Executive Summary

Naturopathic Doctoral Education: Projected Income Potential Compared to Growing Educational Debt Levels

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INTRODUCTION

BACKGROUND INFORMATION

National College of Naturopathic Medicine (NCNM) is an accredited four-year naturopathic medical school located in Portland, Oregon. It is the oldest naturopathic medical school in the US and Canada. Since its founding in 1956, NCNM has graduated 882 naturopathic physicians. The other accredited naturopathic medical colleges have fewer alumni. The American Association of Naturopathic Physicians, the organization which represents this profession, states there are 1500 naturopathic physicians graduated from the accredited institutions who practice, or may be eligible to practice, in the US and Canada. The current enrollment of these institutions will cause this number to double in the next five years.

NCNM grants the Master of Science in Oriental Medicine (MSOM) degree and the Doctor of Naturopathic Medicine (ND) degree, as allowed by the Oregon Office of Degree Authorization. The College's doctoral program in Naturopathic Medicine is accredited by the Council on Naturopathic Medical Education (CNME), a specialized accreditor recognized by the US Secretary of Education. The MSOM program is also a candidate for accreditation by the Accreditation Commission for Acupuncture and Oriental Medicine (ACAOM), also recognized by the US Department of Education. The College is in the process of seeking full accreditation. In June of 1998 the College was granted the authority to offer the Master of Science in Oriental Medicine (MSOM) degree and graduated its first class with the MSOM degree, a class of 11 students, 10 of which concurrently received the ND degree. Graduates of the MSOM Program are eligible to take both the herb and acupuncture exam administered by the National Certification Commission for Acupuncture Oriental Medicine, which many states use as a basis for licensure.

Naturopathic physicians receive four years of doctoral education at NCNM, studying a very full curriculum of traditional sciences, medicine, plus the additional therapies that belong to this profession. Students within the MSOM program pursue a full-time, three-year course of study. The College has developed a dual degree, six-year, full-time course of study for students who are concurrently admitted into both the ND and the MSOM programs.

DEFINITION OF PROBLEM

There is limited available income information for alumni of National College of Naturopathic Medicine. No institution, including NCNM, has published longitudinal statistical data on alumni income. Student federal loan indebtedness at graduation of NCNM students continues to increase. Without applicable income information, a cost benefit analysis for potential alumni of NCNM cannot be generated. Determination of loan repayment potential is dependent upon accurate income information.

NCNM students utilize loans available through the Federal Family Education Loan Programs. From these programs a student may borrow $18,500 per academic year with a lifetime borrowing limit of $138,000. Colleges facilitate the awarding and delivery of these federal loan funds to students. NCNM students typically demonstrate sufficient financial need to qualify for the maximum amount of these loans. In addition to these Federal Loans, qualifying students may also apply for work-study funds (at NCNM, $500 to $2000 per year, up to the institution's total federal work-study allocation). NCNM has no endowment fund, tuition discounts, or remission accounts to further assist students. The only other type of funds available for students at NCNM are Alternative Loans from private lending institutions. These loans have a higher interest rate than the federal loans and no deferment options; however, many students utilize these loans to meet the total cost of attendance. The cost of attendance is a standardized figure utilized for financial aid recipients and calculated by the financial aid office annually to include tuition, fees, books, living expenses and transportation.

Records to document student costs and indebtedness are available from the academic year 1992-1993 on. Table 1 specifies annual figures from the NCNM Financial Aid Office of the tuition rates, the cost of attendance, total student enrollment, percent of enrolled students utilizing financial aid and student indebtedness at graduation. The cost of attendance and tuition dollar figures specified in Table 1 are the annual mean for all program levels. The loan indebtedness, listed on Table 1, is the mean indebtedness of the members of NCNM's graduating class who received financial aid. All figures are from the statistics of the Naturopathic Doctorate program. Federal loans are not available for the MSOM program, which is currently seeking accreditation, so Table 1 reflects only figures for the ND program.

Table 1 presents the Cost of Attendance for all eligible students, demonstrating that most students eligible for financial aid would have established expenses to qualify for the maximum $18,500 amount of loans. Unless a student had a very high income and calculated expected contribution from that income, he/she would have been eligible for full loan amounts for every one of the seven documented years. Since 1993, the average student loan debt has grown at an average annual rate of 10.28%, while the tuition has grown at an average annual rate of 6.4%. Calculations utilizing the difference between the base year of 92-93 and the current year of 98-99 show the average cost of attendance has risen 35% and tuition has increased 45%. Within the same period of 92-93 to 98-99 the percent of students who used financial aid to attend school remains relatively stable, while the average student debt level at graduation has increased 73%.

TABLE 1
NCNM Annual Average Costs and Indebtedness of Students

Year	Tuition	Increased cost %	Cost of Attend	Total Students	Students with Aid	Average Debt	Increased percent
1992-93	$9,912	_____	$18,67	172	71%	$40,792	_____
1993-94	$11,100	11.9%	$19,77	178	73%	$43,180	5.8%
1994-95	$11,988	8.0%	$21,24	223	72%	$57,073	32.1%
1995-96	$12,825	6.9%	$22,07	250	79%	$60,185	5.4%
1996-97	$13,200	2.9%	$22,77	323	79%	$61,580	2.3%
1997-98	$13,800	4.5%	$24,12	380	82%	$75,581	22.7%
1998-99	$14,400	4.3%	$25,16	435	76%	$70,584	-6.6%

A current student pursing the ND degree only, who borrows the maximum federal loans each academic year including summers until degree completion, would accrue an approximate debt level of $80,166 upon graduation. Alternately, dual degree ND and MSOM students who borrow the maximum federal loan amounts to complete both degree programs in six years, including summers, will accumulate debt levels of $123,334.

PURPOSE OF STUDY

The purpose of this study is to gather data that will assist in answering the following questions:

(1) What monetary benefit should be expected of the Naturopathic Doctorate degree?
(2) Does the monetary benefit of the Naturopathic Doctorate change when the degree is utilized in combination with other professional medical degrees and licenses?
(3) Are there predictable variables that change the monetary benefit derived from the degree?
(4) Will the income earned by alumni provide compensation that will meet projected level of indebtedness?
(5) Is there a positive cost benefit ratio between the indebtedness accrued for programs offered by NCNM and the expected income levels of graduates?

RESEARCH METHODS

SUBJECTS:

The study population consisted of 778 graduate alumni from National College of Naturopathic Medicine for which the institution has accurate address information. Two sample groups comprised the total of 150 alumni chosen from a mailing list provided by the NCNM Alumni Relations Office. The first group was a random, stratified sample of 84 alumni who held the ND degree as their only professional degree. The remaining alumni were selected from two samples chosen as follows: 32 alumni who are licensed acupuncturists and hold the ND degree; 32 alumni who hold both the ND degree and a second professional degree. These 64 alumni are not samples, but compose the total number of alumni who fall within these groupings. The mailing yielded a total of 89 responses, 85 of which were usable, for a return rate of 59%.

INSTRUMENT:

The two-page, 41 question, survey instrument was developed on "Survey Pro 2.0" software. The first section, composed of 14 questions, was designed to give demographic information, including year of graduation, whether or not the alumni completed a residency, length of time in practice, state of practice, and professional medical degrees or licenses. Responses to the demographic questions also classified the alumni into one of three groups: 1) Alumni with only the ND professional medical degree; 2) ND degree and training that has allowed the alumni to become a licensed acupuncturist (LAc); 3) Alumni with the ND degree plus one or more additional professional medical degrees. The second section, composed of 17 questions, provided income information, type of employment, i.e. educational institution, group practice, and status of employment (employed full-time, retired, unemployed). The third section, composed of 10 questions, provided information concerning the alumni's loan debt. Surveys were color-coded to provide the gender of the respondent.

PROCEDURES:

APPROVAL PROCESS:

The University of Portland Human Subjects Review Department provided the final review process.

DATA COLLECTION:

During the winter quarter of 1999 the surveys (Appendix A) were mailed with a cover letter from the president of NCNM to explain the need for the information and the assurance of confidentiality. As an incentive a $1.00 bill was included with each survey. The survey packet also included a separate return stamped postcard for survey participants to request results and a stamped return envelope for the survey. A two-week deadline was given and non-respondents were then called as a reminder.

DATA ANALYSIS PROCEDURES

The survey, color coded for gender, collected information through the 41 survey questions. Employment status, gender, date of graduation, degrees earned, years in practice, and income were examined. Information concerning student indebtedness was collected from the 55% of those surveyed, who graduated with student loans. Responses were entered and coded into the Statistical Package for Social Sciences (SPSS) 8.0 software program on a desktop Pentium computer. Surveys were coded for the purpose of analysis, with no attempt to identify respondents.

RESULTS

Income level data relating to gender, degrees earned, employment status, time commitment, year of graduation, years in practice, and practice location in or out of the state of Oregon were compiled. Data were examined for significant differences in income levels in the three degree combinations of the survey population.

Table 2 presents by gender some of the demographic factors that will be analyzed. The rate of response from females was slightly higher than of males, even though the mailed survey was equally divided between males and females. However, the population percentages for gender were evenly disbursed in spite of the slight number variation in gender of respondents. The number of respondents from the State of Oregon was slightly higher than the number of respondents outside of the state. This is attributable to the higher percentage of graduates practicing in Oregon. The percentage of respondents with student loan debt was higher in the female population.

Table 2
Population Demographics by Gender

Gender	Male Freq.	Male %	Female Freq.	Female %
Total Population	37	43.5%	48	56.5%
Residency Training	7	18.9%	9	18.8%
In Oregon	21	56.8%	27	56.3%
Outside of Oregon	16	43.2%	21	43.8%
Group 1 - ND	19	40.4%	28	59.6%
Group 2 - ND + LAc	7	36.8%	12	63.2%
Group 3 - ND + other professional degree	11	57.9%	8	42.1%
Graduated with loan debt	12	32.4%	35	72.9%

Table 3 shows both gross annual income (before taxes), and net annual income (after taxes) by group. As demonstrated by the minimum and maximum figures, there is a wide variation within the income figures. For the incomes of this population, median income may be a better indicator in predicting financial benefit due to this wide variation, and the few respondents whose earnings were higher than the majority of the population. This table presents a mean gross annual income level of the entire population of approximately $107,565, which will be used in determining a cost benefit ratio in the discussion of results.

Also presented in Table 3 the ND/LAc group had a higher mean and median gross income level than did those in the other two groups. The members of group one, ND only, demonstrated lower incomes than both other groups. In statistical analysis and

review this was attributable to the fact that a large percent of the limited population of group two fell into the area of those who began practice from 1993 to 1998. Both the size of this population and the year in which they began practice limits projections from the demonstrated income levels.

To determine if there were any differences among the three degree categories (ND only, ND plus LAc, ND plus other professional medical degree), analysis of variance techniques were used. A linear regression equation was utilized to determine which variables are the key predictors for income. In calculating the linear regression there were several factors that clearly affected the income levels of the population as demonstrated in Table 3.

Table 3
Comparison of Mean and Median Incomes by Group

Income	Group 1 ND only N=47 (55%)	Group 2 ND/LAc N=19 (22.4%)	Group 3 ND/Other N=19 (22.4%)	Total Population N=85 (100%)
Gross - Mean	$93,397	$133,526	$111,882	$107,565
Median	$73,500	$108,000	$80,000	$85,000
Minimum	$17,500	$25,000	$25,000	$17,500
Maximum	$250,000	$450,000	$360,000	$450,000
Net - Mean	$41,181	$56,894	$56,816	$48,607
Median	$38,000	$50,000	$45,000	$41,625
Minimum	$10,000	$15,000	$12,000	$10,000
Maximum	$128,000	$140,000	$188,000	$188,000

Table 4 presents the population variables representing employment status and time commitment to practice. As would be expected, the largest percent of alumni are self-employed. The total numbers in employment status variables add up to greater than the 85 individual respondents, since several alumni marked more than one area of employment. Also as was expected, the largest majority of respondents worked full-time.

Table 4
Employment and Time Commitment to Practice

Employment Variables	Frequency	Percent
Self	69	81.2%
Group Practice	12	14.1%
Corporation	11	12.9%
Educational Institution	11	12.9%
Supplement Industry	1	1.2%
Time Working per Week	-----	------
Full-time (32 + hrs)	56	65.8%
Semi full-time (+24 hrs)	7	8.2%
Part-time (-24 hrs)	20	23.5%

Table 5 presents the income levels of those within the first six years of practice as quite different from those in practice for six to twelve years, or those in practice for over twelve years. The standard deviation signifies that approximately 68% of the population fell at the mean dollar figure plus or minus the deviation figure. For example, in the group of respondents who began practice between 1987 to 1992, 68% of this population have gross annual incomes that fall between $51,744 to $178,364. There are indications of great variations in the income levels in each group, as the standard deviations indicate. There was an overall Pearson Correlation with gross income and the variable "when began practice" of -.496 (significant at the .001 level). This indicates that approximately 25% of variance in income can be explained by length of time in practice.

Table 5
Income Levels by Year Began Practice Groupings

Began Practice	Annual Income	Number	Mean	Standard Deviation
Prior to 1987	Gross (Before Taxes)	26	$159,136	$104,795
	Net (Take Home)	26	$ 72,036	$ 40,619
Between 1987-1992	Gross (Before Taxes)	26	$115,054	$ 63,310
	Net (Take Home)	26	$ 46,909	$ 23,498
Began 1993-1998	Gross (Before Taxes)	33	$ 60,089	$ 40,554
	Net (Take Home)	33	$ 31,775	$ 23,526

The year in which the population began their practice was the single highest predictor of income. In all regression equations the variables regarding total years in practice, year began practice and/or year of graduation were significant in predicting the incomes of the sample population. To gain further clarification of this, a new variable marker was

created that broke the population into three groupings by year began practice. The three groupings were: (1) began practice prior to 1987; (2) began practice between 1987 and 1992; and (3) began practice between 1993 and 98. These population divisions fairly equally split the sample into thirds and demonstrated significance at the .001 level to gross income. The members of the population who began practice the longest ago earned the highest incomes. The greatest increase in net income occurred in comparing the group that began practice between 1987 to 1992 and the group that began practice prior to 1987. Gross income had the largest increase when comparing those who began practice between 1987-1992, and the group that began practice between 1993-1998. Gross income almost doubled, going from $60,089 to $115,054.

Students monthly loan payment appeared as a negative predictor of annual income in the equation. However, on closer examination this seemed to be due to the fact that the majority of the population with student loan debt also fell into the group of those who began practice from 1993 to 1998. In other words, most of these were more recent graduates who were practicing for a fewer number of years.

The most surprising predictor of monetary benefits for this population was gender. Males make an average of $30,000 a year more than females. Since the population was fairly evenly divided, which is a reflection of the current student body, differences in income cannot be attributed to numbers of respondents or number in practice. Time commitment to practice, that is 24 to 32 hours per week versus more than 32 hours per week, was not demonstrated as having any difference in income levels for this population. So one could not speculate that the fact that females may be committing less time to their practice could be a factor. Further study indicated that there was no statistical correlation between gender and gross annual income, even though the actual figures demonstrated a difference. This was shown to be due to the overall lifetime earnings by gender. Males in practice longer than 12 years demonstrated a continual decrease in income of approximately $700 a year. Females, on the other hand, had a continued rise in income over the years represented.

However, at the net income level (take home), males did not demonstrate a loss of income, and net income remained relatively stable, as the gross income levels of males decreased. So gender is a predictor of higher net income for the male population. It is possible to speculate about the unknown variables that contribute to this outcome, such as number of dependents and business overhead costs, but no actual answers can be determined from this data.

Pearson correlations were run on variables that might have impact on gross and net income. Table 6 presents the correlation matrix shows the coefficient figures between gross and net salary and 7 independent variables.

Table 6
Pearson Correlation Coefficient of Significant Independent Variables to Dependent Income Variables

	Grouping when began practice	Year grad. From NCNM	Total # years in continual practice	Original amount monthly loan pmt	Total student loan debt at grad	Debt reasonable for earning potential	ND and LAc grouping
Gross salary	-.526	-.390	.276	-.443	-.338	-.433	.463
Sig. 1-tailed	.001	.01	.05	.005	.05	.005	.001
Net salary	-.483	-.382	.296	-.321	-.326	-.474	.399
Sig. 1-tailed	.001	.01	.05	.05	.05	.001	.005

The variables "grouping when began practice," "year graduated from NCNM" and "total years in continual practice" all significantly indicate that the longer the person has been in practice, the higher the person's gross salary tends to be. (Correlations are -.526, -.390 and.276 respectively.) These three variables were understandably highly correlated with each other. "Year of graduation from NCNM" and "total # years in continual practice from all degrees" correlated with "grouping when began practice" (.896 and -.632 respectively). In building a model which could account for the variance in gross salary and also avoid multi-collinearity, we retained the variable which correlated most highly with gross salary, "grouping when began practice."

Both "original amount of monthly loan payment" and "total student loan debt at graduation" were significantly, negatively correlated with gross income (-.443 and -.338 respectively). Students with higher loan debts and higher monthly payments at graduation tended to make less than students with lower loan debts and payments. "Total student loan debt at graduation" and "original amount of monthly loan payment" were also highly correlated with each other (.881). Since "original amount of monthly loan payment" was more highly correlated with "gross income," it was retained for the model.

Finally, those who highly agreed that their loan debt at graduation was reasonable were more likely to have a higher income, and that those who disagreed that their loan debt at graduation was reasonable tended to have a lower income.

This left in our linear model, "original amount of monthly loan payment," "debt reasonable for earning potential," "grouping when began practice," and "licensed acupuncturist." The r-square on this model was .393, indicating that this grouping accounts for 39.3% of the total variance of gross salary.

An examination of correlations with net salary similarly shows that the longer the person has been in practice, the higher the person's net salary tends to be. In building a model that would account for the variance in net salary, we again retained "grouping when began practice," which had a correlation with net salary of -.483. We chose "total student loan debt" for our linear regression model over "original amount of monthly loan payment" because it had a slightly higher correlation with net salary (-.326 versus -.321).

We also placed in the model “licensed acupuncturist” and “debt reasonable for earning potential”, which correlated significantly with net salary (.399 and -.474 respectively). This resulting model resulted in an r-squarer of .367, accounting for 36.7% of the total variance of net salary.

DISCUSSION

IMPLICATIONS OF RESULTS

Income to debt ratios

To figure this ratio the median incomes of each of the groups was utilized against the current average indebtedness levels of the graduating class. The projected indebtedness levels for the degree programs, previously stated as $80,167 and $123,334, were also utilized against the median income. These figures are in Table 4.

From literature review on cost benefit analysis of student debt, the first model to be utilized will be from "Life After Debt" Baum and Saunders (1998). This method compared total indebtedness at graduation to total gross annual income. In the first six years of practice NCNM graduates will experience a great deal of burden repaying loans. However, the figures after year six demonstrate that students will be at a marginal level of cost to benefit ratio with an average 95% of total income to total debt. This figure goes well over this margin if students reach the projected loan amounts of $123,334 to 139%. According to Baum's research this would not be uncommon for professionals, but may cause student dissatisfaction with their education. It will definitely cause those who are indebted to these levels to delay some decisions and purchases in their life circumstances. According to the analysis of this data, the return on the investment of this population should occur after year six in practice, at which time the monetary benefit level would better meet the indebtedness of the student.

The second model used to discern cost benefit of debt to income is taken from "How Much Student Loan Debt Is Too Much? (Greiner, 1996)." This model takes the expected gross annual income, minus 20% for income taxes, divided by 12 months, equals the expected monthly income. Greiner states that 8% of this figure is reasonable for educational debt payments. Completing this calculation from the mean income level of the survey population, a reasonable loan payment for these alumni is approximately $575. Utilizing lender charts on current federal loans, interest rates and loan payments, this payment calculates back to a debt level of approximately $48,000 to $50,000 in original loan debt. This figure is quite close to the average indebtedness of the survey population, with a mean debt level of $53,946, but still a good deal less than the current average indebtedness of graduating students or the projected future indebtedness of alumni.

Both Greiner and Baum, however, stated that graduate students tended to utilize higher percentages of their monthly income for loan debt repayment. Baum stated that many alumni of professional programs demonstrated loan debt payments that were 15% of their monthly income, which the author felt was dangerously high. Greiner states that many doctoral level graduates had loan debt payments that were 19% of their income, and still found the debt manageable. For NCNM graduates this would calculate to a loan payment of $1363. Using this figure against lender charts and calculating back to the original loan amount would allow for an approximate indebtedness level of $111,094. This would indicate that most current NCNM graduates would be able to repay their debt, but may find this level burdensome until after year six. While these figures appear optimistic,

caution should be used, since the income levels of the surveyed population did not reach the desired dollar amount of $107,565 in the first five years. Therefore immediately after graduation many students may have reason for deferment or forbearance for some time, but probably not for the entire six years. Major purchases, such as cars and homes, may have to be delayed until a later time.

These outcomes will require disclosure to students, both prospective and ongoing, of the limited financial benefits of the program in light of their high levels of borrowing. While the benefits of the programs NCNM offers are much more than just monetary, individuals choosing to enter the programs should be fully informed on the exact nature of their investment. Both the monetary and internal benefits should be clearly delineated.

Development of co-curricular programs may also be called for to prepare students to deal with the high levels of debt. As a result of this research, discussion is underway to form a joint venture between the Financial Aid Office and Clinical Education to begin a program in the winter of 2000. This program would begin with the College notifying all matriculated students every year of their current total indebtedness levels, the loan payment for that debt, and the approximate income level required to comfortably support that debt. This will be followed by budgeting and practice building seminars offered during the winter quarter. This approach will help waylay any unpleasant surprises at graduation exit counseling and assist students in planning for those first five to six tougher financial years in practice.

RECOMMENDS NEXT STEPS FOR RESEARCH

This survey was limited to a random sample of the NCNM alumni population. The limited size of this population would warrant increasing this survey sample to include the entire alumni population for which NCNM alumni relations has valid addresses. The increased number of survey participants might offer clarification to the question of gender differences in income over the lifetime earnings of alumni. If a larger sample demonstrates the same tendency in income of males to decrease over a lifetime of earnings, while females continued to increase, then another survey to look at this issue would be warranted. Also the question of gender differences in net income (take home pay) could be addressed with additional questions about dependents and practice overhead costs.

Since the size of the total population of NDs is limited, it would make sense that all of the accredited colleges offering this degree conduct income research jointly. This type of research should be done on a longitudinal basis approximately every two years to provide better predictable figures for incoming students.

LIMITATIONS

The population outcomes are applicable to alumni of NCNM and possibly graduates of the Naturopathic Programs from the other accredited colleges of naturopathic medicine.

The income levels that will be projected by this study do not reflect current trends and possible future changes in the changing health care industry, as this profession gains acceptance and popularity in the market place.

CONCLUSION

Indebtedness concerns are clearly an issue for not only NCNM students, but also graduate students nation wide. As financial aid and program administrators, we have a great deal of concern about the current trends which asks graduate students to achieve their education through self help only; i.e. loans, savings and work. This seems to be causing students to borrow so heavily against future earnings potential that it will limit the ability of many to get a graduate level education. As the statistical calculations of this survey against research models indicate, NCNM alumni will take approximately 6 years to be able to more comfortably meet their monthly debt payment. In the very near future many of these students will leave school with so many loans that it will be 25 to 30 years before they are earning any more than they would have with just a Bachelor's degree due to the large loan payment. As that scenario becomes more prevalent it may be common to see many middle- and low-income students choosing to complete their education at the high school or Bachelors level. The US premier industry, post secondary higher education, may soon be populated by the children of societies wealthiest members and foreigners only. This is the exact scenario the higher education act was formulated to guard against.

To assure this concern is addressed at a nation wide level, NCNM and the other colleges of naturopathic medicine should participate in any and all national forums and research councils that are studying this problem further. It is difficult to envision a solution to this issue that can occur on a single campus level, let alone a small private non-profit such as NCNM.

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