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**Predictors and Subsequent Decisions of Physical Therapy and Nursing Students to Work With Geriatric Clients: An Application of the Theory of Reasoned Action**

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# Predictors and Subsequent Decisions of Physical Therapy and Nursing Students to Work With Geriatric Clients: An Application of the Theory of Reasoned Action

Sondra E Dunkle  
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**Background and Purpose.** In this study, the theory-based model of Ajzen and Fishbein was used to identify factors that influence physical therapist and registered nurse (RN) students' intentions toward working with elderly individuals. A follow-up identified actual job selection. **Subjects.** Accredited physical therapist and RN education programs in the Northwest and California were surveyed. Two hundred one students responded; 176 survey questionnaires were usable. **Methods.** A survey instrument was developed based on Ajzen and Fishbein's theory-based model to assess student intention to work with elderly individuals and factors influencing this intention. Graduates were later contacted to determine whether job selection matched intention. **Results.** For all students, factors influencing intention were student attitudes and student perceptions regarding their families' expectations about the student working with elderly persons. Intention had a positive correlation with job selection. **Conclusion and Discussion.** Important underlying beliefs influencing student attitudes, which could be emphasized in academia, include the advantages of getting to know elderly patients and their families and having pleasant patients to work with. Faculty are encouraged to positively reinforce these beliefs throughout the curricula. Results of this study support using a theory-based model to identify predictors of job selection among physical therapist and RN graduates. [Dunkle SE, Hyde RS. Predictors and subsequent decisions of physical therapy and nursing students to work with geriatric clients: an application of the Theory of Reasoned Action. *Phys Ther.* 1995;75:614–620.]

**Key Words:** Curricula, Geriatrics, Physical therapists, Registered nurses, Student attitudes.

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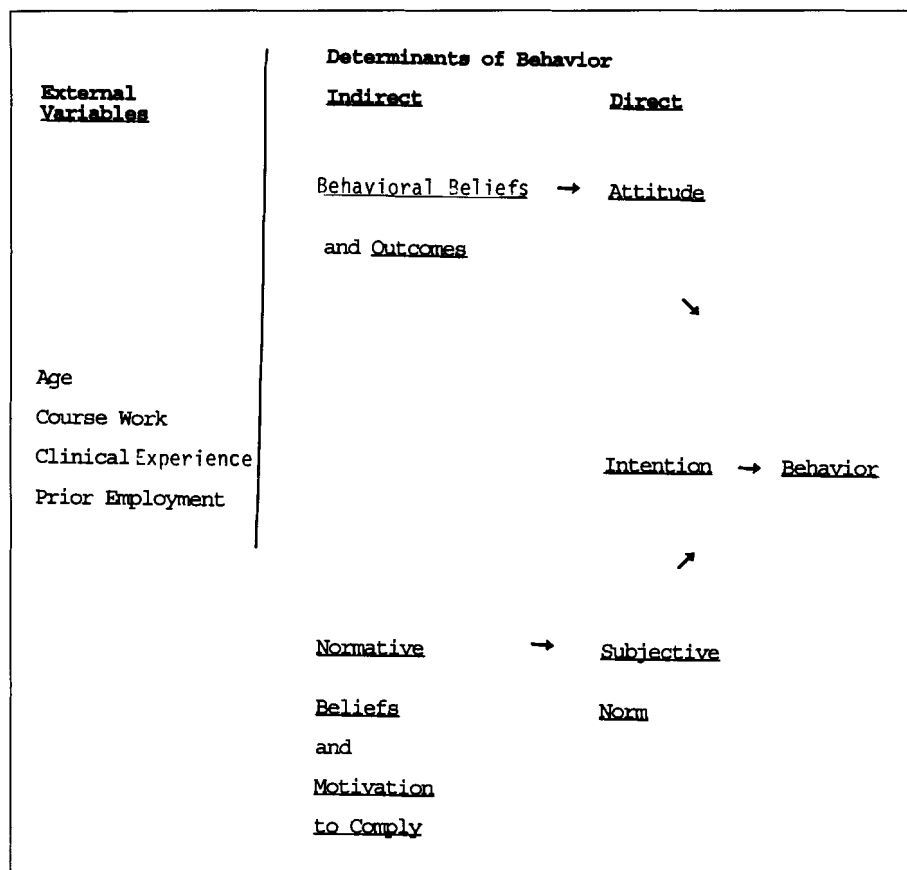
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Recently, many journals have addressed the shortage of physical therapists and registered nurses (RNs) in the United States in all specialty areas, including geriatrics.<sup>1,2</sup> It is projected that the demand for physical therapists will nearly double by the end of the century.<sup>3,4</sup> A study in Utah revealed that the greatest projected need for physical therapists will be in long-term care (nursing homes).<sup>5</sup> Only 14% of physical therapists currently work in



**Figure 1.** *Theory of Reasoned Action model.*

nursing homes or home health agencies, where geriatric rehabilitation frequently occurs.<sup>1</sup> Although human resource needs in nursing have somewhat abated, there continue to be a considerable number of vacancies in positions for RNs in long-term care facilities.<sup>6</sup> National RN-to-resident ratios for nursing homes are approximately 6.3 RNs per 100 residents. The projected need for the 1990s, however, is 10.2 to 16.2 RNs per 100 residents.<sup>7</sup>

As the number of persons over 65 years of age rises, the need for geriatric health care also rises. In 1981, approximately 23 million persons in the United States were 65 years of age or older, and the projection for the year 2000 is 32 million.<sup>8</sup> Thus, the need for elderly health care continues to expand, raising the question: How can educators identify and encourage students who may be interested in geriatrics?

The purposes of this study were (1) to identify factors that influence student intention and behavior toward working with elderly persons and (2) to test the theory of reasoned action as applied to physical therapist and RN students' decisions to work with elderly persons.

Research findings show that the likelihood of students planning to work in geriatrics may be enhanced by experiences such as living with an elderly relative, taking a geriatrics course, having a geriatric clinical assignment, or prior employment with elderly persons.<sup>9-13</sup> No reports were found of studies that included a follow-up component relating student intentions with actual job placement. Thus, predictors of whether students will actually take jobs working with elderly individuals have not been identified, nor have citations been found that utilized a theory-based model to identify these predictors. Our study differed from

previous studies in that it included these three components (ie, follow-up, predictors, and use of a theory-based model).

## Method

In our three-part study, we applied the Theory of Reasoned Action to identify student attitudes toward, and predictors of physical therapist and RN student decisions to work with, elderly persons. To use this theory, we needed to determine whether it could be successfully applied to decisions of physical therapist and RN students who work with elderly individuals. The Theory of Reasoned Action developed by Ajzen and Fishbein<sup>14</sup> has been widely used to predict intention and behavioral outcome in a variety of health behaviors such as smoking cessation,<sup>15</sup> blood glucose monitoring in individuals with diabetes,<sup>16</sup> exercise,<sup>17</sup> and medication compliance behavior in patients with hypertension.<sup>18</sup> This theory has not been used as part of an examination of student intentions to work with elderly persons. The theory was introduced in 1967 and is based on the assumption that people are rational and make use of available information to make decisions. The theory can assist in making predictions and understanding human behavior. In order to do this, determinants of behavior are identified and explored. According to the theory, these determinants are (1) intention, (2) attitude, and (3) the subjective norm toward the behavior being studied. In our research, the behavior we studied was working with the elderly population.<sup>14</sup> Figure 1 illustrates the Fishbein and Ajzen model, showing the interrelationships of the model components.

*Intention* includes a motivational factor and is influenced by attitude and subjective norm. *Attitude* is the individual's positive or negative evaluation of performing the behavior in question. The *subjective norm* reflects the individual's perception of societal pressure to perform or not to perform the behavior. Underlying attitude and subjective norm are beliefs. The beliefs underlying attitude are called *behav-*

ioral beliefs and include beliefs, outcomes, and consequences of performing the behavior. Beliefs underlying the subjective norm are referred to as *normative beliefs*. These are an individual's perception that significant others think he or she should or should not perform the behavior and the individual's motivation to comply.<sup>14</sup>

### External Variables

Fishbein and Ajzen state that all other variables except attitude, subjective norm, and behavioral and normative beliefs are external to the model and can affect behavior only indirectly. External variables can provide insight into the factors that determine beliefs and can increase understanding of the behavior in question. According to the theory, however, external variables are not expected to improve the prediction of attitude, subjective norm, or intention or behavior. In our study, the external variables were age, course work, presence of a geriatric clinical placement, and prior employment in a geriatric setting. These variables were chosen because they were found in other studies<sup>9-13</sup> to be predictive of student intentions to work with elderly individuals.

### Steps in Theory Application

The first step in using the Theory of Reasoned Action was completion of an elicitation study and subsequent questionnaire development. An elicitation study was conducted to identify subjects' beliefs underlying attitudes and subjective norms about the behavior that was being studied. This was done so that the researcher's beliefs would not contaminate the study. The subjects chosen were a sample of the population to be tested and consisted of 10 graduating entry-level RN students and 8 graduating entry-level physical therapist students at Idaho State University (Pocatello, Idaho). The stems of the questions asked in the elicitation study were mandated by the Theory of Reasoned Action and were adapted to the behavior being studied. The following questions (the stems of the questions are italicized; the re-

**Table 1.** *Elicitation Study: Beliefs About Working With Geriatric Clients*

Advantages	Number of Responses	Approval	Number of Responses
Get to know patient	5	Patient's family	3
Pleasant to work with	2	Health care worker's family	8
Variety of diagnoses	2	Spouse	2
Emotional ties	4	Patients	4
Freedom/creativity	2	Staff	3
More job openings	4	Friends	4
Fun to visit with	2	Retirement groups	2
		Elderly persons	2
Disadvantages	Number of Responses	Disapproval	Number of Responses
High mortality rate	6	Other professionals within discipline	2
Frustrating/depressing	12	Parents/family of health care workers	2
Conditions in long-term care facilities	5		
Rehabilitation may take longer	2		

mainder of the questions are the behavior being studied) were asked: "*What are the advantages/disadvantages of working with the geriatric patient/client?*" and "*Who are the groups or people who would approve/disapprove of your working with the geriatric patient/client?*" The responses to these questions were tabulated, and the frequency distribution is shown in Table 1.

Based on frequency of responses and following guidelines of the Theory of Reasoned Action, a questionnaire was developed. The theory guides researchers to group questions into subsets based on the questions' relationship to the components of the Theory of Reasoned Action (Fig. 1). Questions were incorporated into a fixed alternative closed-format style, using a Likert scale to rate responses. In the questionnaire, we also sought information on the external variables of subject age, course work in geriatrics, clinical placement in geriatric settings, and prior employment in geriatrics.

The second step was pilot testing of the questionnaire. Subjects for the pilot test were 9 graduating entry-level RN students and 16 graduating entry-level physical therapist students at Idaho State University. These were different individuals from those who participated in the elicitation study. Using Cronbach's alpha reliability and regression analysis, the questionnaire proved to be reliable and predicted intention. The third step was administration of the questionnaire to the subjects.

### Sample

A convenience sample of 10 accredited entry-level physical therapist education programs and 10 baccalaureate RN programs were contacted throughout the Northwest and California. Students from 7 physical therapist programs and 6 baccalaureate RN programs were able to participate. Two hundred one students returned completed questionnaires, but only 176 of these students could be contacted for follow-up to determine job selection. Thus, the sample for this study was 176 students.

**Table 2.** *Characteristics of the Sample (N= 176)*

Gender	No. of Subjects	Age (y)	No. of Subjects	Profession
Female	138 (78.4%)	21–25	70 (39.8%)	Physical therapy 91 (51.7%)
Male	38 (21.6%)	26–35	61 (34.7%)	Nursing 85 (48.3%)
		36–45	39 (22.2%)	
		>45	6 (3.4%)	

### Procedure

Questionnaires were sent to students from the participating universities. Telephone or mail follow-up contacts were made with the RN students upon completion of their state board examinations and with the physical therapist students following their internships. This was done to determine whether the students had taken jobs working with elderly persons. The Statistical Package for the Social Sciences (SPSS)<sup>19</sup> was used to analyze the data, with the significance level set at  $P<.05$ .

### Results

#### Characteristics of the Sample

The characteristics of the sample related to gender, age, and profession are shown in Table 2. Race and ethnic groups represented were Caucasian ( $n=156$  [88.6%]), African-American ( $n=1$  [0.6%]), Mexican-American ( $n=7$  [4.0%]), Asian-American ( $n=2$  [1.1%]), and Native American ( $n=1$  [0.6%]). Nine subjects (5.1%) did not supply information on their race or ethnic background.

The majority of the students had either previous working experience ( $n=162$  [92%]) or social interaction ( $n=168$  [95%]) with the elderly population.

One hundred sixty-four students (93.2%) indicated they had taken courses related to geriatrics, whereas 12 students (6.8%) responded that they had not taken such courses. Seventy-eight of the students (44.3%) responded that the geriatric content they received was integrated throughout the curriculum, whereas for 74 students (42%) the geriatric content was given in a course devoted to geriatrics. Thirteen of the students (7.4%) received the content in both an integrated and specific course manner, and 11 students (6.3%) did not respond. The majority of the students ( $n=155$  [88.1%]) did have an enthusiastic instructor(s) for the geriatric courses. Only 54 of the students (30.7%) selected employment working mainly with geriatric patients, 110 students (62.5%) were employed elsewhere, and 12 students (6.8%) were not employed.

#### Reliability of the Questionnaire

To test the internal consistency of data obtained with the questionnaire with these subjects, Cronbach's alpha coefficients were computed on each of the model components. The alpha coefficients were .8143 for attitude, .7244 for behavioral beliefs and outcomes, and .8778 for normative beliefs and motivation to comply.

#### Theory Testing

Following the guidelines of Ajzen and Fishbein,<sup>14</sup> the Theory of Reasoned Action was tested on the data in four sequential stages. The physical therapist students and the RN students, for the purposes of interest and clarity, were tested separately in each stage. In stage 1, the Pearson Product-Moment Correlation was used to determine whether any correlations existed between intention and the model components and external variables. Table 3 shows that only the model components were correlated with intention to work with the geriatric client in a geriatric setting for both the physical therapist students and the RN students.

**Table 3.** *Pearson Product-Moment Correlation Between Intention and the Measures of Attitude, Subjective Norm, and External Variables*

Variable	Pearson <i>r</i>	
	Physical Therapist Students	Registered Nurse Students
Direct and indirect measures		
Attitude	.52 <sup>a</sup>	.56 <sup>a</sup>
Beliefs×outcomes	.32 <sup>a</sup>	.41 <sup>a</sup>
Subjective norm	.39 <sup>a</sup>	.46 <sup>a</sup>
Norm beliefs×motivation to comply	.24 <sup>a</sup>	.60 <sup>a</sup>
External variables		
Previous experience	-.03 <sup>b</sup>	.15 <sup>b</sup>
Worked with elderly persons	.06 <sup>b</sup>	.06 <sup>b</sup>
Previous social experience	-.00 <sup>b</sup>	-.00 <sup>b</sup>
Geriatric/integrated courses	.05 <sup>b</sup>	.05 <sup>b</sup>
Age	.01 <sup>b</sup>	.16 <sup>b</sup>

<sup>a</sup> $P<.01$ .

<sup>b</sup>Not significant.



**Table 4.** Hierarchical Regression Analysis (N= 176)

Prediction of Intention	Correlation With Intention (r)	Beta Weights	Multiple R	R <sup>2</sup>
Physical therapist students				
Attitude	.52 <sup>a</sup>	.46 <sup>a</sup>	.59	.35
Subjective norm	.39 <sup>a</sup>	.29 <sup>a</sup>		
Registered nurse students				
Attitude	.56 <sup>a</sup>	.45	.61	.37
Subjective norm	.46 <sup>a</sup>	.26		

<sup>a</sup>P<.001.

Stage 2 involved hierarchical regression. The main components of the theory, attitude and subjective norm, because they were correlated with intention, were entered into the regression equation. As shown in Table 4, both components contributed to the prediction of intention for each student group. The beta weights derived from this analysis determined the influence each component had on intention. For both the physical therapist students and the RN students, attitude had a stronger influence on intentions than did subjective norm.

Because none of the external variables were correlated with intention, they were not entered into the regression equation. The multiple R in the regression equation, which represents intention to work with elderly persons, was .59 for the physical therapist students and .61 for the RN students. The model explained 35% of the variance (ie, interaction between dependent and independent variables) for the physical therapist students and 37% of the variance for the RN students.

The third stage in theory testing involved determining the relationship between intention and actual behavior. Behavior was measured by whether or not the participant was working in a geriatric setting. Geriatric job selection for physical therapists was determined by respondents indicating that greater than 50% of the patients treated were elderly. This criterion was established because

many physical therapists who wanted to work with elderly persons were unable to find full-time employment in nursing homes and instead chose to work in private clinics where services were contracted for rural hospitals, nursing homes, and home health. For the RN graduates, only those working in a nursing home, home health agency, or a similar geriatric setting were considered to be working with the elderly population, because for nurses these settings offer full-time employment.

Job selection (behavior) was assessed by a follow-up survey of the participants, either by telephone or by postcard. This follow-up survey was completed after state board examinations for the RN students or following the last internship for the physical therapist students. A Spearman's correlation between intention and behavior was computed. This correlation, .26 for the physical therapist students and .31 for the RN students, was significant ( $P=.01$ ). Of the participants who were actually working with elderly persons, 41 were physical therapist graduates and only 12 were baccalaureate RN graduates.

The fourth stage of theory testing involved the identification of the students' relevant beliefs underlying the predictors of intention (attitude and subjective norm). Once attitude and subjective norm were found to be predictors of intention for both groups of students, behavioral beliefs and

**Table 5.** Relevant Behavioral Beliefs About Working With Elderly Persons

	Hotelling's T <sup>2</sup>
Physical therapist students	
Pleasant patients	.005 <sup>a</sup>
Frustrating environment	.004 <sup>a</sup>
Incontinent patients	.014 <sup>a</sup>
Hotelling's T <sup>2</sup> =1.201 (P=.001)	
Registered nurse students	
Knowing patients and their families	.036 <sup>b</sup>
Incontinent patients	.016 <sup>b</sup>
Hotelling's T <sup>2</sup> =.4206 (P=.000)	

<sup>a</sup>P=.001.

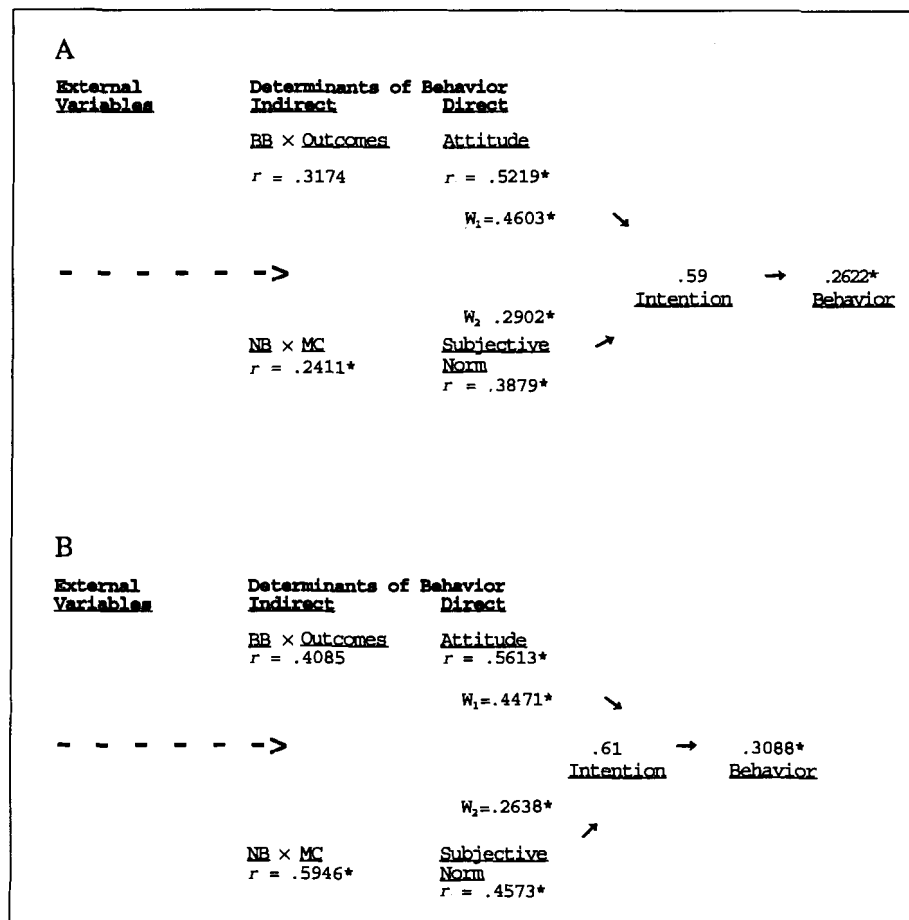
<sup>b</sup>P=.05.

normative beliefs were examined. These beliefs were examined using the multivariate Hotelling's T<sup>2</sup> statistic and the univariate Student's t statistic. Table 5 shows the relevant student beliefs underlying attitude.

The univariate Student's t statistic was used to identify the salient beliefs underlying subjective norm. The beliefs identified by the physical therapist students that supported their working with elderly persons were their families, the geriatric staff, and their close friends. The RN students identified only family members.

## Discussion and Implications

In our study, the strongest predictors of student intent to work with elderly persons were attitudes and subjective norm (Fig. 2). Intention for each group was reflected by multiple R values of .59 (physical therapist students) and .61 (RN students). The total variance accounted for by the interaction between the dependent variable (working with elderly persons) and the independent variables (attitude and subjective norm) was approximately 36%. These findings supported the Theory of Reasoned Action. Beliefs that influenced the predictors were the belief that there would be time to get



**Figure 2.** Theory of Reasoned Action model outcomes for (A) physical therapist students and (B) registered nurse students.  $W_1$  and  $W_2$  beta weights were obtained through multiple-regression analysis. BB=behavioral beliefs, NB=normative beliefs, MC=motivation to comply. Asterisk (\*) indicates  $P < .01$ .

to know the geriatric patients and their families and the belief that these patients would be pleasant to work with. Educators are encouraged to reinforce these beliefs throughout the curriculum.

In terms of outcome, the correlation between intention and behavior, although moderate, was lower than expected. Other researchers who have investigated health behavior have reported higher intention behavior correlations, including correlations (Pearson  $r$ ) of .73 for smoking cessation,<sup>15</sup> .65 for exercise,<sup>17</sup> .53 for blood glucose monitoring,<sup>16</sup> and .50 for diet behavior and .61 for medication compliance behavior.<sup>18</sup> A possible explanation of the lower intention behavior correlation found in our study, especially with the physical therapist stu-

dents, may be related to the lack of difference between whether a student was working or not working with elderly persons and the student's stated intention. Twenty-nine of the 41 physical therapist students who were working with elderly persons had stated a positive intention to do so, and 27 of the 49 physical therapist students who were not working with elderly persons had stated positive intentions. These findings may have influenced the intention behavior correlation. The physical therapist students predominantly (62%) had stated positive intentions to work with elderly individuals. Only 35% of the RN students had stated positive intentions to work with elderly individuals, and their intention behavior correlation was a close approximation of this percentage.

The continued growth of the geriatric population calls for more health care personnel devoted to this segment of the population. Educators have attempted to pinpoint elements that influence student decisions to work with elderly persons. Some factors that influence student attitudes, and presumably student intentions to work with elderly individuals, have been identified in other studies.<sup>9-13</sup> In our study, however, age, previous social and working interactions with the elderly, geriatric/gerontology courses, or enthusiastic instructors were not found to influence student intention or behavior. These findings differ from those of previous studies.<sup>9-13</sup>

Negative comments made by subjects regarding their interest in working with geriatric patients included a perception that there is little prestige in this specialty. These subjects also believed they would have few opportunities to practice acute care skills, or to have a broad scope of experiences. Concerns about limited interaction with professional team members were expressed. Some students were also concerned that salaries would be low in geriatrics, a factor of primary importance to physical therapists in job selection.<sup>20</sup>

Although student interactions with elderly persons and geriatric courses did not appear to influence student attitude or behavior, educators may wish to emphasize those areas identified in this study that did influence student intention. Those areas are perceived family reactions to a student working with elderly persons, patient incontinence, diminished opportunity for team interactions, salary issues, limited opportunity for skill applications, interesting patients, and increased time with patients and their families.

Group discussions of students' perceptions of their family's reaction to them working with elderly individuals may be helpful. Open discussions of problems with incontinence and management options may also be helpful. These discussions could be approached from both a medical per-

spective and a psychological perspective.

Concerns about diminished opportunity for team interactions in long-term care facilities may be addressed with student problem solving to highlight ways that one could develop professional networking. Because Pearl<sup>20</sup> has identified salary as a primary consideration in selecting employment, this issue should also be considered. Options such as contracts rather than employment could be discussed, as well as contracting to provide home health services (even for RNs) to geriatric patients. Review of current salary surveys in long-term care facilities may provide objective information on which to dispel salary misconceptions, because in many areas salaries have improved.

Student perceptions about limited application of their skills when working with elderly patients may be addressed by directing students to explore how limited hospital stays result in more acute care, elderly patients with multiple diagnoses being seen in home health and long-term care. After directly addressing issues that students perceive as negative, educators may want to discuss the positive perceptions such as interesting patients and increased time with patients and their families. Most importantly, faculty need to portray the concept that geriatric care can be as worthwhile and prestigious as other areas of patient care.

An incidental, but important, finding in this study was that most subjects were uncertain as to whether they had taken singular geriatrics course(s) or had received the information integrated throughout the program curriculum. Commonly, students from the same program gave opposite responses to the question, with a few students indicating that they had taken both singular and integrated courses. This variable, therefore, could not be

assessed. Perhaps it is not necessary that the student know this information, but it may be of interest to educators in curriculum planning.

In terms of outcome, the correlation between intention and behavior was moderate and approximately the same for both groups. Other studies using the Theory of Reasoned Action have reported stronger intention behavior correlations.<sup>15,17</sup> In our study, 41 physical therapist graduates (45%) were working with elderly persons compared with 12 RN graduates (14%). This difference may be related to salary and the variety of geriatric work settings available to physical therapists.

## Conclusion

This study addressed the continuing human resource need to provide health care for elderly persons. We applied a theory-based model to examine factors that underlie student behavior and intention toward working with this age group. Predictors of student job selection were identified. Strategies were suggested for educators to directly address those issues that influence student attitude and intention. By implementing these strategies, educators may help to influence more physical therapist and nursing students to select jobs working with elderly persons. The Theory of Reasoned Action that has been successfully applied to a wide range of decisions appears to have application to job selection among physical therapist and RN graduates.

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