recognized, accepted, and respected both separate and overlapping practice spheres. The findings for the dimension of patient-care goals were less definitive. Even though this set of goals was developed by nurses for nurses, both groups were likely to consider it as

shared with other health professions rather than primarily nurses. Although the professional identity scores for both groups were compressed at the high end of the scale — diploma/baccalaureate mean 135.65; master's/doctoral mean 140.33 — the latter scored significantly higher ($p < .001$). This finding of professional identity being stronger for those with higher education levels is congruent with the findings of other studies (Corwin, 1961; Kramer, 1968).

The results of this study give some credence to the idea that level of educational preparation impacts on nurses' interprofessional collaboration. Level of preparation had a notable impact on the two dimensions of mutual safeguarding of concerns and power/control, a less pronounced impact on patient-care goals, and little if any impact on practice spheres.

Mutual Safeguarding of Concerns

Even though the scores for both groups were concentrated at the collaborative end of the five-point grid, the master's/doctoral group scored significantly higher (mean ranks: diploma/baccalaureate 154.63; master's/doctoral 193.90, $p < .001$). This finding is similar to that of Weiss and Davis (1985). However, neither Baggs and Ryan (1990) nor Jones (1991) found any significant differences based on education level.

Power/Control

Although the scores for both groups spanned the full range, the mean scores revealed both groups to be relatively low in their perceptions of being powerless (diploma/baccalaureate *M* 4.41, *SD* 3.75; master's/doctoral *M* 2.42, *SD* 3.08). Nevertheless, the diploma/baccalaureate group had significantly higher powerlessness scores ($p < .001$). The only other study to examine this dimension of collaboration, Jones (1991), found that education level did not impact on power/control.

Patient-Care Goals

While there were no significant differences in the number of goals considered to be "primarily nursing" or "shared," the diploma/baccalaureate group did consider more goals to be in the domain of another profession (diploma/baccalaureate *M* 1.97, *SD* 2.83; master's/doctoral *M* 0.97, *SD* 1.72, $p < .0001$). At the level of individual goals, there were no appreciable differences between the groups for 14 goals (skin integrity, elimination, nutrition, grieving, mobility, cardiac/respiratory, recreation/leisure, pain, emotional disturbance, verbal communication, injury/risk, education, body image, and fluid balance) but there *were* significant differences for another 14 (see Table 1). Significantly more of the master's/doctoral group considered seven of these goals to be in the domain of nursing, while the diploma/baccalaureate group considered only one

goal to be in the domain of nursing. Significantly more of the diploma/baccalaureate group considered six goals to be either shared or in the domain of another profession. As noted above, Jones (1991) found that the education level of physicians, but not nurses, impacted on this aspect of collaboration.

Table 1 *The 14 Patient-Care Goals (With Significant Differences in the Proportions of the Groups Choosing Each Type of Goal — Nursing, Shared, and Others' — Using the z Test)*

	Diploma / baccalaureate *n* (%)	Master's / doctorale *n* (%)	z Value	*p*
Nursing Goals				
Infection	64 (37.6)	52 (25.9)	-2.435	.015*
Health management	8 (4.8)	39 (19.4)	-4.195	.000***
Self-care	47 (27.8)	86 (42.4)	-2.912	.004**
Sleep	66 (39.6)	105 (51.7)	-2.340	.019*
Home maintenance	10 (5.9)	41 (20.4)	-4.040	.000***
Sensory deficit/overload	50 (30.3)	87 (43.7)	-2.626	.009**
Role performance	15 (9.0)	32 (15.8)	-1.947	.052*
Family relationships	23 (13.8)	50 (24.8)	-2.632	.008**
Sexual functioning	10 (6.3)	21 (10.4)	-1.377	.168
Spiritual well-being	5 (3.0)	14 (6.9)	-1.726	.084
Cognitive abilities	14 (8.3)	27 (13.4)	-1.570	.117
Health decision-making	43 (25.7)	63 (31.0)	-1.118	.264
Social interaction	21 (13.3)	38 (18.7)	-1.580	.114
Coping mechanisms	21 (12.4)	39 (19.2)	-1.793	.073
Shared Goals				
Infection	106 (62.4)	149 (71.1)	-2.435	.015*
Health management	160 (95.3)	162 (80.6)	-4.195	.000***
Self-care	119 (70.5)	115 (56.7)	-2.733	.006**
Sleep	100 (59.9)	95 (46.8)	-2.505	.012*
Home maintenance	128 (75.3)	140 (69.7)	-1.208	.227
Sensory deficit/overload	107 (64.8)	110 (55.3)	-1.850	.064
Role performance	124 (74.3)	160 (78.8)	-1.033	.301
Family relationships	128 (76.6)	150 (74.3)	-.529	.597
Sexual functioning	108 (68.4)	167 (83.1)	-3.268	.001**
Spiritual well-being	128 (75.7)	171 (84.7)	-2.159	.031*
Cognitive abilities	123 (72.8)	153 (76.1)	-.734	.463
Health decision-making	119 (71.3)	140 (69.0)	-.478	.633
Social interaction	128 (77.1)	156 (76.8)	-.059	.953
Coping mechanisms	133 (78.2)	158 (77.8)	-.093	.926

Others' Goals				
Infection	0 (0.0)	0 (0.0)	.000	1.000
Health management	0 (0.0)	0 (0.0)	.000	1.000
Self-care	3 (1.8)	2 (1.0)	-.658	.511
Sleep	1 (0.6)	3 (1.5)	-.813	.416
Home maintenance	32 (18.8)	20 (10.0)	-2.450	.014*
Sensory deficit/overload	8 (4.8)	2 (1.0)	-2.230	.026*
Role performance	28 (16.8)	11 (5.4)	-3.533	.000***
Family relationships	16 (9.6)	2 (1.0)	-3.808	.000***
Sexual functioning	40 (25.3)	13 (6.5)	-4.991	.000***
Spiritual well-being	36 (21.3)	17 (8.4)	-3.528	.000***
Cognitive abilities	32 (18.9)	21 (10.4)	-2.318	.020*
Health decision-making	5 (3.0)	0 (0.0)	-2.479	.013*
Social interaction	17 (10.2)	9 (4.4)	-2.166	.030*
Coping mechanisms	16 (9.4)	6 (3.0)	-2.632	.008**

Note: Differences in the percentages for items with the same *n* are due to missing data.
* $p < .05$ ** $p < .01$ *** $p < .001$

Practice Spheres

Both groups held relatively positive views of their profession and thought that others did as well: for the diploma/baccalaureate group, the "own view" mean was 12.29 (*SD* 1.75) and "others' view" mean 10.66 (*SD* 2.54); for the master's/doctoral group, the "own view" mean was 12.02 (*SD* 2.15) and "other's view" mean 10.32 (*SD* 2.65). The average number of consistently scored items was close to 10 out of 15 for both groups, and both groups held consistent views on 10 of these items. It was therefore concluded that the two groups were equally consistent in their views of nurses and their perception of others' views of nurses. Other researchers (Benson & Ducanis, 1995; Ducanis & Golin, 1979) report similar findings. This result suggests that the two groups recognize, accept, and respect both separate and overlapping practice spheres.

Professional Identity and Collaboration

There were weak but unexpected relationships between professional identity and two dimensions of collaboration: practice spheres and power/control (see Table 2). These findings indicate that for nurses prepared at the master's/doctoral level, the stronger their professional identity the weaker the consistency between their own view of nursing and the views of others, the less their likelihood of viewing their profession positively or thinking others would do the same, and the greater their likelihood of feeling powerless. The only collaboration study to refer to professional identity is that of Weiss and Remen (1983), who concluded that because their participants considered nursing a job rather than a profession, their collaboration with physicians would be impeded.

Table 2 *Relationship of Each Group's Professional Identity Scores to the Four Dimensions of Collaboration Using Correlation Coefficients*

	Correlation Coefficients[a] by Group	
Dimension	**Diploma/ baccalaureate**	**Master's/ doctorale**
Mutual concern scores	.051	-.054
Patient-care goals		
Number of nursing goals	.092	.085
Clinical nurse specialist	-.076	-.089
Number of others' goals	-.011	.041
Practice spheres		
Number of consistently scored items	-.136	-.223**
Own view score	-.129	-.259**
Others' view score	-.087	-.259**
Power/control score	.182	.202**

[a] Spearman's correlation coefficient used for mutual concerns and number of consistently scored items in practice spheres. Pearson's correlation coefficient used for patient-care goals (nursing, shared, other), own view, and others' view scores in practice spheres, and power/control.

** $p < .01$

Discussion

The finding that education level may have a positive impact on collaboration has implications for nurses engaged in practice, education, and administration. Nurses employed or seeking employment in areas that rely heavily on interprofessional cooperation (e.g., intensive care, geriatrics, rehabilitation) may wish to consider graduate preparation in their career plans. Administrators in these areas may well be advised to consider the place of graduate-prepared nurses in their staffing patterns. The results of this study also reinforce the need for the integration of interprofessional learning experiences into health-care education. In particular, graduate nursing programs should perhaps include interprofessional learning and research experiences, along with specialized and advanced nursing courses.

The impact of education level on collaboration, along with the imbalance between diploma- and baccalaureate-prepared participants, lends some support to the baccalaureate degree as an entry requirement for nursing practice. If a larger portion of the diploma/baccalaureate group had been prepared at this level, the gap between the two educational groups may have been narrower.

As the items in the patient-care goals instrument were based on Gordon's (1994) nursing diagnosis — a taxonomy intended to clarify nursing's contribution to, and accountability for, patient care — it is somewhat surprising that more items were not considered to be primarily nursing. It may be that this taxonomy falls short of depicting nursing's role identity, or perhaps the items are too broad to reflect the complexity of nursing. However, it may also be that the lack of role clarity among nurses evident in other collaboration studies (Bournazos, 1993; Waters & Luker, 1996; Weiss, 1983) is at play here. Although reluctance to differentiate between disciplinary and overlapping roles is not unusual (Kane, 1975) — and is unwise, some would advocate (Alberta Association of Registered Nurses, 1993; American Nurses Association, 1980) — it should be noted that many of the difficulties experienced in collaboration have been attributed to role ambiguity, role overlap, and misconceptions (Benson & Ducanis, 1995; Mariano, 1989; Weiss, 1983). Lack of role clarity can increase the likelihood of territorial disputes and role conflict, resulting in ineffective collaboration. Role ambiguity can also affect a nurse's sense of power/control. According to Loxley (1997), without goal clarity nursing is unlikely to achieve the power needed for effective collaboration. Weiss (1984) states that until nursing is clear about its role, its activities will continue to be defined by others. This lack of clarity can also impede nurses' ability to develop a strong knowledge base (Orlando & Dugan, 1989) as well as the interventions needed to make meaningful contributions within multidisciplinary teams (O'Connor, 1993).

The finding that nurses prepared at higher education levels bring a greater sense of power/control to their collaborative relationships may not be as straightforward as it appears. Baggs, Ryan, Phelps, Richeson, and Johnson (1992) and Baggs and Schmitt (1995) found a positive relationship between collaboration and nurses' satisfaction with decision-making. However, the same did not hold true for physicians. Baggs et al. suggest that the nurses saw collaboration as a way to influence decision-making while physicians saw it was less important because of their ultimate authority. In Temkin-Greener's (1983) case study of interdisciplinary teamwork, similarly, the nurses viewed the teams as a way to achieve autonomy and status while the physicians saw them as a nursing invention constructed to diminish medicine's traditional authority. It is unknown whether nurses' perceptions of their ability to influence decisions would be the same in relationships that have less authority differential than that in the nurse/physician studies.

The negative relationship between professional identity and practice spheres for the master's/doctoral group in the present study suggests that while those with graduate nursing degrees are better collaborators on some fronts, their strong professional identity can serve to hamper some

aspects of collaboration. Petrie (1976) contends that because graduate education tends to be disciplinary focused, graduate students lack the time and interest necessary for interdisciplinary commitment and therefore are less inclined to participate in interdisciplinary activities. It has also been suggested that specialized education contributes to the belief among professionals that one's own discipline is sovereign (Mariano, 1989). As effective collaboration requires cooperative planning and decision-making (Henneman, Lee, & Cohen, 1995) and approximate equality of influence (Pehl, 1988), this separateness and superiority can hamper interprofessional work. This negative relationship also suggests that the graduate-prepared nurses in the present study were not experiencing the anticipated status benefits of higher education levels such as greater interprofessional equality and less domination by others.

Conclusions

While these findings shed considerable light on the impact of education level on interprofessional collaboration, they should be interpreted in the context of the complexities of collaboration. As collaboration is affected by personal, professional, and contextual factors, it is reasonable to expect that position and years of experience, for example, will have an impact on the results. Although the number of participants in each group was likely large enough to render the findings valid, the small sample size limits their predictive power. Also, while the groups formed for this study no doubt maximized the effect of education level, and while within-group comparison produced no significant differences, the over-representation of diploma-prepared and master's-prepared nurses may have affected the validity of the results. For example, the diploma-prepared participants had been in their place of employment longer, most likely in a staff nurse position, and the master's-prepared participants had more years of experience and had held a broader range of positions.

The findings of this study suggest that higher education levels have a positive impact on some aspects of nurses' interprofessional collaboration. There is evidence to suggest that those with higher education are more concerned about meeting others' needs as well as their own and bring a stronger sense of power/control to their interprofessional relationships. They may also see a stronger role for nurses in meeting patient-care goals, which could further enhance their collaborative abilities. Although this study found little evidence of a relationship between professional identity and collaboration, the possibility that professional identity has a negative impact on collaboration should not be discounted.

There is still much research to be done in the area of nurses' interprofessional collaboration. Further collaboration studies using educational

preparation as the primary variable should be conducted to determine whether these findings hold up under other circumstances. It may be worth including one or more of the four collaboration dimensions in future studies, with a view to enhancing our understanding of this complex construct. In that regard, consideration should be given to the appropriateness of Gordon's (1994) nursing diagnoses for assessing patient-care goals. It could be that studies carried out in an environment of post-health-care reform would be better served by an alternative conceptualization of collaboration. More research is needed on the relationship between professional identity and collaboration, with consideration given to the use of an alternative instrument. The reliability of Lawler's (1988) instrument was low, and it may be that the components of Dumont's conceptualization of profession (as cited in Lawler) are no longer valid. Finally, we need studies that take into account the complex nature of collaboration — for example, studies addressing the perspectives of the broader range of health disciplines.

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