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ABSTRACT

This study compared personality traits of students in five health professions. The Myers-Briggs Type Indicator was completed by 1,508 osteopathic students, 654 pharmacy students, 165 physical therapy students, 211 physician assistant students, and 70 occupational therapy students. Comparing the extrovert/introvert dimension revealed that pharmacy students were more likely to score as introverted whereas students enrolled in the four other health fields were more likely to score as extroverts. Pharmacy students were more inclined to use the sensing function, while a greater proportion of osteopathic students preferred the intuitive function. For the five health professions, there were no significant differences across the thinking/feeling dimension. On the judgment/perception construct, pharmacy students were likely to favor the perceiving function. The dominant profile for osteopathic and physician assistant students was ESTJ, meaning that they are practical, realistic, with a natural head for business or mechanics. The dominant profile for physical and occupational therapy students was ESFJ, meaning they are warm-hearted, talkative, and interested in things that affect peoples's lives. The dominant profile for pharmacy students was ISTJ, meaning they are serious, thorough, logical, and realistic. The results support the notion that people choose professions partially based on personality traits. (Contains 24 references). (SW)

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A Comparison of Osteopathic, Pharmacy, Physical Therapy, Physician Assistant and Occupational Therapy Students' Personality Styles: Implications For Education and Practice

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INTRODUCTION

Educational research and development efforts are most often directed at the improvement of teaching while neglecting students' learning styles (Dansereau, 1988). Besides being marginally effective, an exclusive focus on improving teaching methods may lead to reinforcement of inappropriate and nontransferable learning strategies. This has important considerations in pharmacy education given the importance of transferring classroom knowledge and skills to job situations.

Learning style is best understood as the composite characteristic cognitive, affective and physiological factors that serve as relatively stable indicators of how a learner perceives, interacts with, and responds to the learning environment. Learning style is a structure of neural organization and personality which both molds and is molded by human development and the learning experiences of home, school and society (Keefe & Monk, 1990).

Studies have demonstrated a relationship between academic performance and students who were taught in their preferred learning style (Wratcher, 1991). For example, Nelson et. al., (1993) found that college students who were assessed on their learning styles, received an interpretation of their strengths and weaknesses, and were provided instructional sessions on applying these strengths and weaknesses achieved significantly higher grade-point averages and higher retention rates than those students: (a) who were assessed on their learning styles and only received an interpretation of their strengths and weaknesses, and (b) those who received no learning style intervention.

Research has also demonstrated that students with specific personality styles, a basic structure of learning style, tend to choose particular professions (Mathews, 1992; Stewart & Felicetti, 1992). Mathews found that mathematics and humanities students were more independent and applied while education majors preferred social and conceptual situations

(Mathews, 1992). Even within a discipline differences in personality traits are evident. Stewart discovered a significant difference in personality between undergraduate marketing students pursuing degrees in sales or advertising and undergraduate marketing students pursuing degrees in marketing management (Stewart & Felicetti, 1992).

The health professions are no different. Research indicates a dominant personality style among students enrolled in medicine, nursing, pharmacy, physical therapy and dentistry programs (Schwartz & Shenoy, 1994; Combs, Fawzy & Daniels, 1993; Bradham, Dalme & Thompson, 1990; Garvey, Bootman, & McGhan, 1984; Rovezzi-Carroll & Leavitt, 1984;). In addition, research demonstrates that personality styles among health profession students tends to remain constant over time (Silberman, Freeman & Lester, 1992).

With differences in personality styles reported in other professions the question arises, "are there differences in personality styles between the health professions?" For example, is there a dominant personality style among nursing students which differs from that of pharmacy students? A review of the literature would indicate that differences in personality styles exist; however, different instruments with varying psychometric qualities were used making strong comparisons difficult. As such, this study is being undertaken to determine if differences in personality style exist between pharmacy and other health profession students. Such information would be valuable to educators who guide prospective students and to instructors who should adapt teaching methods to fit students' learning styles.

METHODOLOGY

This retrospective-descriptive study was designed to assess the personality traits of health profession students. The null hypothesis tested was, "there is no difference in personality traits between pharmacy, osteopathic, physical therapy, physician assistant and occupational therapy students."

The instrument used to survey the students was the Myers-Briggs Type Indicator (MBTI). The MBTI is a forced-choice, self-report personality inventory developed to measure variables in Carl Jung's theory of psychological type. The MBTI consists of 126 questions representing four underlying bipolar constructs: (1) Extroversion-Introversion (E/I), Sensation-Intuition (S/N), Thinking-Feeling (T/F), and Judgment-Perception (J/P). The four constructs are combined into a 'profile' of which 16 possibilities exist. For example, a person can have a profile type of ESTJ. Research has established evidence of the MBTI's validity and reliability (Harvey, Murray & Stamoulis, 1995).

The bipolar constructs are defined as follows: Extroverts (E) tend to focus on the outer world of people and things while Introverts (I) focus on the inner world of ideas and impressions. Sensors (S) focus on the present and on concrete information gained from senses while Intuitives (N) focus on the future with an emphasis on patterns and possibilities. Thinkers (T) base their decisions on logic and objective analysis while Feelers (F) base decisions primarily on values and subjective evaluations of person-centered concerns. Judgers (J) prefer a planned and organized approach to life while Perceptors (P) enjoy a flexible and spontaneous approach to life.

As part of a southern health science school's core curriculum, the MBTI is administered to physician assistant, physical therapy and occupation therapy students during the first semester of the first professional year, and to osteopathic and pharmacy students

during the first semester of the second professional year. The purpose of administering the MBTI is to give students insight into their specific learning and personality styles. Students are given class time to complete the MBTI.

Explanations of the MBTI as well as an opportunity to ask questions are presented to students before the MBTI is administered. Participation is voluntary and the results are confidential. After students have completed the MBTI, results are scored and returned to students with explanations; again, class time is used to present the results. For this study, nine years of data from osteopathic students (1988-1996), eight years of data from pharmacy students (1989-1996), four years of data from physician assistant students (1993-1996), and three years of data from physical therapy and occupational therapy students (1994-1996) were used in the analysis.

RESULTS

MBTI's completed by 1,508 osteopathic, 654 pharmacy, 165 physical therapy, 211 physician assistant and 70 occupational therapy students were used in the analysis. Demographic data are presented in Table I while Table II presents group personality preferences. The four group personality preferences were then grouped into 16 profile types. Table III shows the percentage of each profile type by discipline.

To answer the hypothesis: "there is no difference in personality traits between pharmacy, osteopathic, physical therapy, physician assistant and occupational therapy students." chi-square analyses were conducted. The analyses were calculated on the four bipolar constructs as well as the 16 profile types. Results are presented in Tables IV and V respectively. The relatively small number of occupational therapy students resulted in frequencies less than five for some of the profile types. This made statistical inference in some cases difficult.

A significant difference was found on the E/I dimension with pharmacy students ($p<.005$) more likely to be introverts and physician assistant ($p<.05$) students preferring the extroverted dimension. A significant difference ($p<..005$) was found on the S/N dimension. Pharmacy students ($p<.005$) preferred the S dimension while osteopathic students ($p<.005$) prefer to use intuition (N) to a greater degree. No statistical significant difference was discovered on the T/F dimension. A significant difference ($p<.10$) was discovered on the J/P dimensions with pharmacy students showing a strong J preference.

The chi-square analysis calculated on the 16 profile types (*chi-square*=135.77, *df*=60, $p<.005$) indicated the distribution of profile types was not homogenous across disciplines. To identify specific differences the chi-square analysis was decomposed to inspect for cell-specific contributions. On the basis of the contributions to chi-square, the profile types differed from what we would expect in a homogenous population. The decomposed chi-square analysis indicated the following: (1) osteopathic medical students are more likely to be INFP ($p<.10$), ISFJ ($p<.05$), and ENTP ($p<.005$); (2) pharmacy students are more likely to be ISTJ ($p<.01$) and ISFJ ($p<.005$); (3) physical therapy students are more likely to be ESFJ ($p<.005$) and less likely to be ISTP ($p<.10$); (4) physician assistant students are less likely to be ENTP ($p<.005$) and INFJ ($p<.05$), and more likely to be ESTJ ($p<.05$); (5) occupational therapy students are less likely to be ENFJ . ($p<.10$).

DISCUSSION

It is important to say clearly that there is no value judgment about any of the functions. For example, it is neither better nor worse to be a thinking (T) or feeling (F) type. In certain situations or contexts, however, each function possesses various advantages and disadvantages. The key is in recognizing this fact. Students or practicing health

professionals who are misplaced may find themselves suffering dissonance and/or high anxiety.

Comparing the extrovert/introvert dimension reveals that more pharmacy students are introverted. These findings are consistent with Lowenthall (1988) who also discovered, on a smaller sample, that the majority of pharmacy students are introverts (I). This has important considerations for education and pharmacy practice.

According to McCaulley about 75% of the population in the United States are extroverts (E); yet, the majority of pharmacy students in the study were introverts (I) (McCaulley, Macdaid & Kainz, 1985). The implications for education are mixed. Lowenthal & Meth (1989) found that introverts do not perform any better in school that extroverts. Rezler et al., (1975), however, reported that high achievers had preferred the introvert (I) dimension. Borg & Shapiro (1996) discovered that introverts (I) possessed a greater probability of achieving a higher grade than extroverts (E). This brings up an interesting question: are the requirements to gain admittance into pharmacy school and the rigorous curriculum filtering out extroverts or is the practice of pharmacy more appealing to introverts?

The large number of introverts may negatively affect future pharmacist-patient relationships. Nelson & Stake (1994) found a significant relationship between therapist MBTI scores and ratings of relationship quality. Specifically, when therapists scored higher on the extroversion (E) dimension both they and their clients rated the relationship more positive. This again brings up an engaging point: are the majority of practicing pharmacists introverts and if so, is this affecting the pharmacist-patient relationship?

Students enrolled in the osteopathic, physical therapy, physician assistant and occupational therapy programs possess, as groups, more extroverts. This may indicate that

they are better prepared to develop positive patient-professional relationships. This may also imply that extroverts are more attracted to, or accepted at a greater rate, into health professions perceived as more interactive.

A significant difference was discovered on the S/N dimension. Pharmacy students were more inclined to use the sensing function while a greater proportion of osteopathic students preferred the intuitive (N) function than would be expected. In terms of school performance, pharmacy students who prefer the intuitive (N) function have a tendency to score higher on timed multiple choice tests--SAT, PCAT and the NABPLEX (Lowenthal & Meth, 1989). On the other hand, medical students who prefer the sensing (S) function have an easier time passing the NBME exams. These disparate statistics may be a result of a need by sensors (S) to grasp the concrete world (Mann, Siegler & Osmond, 1995). Sensors (S) tend to perform better on objective measures while intuitives (N) display a greater proclivity for theoretical constructs.

In terms of field of practice, more intuitives (N) are attracted to the field of medicine and sensors (S) to pharmacy (Lowenthal & Meth, 1989; O'Donnell, 1982; McCaulley, 1978). In terms of work setting, significantly more sensors are in roles placing them in direct contact with patients (Howard, 1992). Intuitives (N), on the other hand, are more likely to be found in positions of administration, teaching and research (Howard, 1992). This may be due to the fact that sensors (S) are more competent at dealing with emergencies, and more proficient and accurate at diagnosing illness (Walton, 1986).

While the results in education are mixed, in practice a relatively clear trend emerges. Sensors (S) are more proficient at diagnosing and assume larger roles requiring this skill (McCaulley, 1977). In this study sensors were the dominant function across all health professions and the overwhelming number of pharmacy students are sensors (S). This may

indicate that pharmacists have an ideal personality to assume a larger 'hands-on' role through the implementation of pharmaceutical care programs.

Examining the five health science disciplines reveals no significant differences across the thinking (T)/feeling (F) dimension. Past research demonstrates that in education thinking (T) preferences tend to perform better in math and science (McCaulley, 1977). For instance, O'Donnell (1982) discovered that in medicine feelers (F) were less likely to pass the NBME exams and dropout at a greater rate. In terms of practice, however, Nelson & Stake (1994) found that feeler types develop superior patient-client relationships.

Implications for pharmacy practice are not entirely evident. In this study a nearly 50-50 split occurred. Due to the strong science-based curriculum clearly some type of thinking (T) function is required. On the other hand, to develop productive pharmacist-patient relationships, once in practice the feeling function might be emphasized.

A significant difference was discovered on the J/P construct with more pharmacy students preferring the perceiving (P) function than would be anticipated. The implication for pharmacy practice is quite striking. Most of the pharmacy students did not fit the caricature of the typical dispensing pharmacist who follows a set pattern. It is possible that perceivers (P) who end up in a dispensing role may experience a large degree of job dissatisfaction.

CONCLUSION

This study was undertaken to see if there was a difference in personality traits between pharmacy, osteopathic, physical therapy, physician assistant and occupational therapy students. Results indicate significant differences across the E/I, S/N, and J/P dimensions. Data also indicate a logical trend in profiles. Specifically, the study revealed the following: (1) the dominant profile for osteopathic and physician assistant students was

ESTJ--meaning they are practical, realistic, with a natural head for business or mechanics; (2) the dominant profile for physical and occupational therapy students was ESFJ--meaning they are warm-hearted, talkative, whose main interest is in things that affect people's lives; (3) the dominant profile for pharmacy students was ISTJ--meaning they are serious, thorough, logical and realistic.

The results lend support to the notion that people choose professions partially based on personality traits (Coombs, Fawzey & Daniels, 1993; ; Mathews, 1992; Stewart & Felicetti, 1992). This information could be used by educators to help guide prospective students into compatible careers or counsel students who are having a difficult time completing the curriculum. In addition, this information can help enlighten pharmacy, osteopathic, physical therapy, physician assistant and occupational therapy students about the differences in personality and how these differences may manifest themselves in the workplace.

This study was conducted in a large, urban, southern setting. Differences may exist in other locales. Nevertheless, the findings are notable and supported by past research. Future research in health science education and practice should concentrate on the effect personality has on the profession. Such questions as which MBTI profile defines the most satisfied practicing health care professional and does the admission process filter-out excellent candidates or are they self-selecting, need to be answered. Insightful and reasoned analysis will help make the professions stronger.

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Table I. Descriptive information of students

Gender and Age

Group	Osteopathic	Pharmacy	Physical Therapy	Physician Assistant	Occupational Therapy
Male	66.0%	44.0%	10.0%	39.0%	10.0%
Female	34.0%	56.0%	90.0%	61.0%	90.0%
Age	27.6%	25.2%	25.3%	28.4%	25.3%

Ethnicity

Group	Osteopathic	Pharmacy	Physical Therapy	Physician Assistant	Occupational Therapy
Asian	8.0%	12.0%	8.0%	5.0%	5.0%
Black	5.0%	5.0%	3.5%	3.0%	5.0%
Hispanic	11.0%	27.0%	8.0%	11.0%	7.5%
White	74.0%	53.0%	80.0%	78.0%	80.0%
Other	2.0%	3.0%	0.5%	3.0%	2.5%

Table II. Comparison of group Myers-Briggs personality preferences

Extrovert vs. Introvert

Preference	Osteopathic N=1508	Pharmacy N=654	P.T. N=165	P.A. N=211	O.T. N=70
Extrovert	58.7%	48.6%	67.3%	62.1%	62.9%
Introvert	41.3%	51.4%	32.7%	37.9%	37.1%

Sensing vs. Intuition

Preference	Osteopathic N=1508	Pharmacy N=654	P.T. N=165	P.A. N=211	O.T. N=70
Sensing	55.9%	64.8%	65.5%	71.0%	60.0%
Intuition	44.1%	35.2%	34.5%	29.0%	40.0%

Thinking vs. Feeling

Preference	Osteopathic N=1508	Pharmacy N=654	P.T. N=165	P.A. N=211	O.T. N=70
Thinking	55.4%	54.0%	46.1%	52.7%	48.6%
Feeling	44.6%	46.0%	53.9%	47.9%	51.4%

Judging vs. Perceiving

Preference	Osteopathic N=1508	Pharmacy N=654	P.T. N=165	P.A. N=211	O.T. N=70
Judging	57.1%	64.1%	64.8%	63.5%	48.6%
Perceiving	42.9%	35.9%	35.2%	36.5%	51.4%

P.T. = Physical Therapy
P.A. = Physician Assistant
O.T. = Occupational Therapy

Table III. Comparison of group Myers-Briggs personality profiles

Profile	Osteopathic N=1508	Pharmacy N=654	P.T. N=165	P.A. N=211	O.T. N=70
ISTJ	**11.0%**	16.0%	**12.0%**	**14.0%**	7.0%
ISFJ	6.0%	**12.0%**	6.0%	7.0%	9.0%
INFJ	4.0%	4.0%	2.0%	0.5%	0.0%
INTJ	4.0%	4.0%	2.0%	3.0%	4.0%
ISTP	4.0%	5.0%	1.0%	3.0%	3.0%
ISFP	3.0%	4.0%	4.0%	5.0%	3.0%
INFP	5.0%	3.0%	2.0%	2.0%	6.0%
INTP	4.0%	4.0%	3.0%	3.0%	6.0%
ESTP	6.0%	5.0%	6.0%	7.0%	7.0%
ESFP	5.0%	4.0%	7.0%	5.0%	**10.0%**
ENFP	**8.0%**	7.0%	7.0%	11.0%	**11.0%**
ENTP	7.0%	4.0%	4.0%	0.5%	6.0%
ESTJ	**13.0%**	**11.0%**	**12.0%**	**18.0%**	9.0%
ESFJ	7.0%	**8.0%**	**16.0%**	**12.0%**	**13.0%**
ENFJ	5.0%	4.0%	9.0%	5.0%	0.0%
ENTJ	7.0%	5.0%	6.0%	4.0%	7.0%

P.T. = Physical Therapy
P.A. = Physician Assistant
O.T. = Occupational Therapy

Table IV. Chi-Square Analysis for groups: MBTI personality preferences

Extrovert vs. Introvert

Preference	Osteopathic N=1508	Pharmacy N=654	P.T. N=165	P.A. N=211	O.T. N=70
Extrovert	885	318	111	**131** [c]	44
Introvert	623	**336** [a]	54	80	26

[a] Significant at p<.005: [c] Significant at p<.05

Sensing vs. Intuition

Preference	Osteopathic N=1508	Pharmacy N=654	P.T. N=165	P.A. N=211	O.T. N=70
Sensing	843	**424** [a]	108	149	42
Intuition	**665** [a]	230	57	62	28

[a] Significant at p<.005

Thinking vs. Feeling

Preference	Osteopathic N=1508	Pharmacy N=654	P.T. N=165	P.A. N=211	O.T. N=70
Thinking	835	353	76	110	34
Feeling	673	301	89	101	36

Judging vs. Perceiving

Preference	Osteopathic N=1508	Pharmacy N=654	P.T. N=165	P.A. N=211	O.T. N=70
Judging	860	**419** [d]	107	134	34
Perceiving	648	235	58	77	36

[d] Significant at p<.10

P.T. = Physical Therapy
P.A. = Physician Assistant
O.T. = Occupational Therapy

Table V. Chi-Square Analysis for groups: MBTI profiles

Profile	Osteopathic N=1508	Pharmacy N=654	P.T. N=165	P.A. N=211	O.T. N=70
ISTJ	169	**107** [b]	20	29	5
ISFJ	**96** [c]	**78** [a]	10	15	6
INFJ	63	23	3	**1** [c]	0
INTJ	63	28	3	7	3
ISTP	56	32	**2** [d]	7	2
ISFP	40	23	7	10	2
INFP	**78** [d]	21	4	5	4
INTP	59	24	5	6	4
ESTP	93	33	10	14	5
ESFP	72	28	12	11	7
ENFP	123	46	11	23	8
ENTP	**113** [a]	28	7	**1** [a]	4
ESTJ	197	70	20	**38** [c]	6
ESFJ	112	53	**27** [a]	25	9
ENFJ	74	29	15	11	**0** [d]
ENTJ	100	31	9	8	5

[a] Significant at p<.005: [b] Significant at p<.01 [c] Significant at p<.05: [d] Significant at p<.10

P.T. = Physical Therapy
P.A. = Physician Assistant
O.T. = Occupational Therapy

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