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ABSTRACT

In response to decreasing nursing program enrollments, less qualified enrollees, and decreasing scores on the national licensing board exams, a study was conducted at Miami-Dade Community College (MDCC) to examine factors that might contribute to success or failure among students entering the nursing program. In order to identify "high risk" students needing additional support, the study examined a number of program-entry variables, including preparatory courses taken, performance on prerequisite science courses, and scores on basic skills tests. Students were classified as having adequate preparation, having marginal preparation, or being in need of preparatory college work (CPW). Preprogram variables were then compared with such indicators of academic achievement as grades in the first core nursing course, first-semester grade point average (GPA), and status in the program after 2 years. Study findings included the following: (1) 55% of the students with adequate basic reading skills received grades of A or B in the nursing core course, while only 19% of those needing CPW performed as well; (2) 90% of the students with adequate reading basic skills obtained a 2.0 GPA or better, while only 65% of the CPW students had a 2.0 or better; (3) 50% of the students who had three or more repeats of prerequisite science courses earned a GPA of less than 2.0; and (4) the best predictor of first-term GPA was a combination of reading basic skills and the number of repeats in prerequisite science courses. Graphs, pie-charts, and detailed data tables are included. (GFW)

FACTORS THAT AFFECT SUCCESS IN NURSING

Research Report No. 89-28R

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Factors That Affect Success in Nursing

Nursing is one of the largest A.S. degree programs at Miami-Dade. With 794 enrollees last year, Nursing was exceeded only by the Business Administration Program in the number of enrollees. About 1,000 more students declared their intentions to go into Nursing though they had not yet been admitted to the program. No other A.S. program produces as many graduates--228 last year.

Nursing is also a program experiencing increasing difficulty as the environment changes. Compared to five years ago, about 7% fewer students are enrolled in Nursing. Faculty are seeing fewer well-prepared students in their classes. This finding reflects a national trend of decreased enrollment and a decreased pool of qualified applicants (Donovan, 1989).

Students who do enter the program and graduate are having increased difficulty passing their national board exams. This is at least in part due to recent changes in the examination itself which makes the test more difficult. At Miami-Dade, scores dropped immediately after the imposition of the new test blueprint in July of 1988, and they have continued to fall.

Because of these concerns, a study was designed with the help of the Dean of Nursing and the department chairs. The purpose was to identify those factors that related to success (or non-success) in Nursing in order to modify the selection criteria, policies, and/or to provide additional support to those identified as "high risk."

For this study, "success" was defined several ways. It included looking at grades in the first "core" Nursing course, semester grade point average at the end of the first semester of Nursing, and status in the program after two years.

The factors studied included the entering level of basic skills, the preparatory curriculum that students took, and prior performance in prerequisite science courses. Specifically, the study addressed these questions:

1. Is there a relationship between entering level of basic skills and success in Nursing? How is the student who presented marginal basic skills scores performing? What about English as a Second Language students?

2. Does the campus where students take their preparatory courses make a difference in performance? Do students who take Human Growth and Development perform differently than those who do not?

3. Does prior performance in science courses predict Nursing performance? Do students who have a large number of repeats or withdrawals perform more poorly in Nursing? Does grade point average change significantly when repeats are factored in?

4. Which of the combination of these factors best predicts grade point average for the first term in the program? How many factors are needed to predict? How good is the prediction?

Results indicated that both reading and writing basic skills (but not mathematics) related to success in Nursing. The number of repeats of prerequisite courses was also a good indicator of Nursing success. The campus where students took their prerequisite courses did not relate to performance. The best prediction of first-term GPA in Nursing was provided by a combination of reading basic skills score and number of repeats in prerequisite science courses.

Methodology

Students selected for study began their Nursing program in the fall of 1987. Course rosters were provided by the Dean of Nursing for students enrolled in NUR 1021 (generic Nursing for full-time students), NUR 1022 (Nursing for part-time students), or NUR 1204 (the transitional Nursing program).

Students' entering level of basic skills was assessed by scores on either the CGP (used at the college until 85-2) or the FL-MAPS tests (used since 85-2). Scores were available on 141 or 84% of the students studied. About equal numbers had taken the CGP and the FL-MAPS. Students were classified as needing college preparatory work if their scores fell below the M-DCC cutscore mandating college preparatory work. They were classified as marginal if their scores fell in the range where college preparatory work was recommended but not required. They were classified as adequate if their scores fell above the recommended range. The following scores were used for this study:

	CGP	FL-MAPS
Reading		
Needs College Preparatory	<19	<12
Marginal	19-21	12-14
Adequate	>21	>14
Writing		
Needs College Preparatory	<17	<30
Marginal	17-21	30-36
Adequate	>21	>36
Mathematics		
Needs College Preparatory		
Math	<21	<109
Algebra	<20	<206
Marginal		
Math	21-24	109-115
Algebra	20-23	206-209
Adequate		
Math	>24	>115
Algebra	>23	>209

Transcripts were analysed to obtain final grades in the students' core Nursing course (NUR 1021, 1022, or 1204); their grade point averages for their first semester in Nursing; the campus where they took the majority of their core courses (ENC 1101, SSI 1120, HUM 1020, and PSY 1000); the campus where they took their science prerequisites (anatomy and physiology,

microbiology, and chemistry); whether they had any English-as-a-second-language courses; whether they had taken Human Growth and Development (DEP 2000); the number of withdrawals from the three science prerequisites; and the number of repeats of the three science prerequisites.

The adjusted grade point average was calculated by identifying all courses on the transcript that had been repeated (labelled "T") and adding these quality points and semester hours into the cumulative grade point average. The resulting corrected GPA was based on all work taken at Miami-Dade.

In addition, information was gathered from the computer on whether the student was enrolled at the College the following semester (87-2) and one year later (88-1). It is possible, therefore, that because of the definition used, a few students may have been enrolled at the College but not in the Nursing program during one of these semesters.

Students were counted as having earned a degree if they had received either an A.A. or A.S. degree by the end of the summer semester (88-4). In defining student status, students were counted as being enrolled at the college if they had last enrolled at the College during 88-1 or later.

Most statistical analyses involved the Chi-Square statistic. Results were considered significant if an alpha level of .05 was exceeded.

The multiple regression analysis was based on a SAS program using stepwise regression and the maximum R^2 improvement technique. The decision for selecting a model was based on the C_p statistic. In order to include both students who took the CGP and the FL-MAPS, test scores were turned into standardized z-scores using the mean and standard deviation of each set of data. Each resulting set of data, therefore, had a mean of 0 and a standard deviation of 1.

Results

The Role of Basic Skills

Nursing students had a basic skills profile that was somewhat lower than that of the first-time-in-college student (FTICs) in reading, similar in writing, and higher in mathematics (see R.R. No. 89-20R for comparisons). In reading, 42% of the enrollees needed college preparatory help compared to 36% of FTICs; an additional 16% were marginal. In writing, 29% needed college preparatory work compared to 31% of FTICs; an additional 28% were marginal. In mathematics, 28% needed college preparatory work, and 24% were marginal based on either math or algebra scores. For Fall 1989 FTICs, 43% were below the Algebra cut. Therefore, over 50% of the Fall 1987 class was deficient or weak in each area of the basic skills test (see the profile in Figure 1). Overall 61% of the group needed college preparatory work in one or more areas. The percentage rose to 79% when marginal students were added.

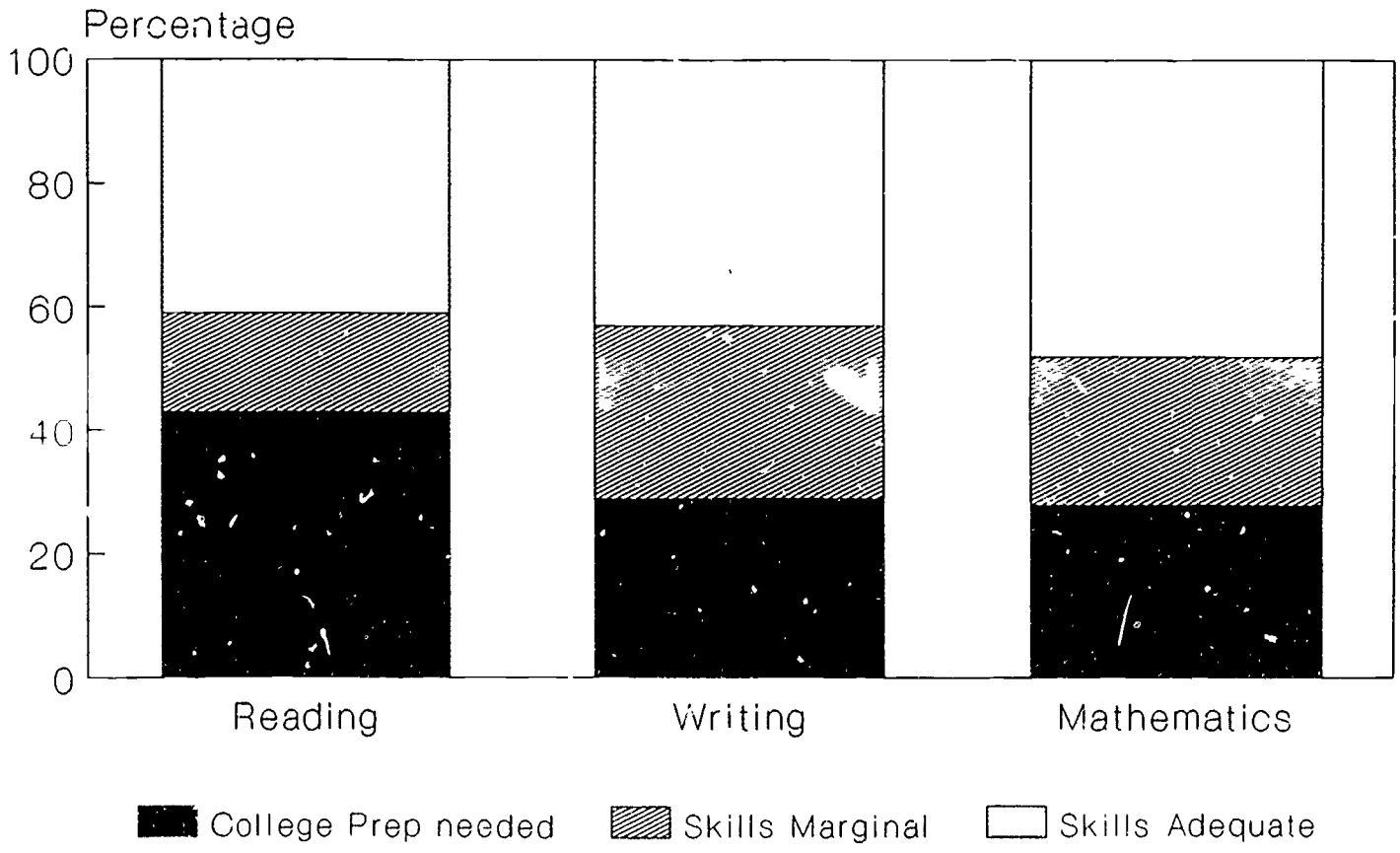
Did entering level of basic skills relate to grades in the first Nursing course? Results showed a significant relationship for reading and writing but not for mathematics.

As shown by Table 1, in the area of reading, 55% of the students with adequate basic skills received A's or B's compared to 19% of those needing college preparatory work. In fact, one-third of those needing college preparatory work failed to satisfactorily complete the course. Students with marginal basic skills were most likely to get C's. The same pattern was found by program though results were typically non-significant due to the smaller sample sizes.

A similar pattern was found for writing (see Table 2). Half of those with adequate basic skills received A's or B's compared to 15% of those requiring college preparatory work. Those with marginal writing skills tended to receive C's.

Figure 1

Basic Skills Scores of Nursing Students



Fall 1987 enrollees

Mathematics skills did not play a role in course performance. Only one of the comparisons was statistically significant (see NUR 1022 in Table 3), and the small numbers make these results suspect.

The level of basic skills in all three areas was related to obtaining a satisfactory grade point average (GPA) at the end of the first semester of Nursing (see Table 4). While over 90% of those with adequate reading basic skills obtained a 2.0 GPA or better, the figure was closer to two-thirds for college preparatory students. It was interesting to see that in mathematics, a higher percentage of marginal students had satisfactory GPAs than any other group.

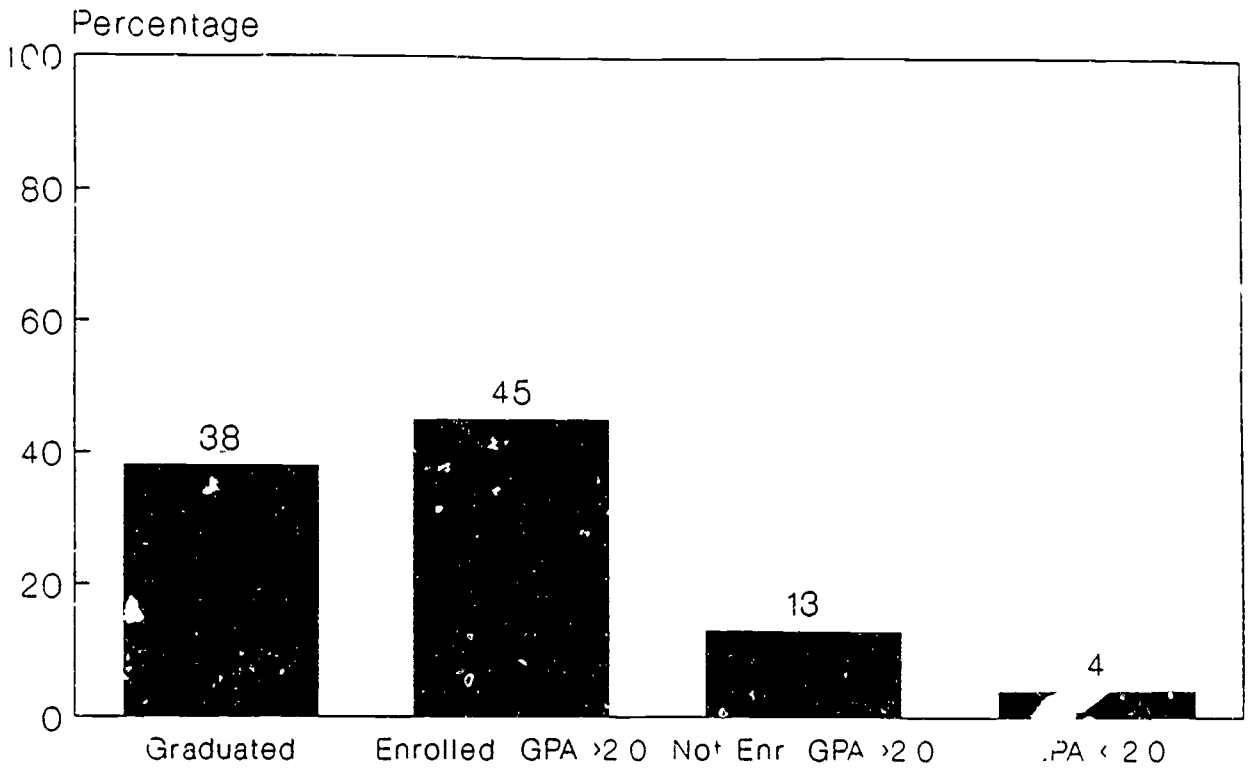
There were few significant relationships between basic skills and returning to school the following semester (87-2), perhaps because 94% of the group returned making it difficult to discriminate between returnees and non-returnees. In fact, the only significant relationship was in reading where those who needed college preparatory work were most likely to return (100% return rate) and those with marginal reading skills were least likely to return (82% return rate). See Table 5 for further results.

What was the students' status after two years? Again, in part the answer depended on level of basic skills, but the program the student enrolled in also was important. Overall, 38% had graduated and 45% were still enrolled. For those with adequate skills in reading, over 50% had graduated and 35% were still enrolled with satisfactory GPAs. Those needing college preparatory work had a 27% graduation rate and 53% were still satisfactorily enrolled. The marginal student fared the worst with a 23% graduation rate and 50% still satisfactorily enrolled; this group had the largest percentage of leavers with low GPAs. Generally, few (13%) had left the college and fewer still (4%) had low GPAs after two years. By program, graduation rates varied from 90% (transitional program) to 7% (part-time program) for students with good basic skills. See Figure 2 and Table 6 for further results.

The relationship of English-as-a-Second-Language and success was also explored. However, for this study only 12 students or 7% had taken any

Figure 2

Status in Nursing Program After Two Years



ESL or ENS courses. For this or other reasons, there were no significant relationships uncovered.

The Role of the Curriculum

Should Nursing students be taking their preliminary courses on the Medical Center Campus to improve their performance in the program? Is Human Growth and Development an important preliminary course? These were the issues addressed in this section of the study.

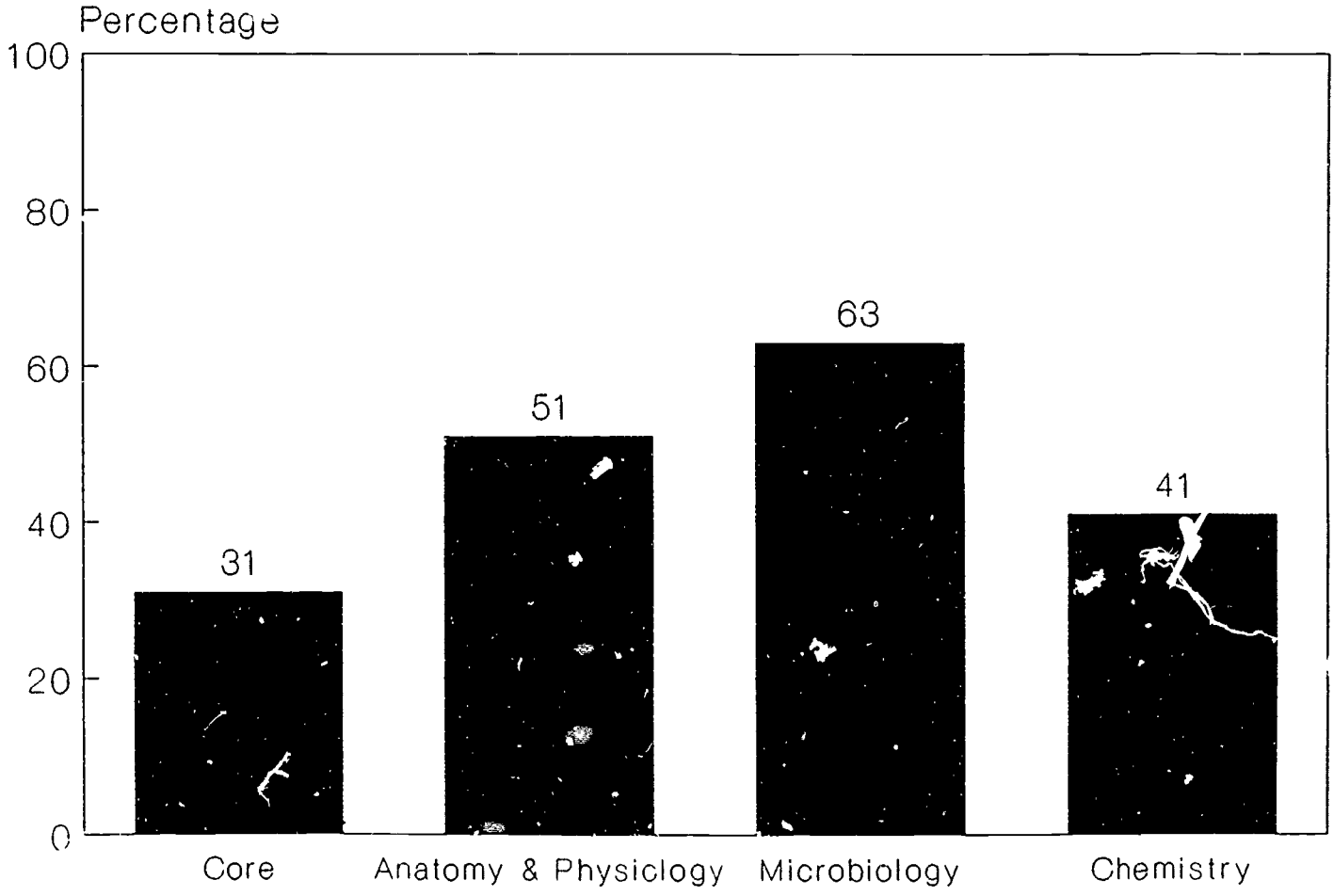
Depending on the course, the number of students taking it at the Medical Center Campus changed (see Figure 3). Students were most likely to take their core courses on another campus--70% chose to do so. They were least likely to take microbiology on another campus--only 3[illegible]% chose to do so. About half elected to take anatomy and physiology at Medical Center Campus, while about 40% took chemistry at the Medical Center Campus.

In any case, where students took their preliminary courses made no difference in either grade in the first Nursing course (see Table 7) or percentage attaining a satisfactory GPA at the end of the first semester (see Table 8). There was one statistically significant relationship between course location and returning for a second semester of Nursing (see Table 9); students who took their core courses on another campus were more likely to return than those taking their core courses at Medical Center Campus (97% vs. 86%). There is no intuitively obvious explanation for this finding except that different types of students may begin at Medical Center Campus compared to other campuses.

Trying to find relationships between taking Human Growth and Development (DEP 2000) and performance was hampered by having almost everyone in the same group--84% had taken the course prior to enrolling in the Nursing program. Again, no significant relationships were found with any of the outcome variables. However, analysis indicated that the percentage of students taking the course differed by program. While 98% of the NUR 1204 group took the course, the figure was 88% for NUR 1021 students and only 62% for NUR 1022 students.

Figure 3

Percent of Students Taking Preliminary Courses at Medical Center Campus



Fall 1987 Enrollees

The Role of Repeats and Withdrawals

At Miami-Dade, the College policy is that students can retake a course that they have received an unsatisfactory grade in and thereby eliminate the prior grade from the calculation of their grade point average. The College withdrawal policy is also lenient, allowing students to withdraw as late as two weeks before finals during a major term; many students have withdrawn from courses rather than receive an unsatisfactory grade.

Prior research by members of the Nursing faculty indicated that students who repeatedly retook their preliminary science courses did not perform well in the Nursing program. Nursing faculty and administrators wanted to know how much the policy of allowing repeats to wipe out prior poor grades changed cumulative grade point averages and whether there was a relationship between repeats, withdrawals, and performance.

Results indicated that a change in policy would touch a fairly large number of Nursing students. As shown by Figure 4, while 53% of the enrollees had no repeats, almost 20% had three or more. In the area of withdrawals, 41% had none while 31% had three or more.

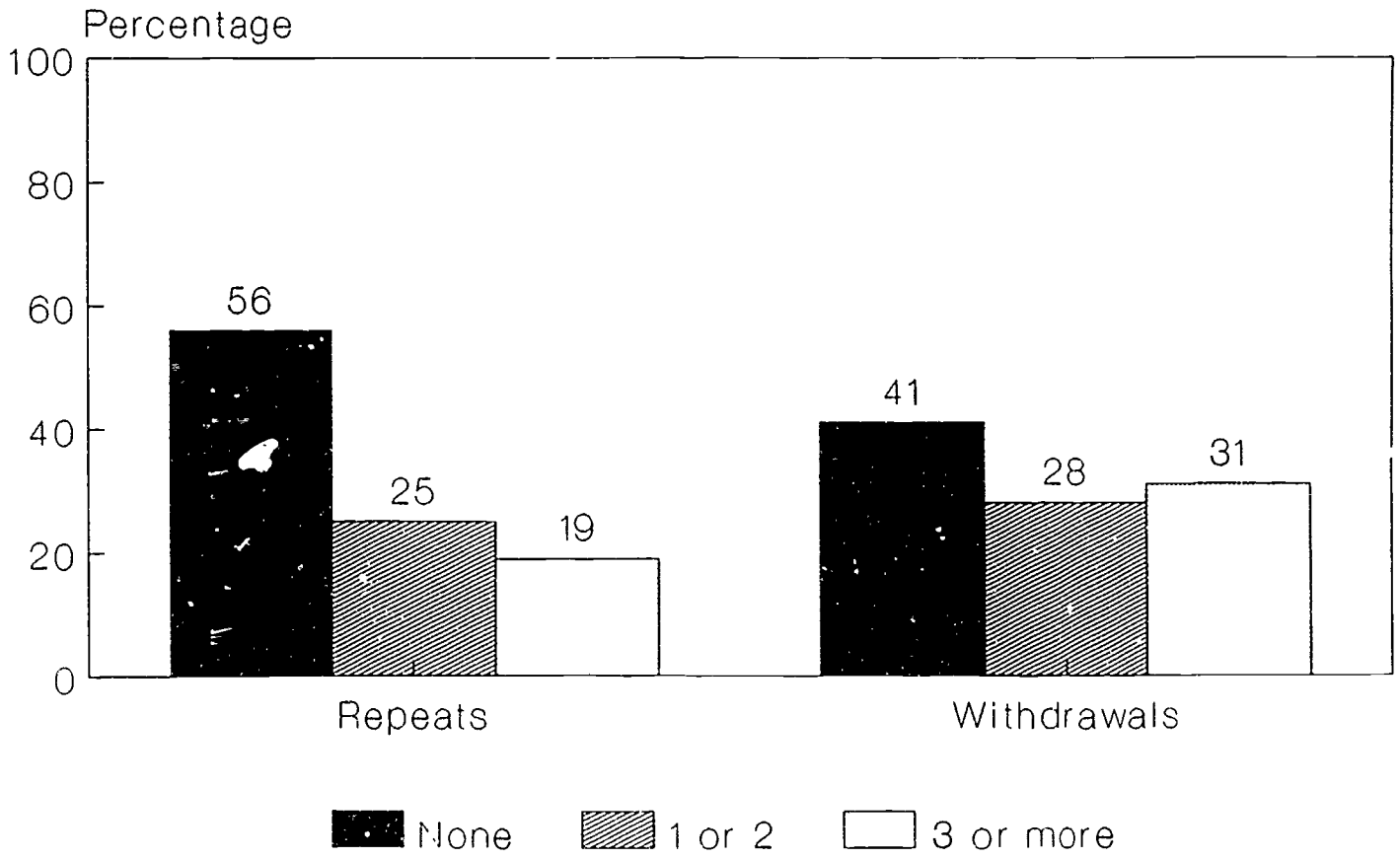
To answer the question of whether a policy change would make a difference in cumulative GPAs, "corrected" GPAs were calculated for each student. The results of prior grades in repeated courses were added back into the cumulative GPA. Using a GPA of 2.0 as a criterion, counts were made to see how many students' GPAs shifted from satisfactory to unsatisfactory.

As shown by Figure 5, a policy change would not have made a large change in cumulative GPA. Only 14 or 8% of the students would change from the satisfactory to the unsatisfactory category. The average GPA for the group dropped from 2.69 to 2.56 when prior grades were averaged in.

Number of repeats was still related, however, to performance. As shown by Table 10, half of those with three or more repeats had an unsatisfactory grade in their first Nursing course compared to only 16% of those

Figure 4

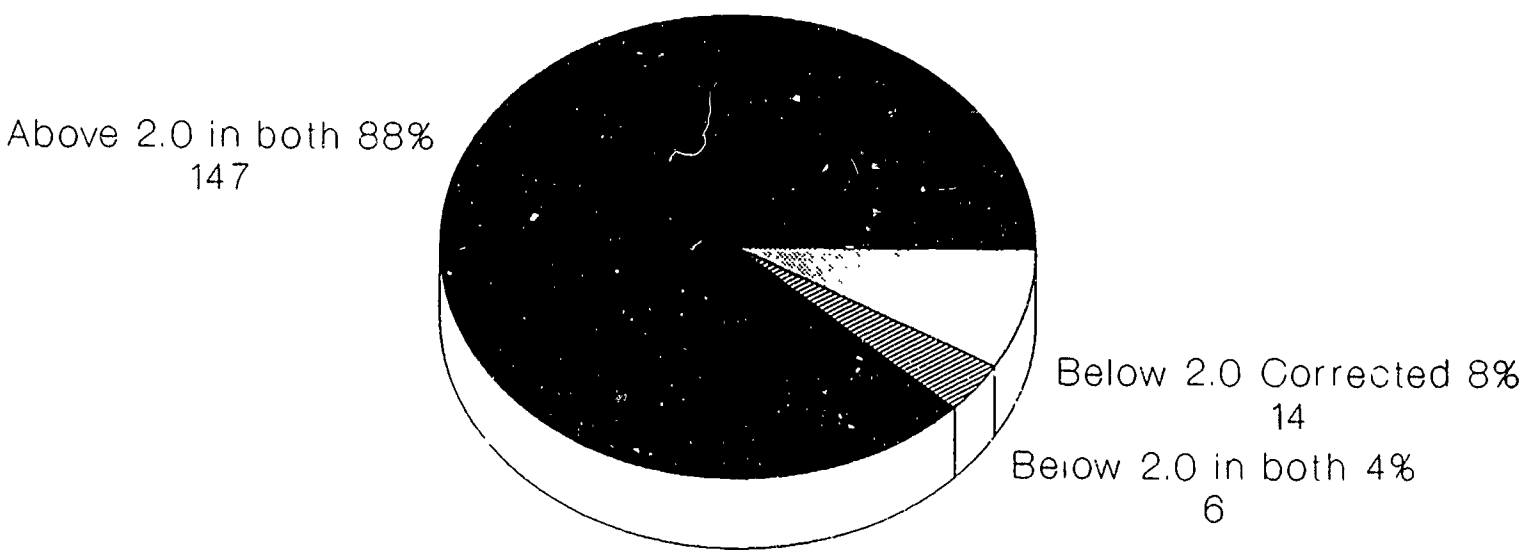
Course Repeats and Withdrawals of Nursing Students



Fall 1987 Enrollees

Figure 5

Relationship of Current to Corrected GPA



Includes performance in repeated courses

with no repeats. Number of withdrawals also was related. As shown by Table 11, of those with three or more withdrawals, 43% had a D, F, or W.

The relationship also held for first semester GPA. While almost 85% of those with two or fewer repeats had a GPA above 2.0, only 50% of those with three or more repeats had a satisfactory GPA (see Table 12). The relationship was similar for withdrawals (see Table 13). Both tables indicate that one or two repeats, or especially withdrawals, do not seem to be detrimental to maintaining a satisfactory GPA.

As previously found for other variables, neither number of repeats nor withdrawals related to returning for a second semester of Nursing. Details can be found in Tables 14 and 15.

Predicting First Semester Grade Point Average

Though selection criteria are already in place for allowing students into the Nursing program, the question of what improvements could be made to the selection process still remains. This section addressed the issue of what variables could best predict first-term grade point average in Nursing: reading basic skills scores, writing basic skills scores, mathematics basic skills scores, number of repeats in science courses, and/or number of withdrawals in science courses. How good is the prediction?

The stepwise regression model used for this study first selected the variable most strongly related to GPA. This turned out to be basic skills reading score. The next variable selected was the one that boosted the prediction the most. This was the number of repeats in science courses.

At this point, these two variables accounted for about 16% of the variability in cumulative grade point average. The inclusion of any other variables did not raise the amount of variability accounted for to a statistically significant degree. The resulting model can be found in Table 16.

Table 17 displays the correlations among all the variables, including the corrected and cumulative GPAs. Most correlations between predictor and predicted were very moderate, ranging from .20 to .38. It is

not unlikely, therefore, that other variables with stronger relationships could be uncovered in in future research.

Summary and Conclusions

This study sought to uncover factors which related to performance in the Nursing program. Verbal skills--writing and reading--were found to be most strongly related to Nursing performance as measured by grade in first Nursing course, first semester GPA, and cumulative GPA. These were skills where over half of the Nursing enrollees tested as marginal or below cut upon entry. Students needing college preparatory work had consistently poorer grades than students with either marginal or adequate skills. Students labelled as marginal were "C" students early in the program but were less likely to succeed in the program over a two-year time period than college preparatory students. Overall, after two years 38% had graduated and 45% were still enrolled with satisfactory GPAs.

The other major factor related to student performance was the number of repeats in preliminary science courses. About 20% of the enrollees had three or more repeats in these three courses. This group had a 50/50 chance of earning an unsatisfactory grade in their first Nursing course and less than a 2.0 GPA their first semester in Nursing.

It was interesting to discover what was unrelated as well as what was. Mathematics was not related to Nursing performance nor was the campus location where students took their preliminary courses. In terms of outcomes, nothing was strongly related to returning for a second semester of Nursing--well over 90% returned anyway. Perhaps a more in-depth analysis looking at performance in specific courses later in the program would uncover some relationships.

If faculty were to revise the selection process for Nursing, close attention should be paid to reading scores and the number of repeats students presented in the three preliminary science courses. An equation to predict first semester GPA in Nursing only accounted for slightly more than 15% of the variability in GPA through use of basic skills scores and number

of repeats and withdrawals. Perhaps the inclusion of other variables might boost the prediction.

Clearly, there is wide variability in student performance in the Nursing program. This variability can be traced to entering basic skills and prior performance. One question facing Nursing faculty and administrators, therefore, will be where curricular changes can be made to address these weaknesses and where criteria for program entry need to be modified.

Table 1

Relationship of Reading Basic Skills to Grade in
First Nursing Course
Fall 1987 Program Enrollees

	Grade						
	A or B		C		D, F, or W		
	Number	Percent	Number	Percent	Number	Percent	P<.05
All Nursing Enrollees							
College Preparatory Needed	11	18.6	28	47.5	20	33.9	
Basic Skills Marginal	2	9.1	14	63.6	6	27.3	*
Basic Skills Adequate	33	55.0	20	33.3	7	11.7	
Total	46	32.6	62	44.0	33	23.4	
NUR 1021 Enrollees							
College Preparatory Needed	6	15.8	18	47.4	14	36.8	
Basic Skills Marginal	0	0.0	6	66.7	3	33.3	*
Basic Skills Adequate	15	60.0	7	28.0	3	12.0	
Total	21	29.2	31	43.0	20	27.8	
NUR 1022 Enrollees							
College Preparatory Needed	4	40.0	4	40.0	2	20.0	
Basic Skills Marginal	0	0.0	5	62.5	3	37.5	
Basic Skills Adequate	9	64.3	4	28.6	1	7.1	n.s.
Total	13	40.6	13	40.6	6	18.8	
NUR 1204 Enrollees							
College Preparatory Needed	1	9.1	6	54.5	4	36.4	
Basic Skills Marginal	2	40.0	3	60.0	0	0.0	
Basic Skills Adequate	9	42.9	9	42.9	3	14.2	n.s.
Total	12	32.4	18	48.7	7	18.9	

Table 2

Relationship of Writing Basic Skills to Grade in
First Nursing Course
Fall 1987 Program Enrollees

	Grade						
	A or B		C		D, F, or W		
	Number	Percent	Number	Percent	Number	Percent	P< 05
All Nursing Enrollees							
College Preparatory Needed	6	15.0	18	45.0	16	40.0	
Basic Skills Marginal	10	25.6	21	53.9	8	20.5	*
Basic Skills Adequate	30	49.2	23	37.7	8	13.1	
Total	46	32.9	62	44.3	32	22.8	
NUR 1021 Enrollees							
College Preparatory Needed	3	12.0	9	36.0	13	52.0	
Basic Skills Marginal	7	29.1	13	54.2	4	16.7	*
Basic Skills Adequate	11	50.0	9	40.9	2	9.1	
Total	21	29.6	31	43.7	19	26.7	
NUR 1022 Enrollees							
College Preparatory Needed	2	28.6	4	57.1	1	14.3	
Basic Skills Marginal	2	33.3	3	50.0	1	16.7	
Basic Skills Adequate	9	47.4	6	31.6	4	21.0	n.s.
Total	13	40.6	13	40.6	6	18.8	
NUR 1204 Enrollees							
College Preparatory Needed	1	12.5	5	62.5	2	25.0	
Basic Skills Marginal	1	11.1	5	55.6	3	33.3	
Basic Skills Adequate	10	50.0	8	40.0	2	10.0	n.s.
Total	12	32.4	18	48.7	7	18.9	

Table 3

Relationship of Mathematics Basic Skills to Grade in
First Nursing Course
Fall 1987 Program Enrollees

	Grade						
	A or B		C		D, F, or W		
	Number	Percent	Number	Percent	Number	Percent	P<.05
All Nursing Enrollees							
College Preparatory Needed	10	25.0	18	45.0	12	30.0	
Basic Skills Marginal	14	41.2	13	38.2	7	20.6	
Basic Skills Adequate	22	32.8	31	46.3	14	20.9	n.s.
Total	46	32.6	62	44.0	33	23.4	
NUR 1021 Enrollees							
College Preparatory Needed	5	25.0	6	30.0	9	45.0	
Basic Skills Marginal	5	27.8	6	33.3	7	38.9	
Basic Skills Adequate	11	32.4	19	55.9	4	11.8	n.s.
Total	21	29.2	31	43.0	20	27.8	
NUR 1022 Enrollees							
College Preparatory Needed	2	30.0	8	80.0	0	0.0	
Basic Skills Marginal	5	83.3	1	16.7	0	0.0	
Basic Skills Adequate	6	37.5	4	25.0	6	37.5	*
Total	13	40.6	13	40.6	6	18.8	
NUR 1204 Enrollees							
College Preparatory Needed	3	30.0	4	40.0	3	30.0	
Basic Skills Marginal	4	40.0	6	60.0	0	0.0	
Basic Skills Adequate	5	29.4	8	47.1	4	23.5	n.s.
Total	12	32.4	18	48.7	7	18.9	

Table 4

Relationship of Entering Basic Skills to First Term GPA in Nursing
Fall 1987 Program Enrollees

	College Preparatory Needed			Basic Skills Marginal			Basic Skills Adequate			
	Number in Group	Number Above 2.0	Percent Above 2.0	Number in Group	Number Above 2.0	Percent Above 2.0	Number in Group	Number Above 2.0	Percent Above 2.0	P<.05
All Nursing Enrollees										
Reading	59	40	67.8	22	16	72.7	60	55	91.7	*
Writing	40	27	67.5	39	30	76.9	61	54	88.5	*
Mathematics	40	26	65.0	34	30	88.2	67	55	82.1	*
NUR 1021 Enrollees										
Reading	38	25	65.8	9	5	55.6	25	24	96.0	*
Writing	25	16	64.0	24	19	79.2	22	19	86.4	n.s.
Mathematics	20	9	45.0	18	14	77.8	34	31	91.2	*
NUR 1022 Enrollees										
Reading	10	8	80.0	8	6	75.0	14	14	100.0	n.s.
Writing	7	6	85.7	6	5	83.0	19	17	89.5	n.s.
Mathematics	10	10	100.0	6	6	100.0	16	12	75.0	n.s.
NUR 1204 Enrollees										
Reading	11	7	63.6	5	5	100.0	21	17	81.0	n.s.
Writing	8	5	62.5	9	6	66.7	20	18	90.0	n.s.
Mathematics	10	7	70.0	10	10	100.0	17	12	70.6	n.s.

Table 5

Relationship of Entering Basic Skills to Returning for the Second Semester of Nursing (87-2)

	College Preparatory Needed			Basic Skills Marginal			Basic Skills Adequate			
	Number in Group	Number Returning	Percent Returning	Number in Group	Number Returning	Percent Returning	Number in Group	Number Returning	Percent Returning	P<.05
All Nursing Enrollees										
Reading	59	59	100.0	22	18	81.8	60	56	93.3	*
Writing	40	38	95.0	39	39	100.0	61	55	90.2	n.s.
Mathematics	40	39	97.5	34	32	94.1	67	62	92.5	n.s.
NUR 1021 Enrollees										
Reading	38	38	100.0	9	8	88.9	25	25	100.0	*
Writing	25	24	96.0	24	24	100.0	22	22	100.0	n.s.
Mathematics	20	19	95.0	18	18	100.0	34	34	100.0	n.s.
NUR 1022 Enrollees										
Reading	10	10	100.0	8	5	62.5	14	11	78.6	n.s.
Writing	7	6	85.7	6	6	100.0	19	14	73.7	n.s.
Mathematics	10	10	100.0	6	4	66.7	16	12	75.0	n.s.
NUR 1204 Enrollees										
Reading	11	11	100.0	5	5	100.0	21	20	95.2	n.s.
Writing	8	8	100.0	9	9	100.0	20	19	95.0	n.s.
Mathematics	24	23	95.8	9	9	100.0	4	4	100.0	n.s.

Table 6

Status in the Nursing Program After Two Years by
Level of Entering Reading Basic Skills
Fall 1987 Program Enrollees

	College Preparatory Needed		Basic Skills Marginal		Basic Skills Adequate	
	Number	Percent	Number	Percent	Number	Percent
Tota Enrollees						
Graduated	16	27.1	5	22.7	32	53.3
Enrolled with GPA >=2 0	31	52.5	11	50.0	21	35.0
Not Enrolled/GPA >=2.0	9	15.3	4	18.2	6	10.0
Enrolled with GPA < 2.0	2	3.4	0	0.0	0	0.0
Not Enrolled/GPA < 2.0	1	1.7	2	9.1	1	1.7
Total	59	100.0	22	100.0	60	100.0
NUR 1021 Enrollees						
Graduated	9	23.7	1	11.1	12	48.0
Enrolled with GPA >=2.0	21	55.3	6	66.7	10	40.0
Not Enrolled/GPA >=2.0	7	18.4	1	11.1	3	12.0
Enrolled with GPA < 2.0	1	2.6	0	0.0	0	0.0
Not Enrolled/GPA < 2.0	0	0.0	1	11.1	0	0.0
Total	38	100.0	9	100.0	25	100.0
NUR 1022 Enrollees						
Graduated	0	0.0	0	0.0	1	7.2
Enrolled with GPA >=2.0	8	80.0	4	50.0	10	71.4
Not Enrolled/GPA >=2.0	1	10.0	3	37.5	3	21.4
Enrolled with GPA < 2.0	1	10.0	0	0.0	0	0.0
Not Enrolled/GPA < 2.0	0	0.0	1	12.5	0	0.0
Total	10	100.0	8	100.0	14	100.0
NUR 1204 Enrollees						
Graduated	7	63.6	4	80.0	19	90.4
Enrolled with GPA >=2.0	2	18.2	1	20.0	1	4.8
Not Enrolled/GPA >=2.0	1	9.1	0	0.0	0	0.0
Enrolled with GPA < 2.0	0	0.0	0	0.0	0	0.0
Not Enrolled/GPA < 2.0	1	9.1	0	0.0	1	4.8
Total	11	100.0	5	100.0	21	100.0

Table 7

Campus Where Preliminary Courses Taken and Grade in First Nursing Course
Fall 1987 Program Enrollees

	Grade						Total	
	A or B		C		D, F, or W			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent of Group
Core Courses								
Other Campus	43	37.1	45	38.8	28	24.1	116	69.5
Medical Center	16	31.4	23	45.1	12	23.5	51	30.5
Anatomy and Physiology								
Other Campus	27	32.9	37	45.1	18	22.0	82	49.1
Medical Center	32	37.6	31	36.5	22	25.9	85	50.9
Microbiology								
Other Campus	2	35.5	25	40.3	15	24.2	62	37.1
Medical Center	37	35.2	43	41.0	25	23.8	105	62.9
Chemistry								
Other Campus	31	31.6	42	42.9	25	25.5	98	58.7
Medical Center	28	40.6	26	37.7	15	21.7	69	41.3

Note: None of the comparisons were statistically significant.

Table 8

Campus Where Preliminary Courses Taken and
First Semester GPA in Nursing
Fall 1987 Program Enrollees

	Number in Group	Number With GPA≥2.0	Percent With GPA≥2.0
	Core Courses		
Other Campus	116	91	78.4
Medical Center	51	39	76.5
	Anatomy and Physiology		
Other Campus	82	66	80.5
Medical Center	85	64	75.3
	Microbiology		
Other Campus	62	50	80.6
Medical Center	105	80	76.2
	Chemistry		
Other Campus	98	76	77.6
Medical Center	69	54	78.3

Note: None of the comparisons were statistically significant.

Table 9

Campus Where Preliminary Courses Taken and Enrollment for a Second Semester of Nursing (87-2)

	Number in Group	Number Returning	Percent Returning	P<.05
	Core Courses			*
Other Campus	116	112	96.5	
Medical Center	51	44	86.3	
	Anatomy and Physiology			n.s.
Other Campus	82	78	95.1	
Medical Center	85	78	91.8	
	Microbiology			n.s.
Other Campus	62	59	95.2	
Medical Center	105	97	92.4	
	Chemistry			n.s.
Other Campus	98	94	95.9	
Medical Center	69	62	89.9	

Table 10

Number of Repeats ir Preliminary Science Courses and Grade i. 'irst Nursing Course
Fall 1987 Program Enrollees

	Grade					
	A or B		C		D, F, or W	
	Number	Percent	Number	Percent	Number	Percent
No Repeats in Science Courses	43	46.3	35	37.6	15	16.1
1-2 Science Courses Repeated	9	21.4	24	57.2	9	21.4
3 or More Science Courses Repeated	7	21.9	9	28.1	16	50.0

Note: Statistically significant at P<.05 level.

Table 11

Number of Withdrawals from Preliminary Science Courses and Grade in First Nursing Course
Fall 1987 Program Enrollees

	Grade					
	A or B		C		D, F, or W	
	Number	Percent	Number	Percent	Number	Percent
No Withdrawals	34	49.3	23	33.3	12	17.4
1-2 Withdrawals	17	36.2	24	51.1	6	12.7
3 or More Withdrawals	8	15.7	21	41.2	22	43.1

Note: Statistically significant at P<.05 level.

Table 12

Number of Repeats in Preliminary Science Courses and
First Semester GPA in Nursing
Fall 1987 Program Enrollees

	No Repeats			1 or 2 Repeats			3 or More Repeats			
	Number in Group	Number Above 2.0	Percent Above 2.0	Number in Group	Number Above 2.0	Percent Above 2.0	Number in Group	Number Above 2.0	Percent Above 2.0	P<.05
NUR 1021	46	39	81.2	21	19	90.5	14	5	35.7	*
NUR 1022	24	20	83.3	13	11	84.6	5	3	60.0	n.s.
NUR 1204	21	20	95.2	8	5	62.5	13	8	61.5	*
Total	93	79	84.9	42	35	83.3	32	16	50.0	*

Table 13

Number of Withdrawals in Preliminary Science Courses and
First Semester GPA in Nursing
Fall 1987 Program Enrollees

	No Withdrawals			1 or 2 Withdrawals			3 or More Withdrawals			
	Number in Group	Number Above 2.0	Percent Above 2.0	Number in Group	Number Above 2.0	Percent Above 2.0	Number in Group	Number Above 2.0	Percent Above 2.0	P<.05
NUR 1021	37	31	83.8	23	21	91.3	23	11	47.8	*
NUR 1022	14	12	85.7	15	13	86.7	13	9	69.2	n.s.
NUR 1204	18	15	83.3	9	9	100.0	15	9	60.0	n.s.
Total	69	58	84.1	47	43	91.5	51	29	56.9	*

Table 14

Number of Repeats in Preliminary Science Courses and Enrollment for a Second Semester of Nursing (87-2)

	No Repeats			1 or 2 Repeats			3 or More Repeats			
	Number in Group	Number Enroll	Percent Enroll	Number in Group	Number Enroll	Percent Enroll	Number in Group	Number Enroll	Percent Enroll	P<.05
NUR 1021	48	47	97.9	21	21	100.0	14	13	92.9	n.s.
NUR 1022	24	19	79.2	13	11	84.6	5	5	100.0	n.s.
NUR 1204	21	20	95.2	8	8	100.0	13	12	92.3	n.s.
Total	93	86	92.5	42	40	95.2	32	30	93.7	n.s.

Table 15

Number of Withdrawals in Preliminary Science Courses and Enrollment for a Second Semester of Nursing (87-2)

	No Withdrawals			1 or 2 Withdrawals			3 or More Withdrawals			
	Number in Group	Number Enroll	Percent Enroll	Number in Group	Number Enroll	Percent Enroll	Number in Group	Number Enroll	Percent Enroll	P<.05
NUR 1021	37	36	97.3	23	22	95.6	23	23	100.0	n.s.
NUR 1022	14	11	78.6	15	12	80.0	13	12	92.3	n.s.
NUR 1204	18	16	88.9	9	9	100.0	15	15	100.0	n.s.
Total	69	63	91.3	47	43	91.5	51	50	98.0	n.s.

Table 16

Best Model for Predicting First Semester GPA in Nursing
Based on Stepwise Regression
Fall 1987 Program Enrollees

Source	d.f.	Sum of Squares	Mean Square	F	Prob>F
Regression	2	18.30	9.15	13.04	0.0001
Error	137	96.13	0.70		
Total	139	114.43			

Source	B Value	Standard Error	Type II SS	F	Prob>F
Intercept	2.44				
Reading Score	0.32	0.07	14.09	20.08	0.0001
Repeats in Science Courses	-0.04	0.02	2.11	3.01	0.0850

R^2=0.16

Note: The variables included for possible selection were entering basic skills scores in reading, writing, and mathematics, number of repeats in science courses, and number of withdrawals from science courses.

Table 17

Correlations Among Variables Used to Predict GPA
Fall 1987 Program Enrollees

	Cumulative GPA	Corrected Cumulative GPA	Reading Score	Writing Score	Math Score	Repeats in Science Courses	With-drawals in Science Courses
First-Term GPA	0.53	0.54	0.38	0.32	0.21	-0.20	-0.19
Cumulative GPA		0.97	0.28	0.30	0.25	-0.24	-0.20
Corrected Cumulative GPA			0.30	0.33	0.29	-0.37	-0.24
Reading Score				0.71	0.37	-0.16	-0.24
Writing Score					0.43	-0.20	-0.20
Mathematics Score						-0.30	-0.13
Repeats in Science Courses							0.28