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Eating attitudes, personality, and career choice in medical students

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Abstract

Background: Past research looking at eating disorders and perfectionism has shown a strong relationship. Recent literature looking at the relationship between perfectionism and medical students has not been as evident. But studies looking at eating disorders and medical students have found that on average medical students exhibit more disordered eating attitudes.

Aims: The main objective of this study was to investigate the relationships between perfectionism, eating disorders, and career choices in medical students.

Methods: The EAT-26, Multidimensional Perfectionism scale, and specialty interest survey were given to 140 1st and 2nd year medical students (of whom 96 returned questionnaires, a 68% completion rate) at the University of New Mexico School of medicine.

Results: Of the 96 we found 25% of medical students exhibited disordered eating attitudes and/or symptoms by endorsing one of the four critical behavioral questions (N=15) or having an elevated raw score (N=9). Only approximately 50% of students noted their gender on the questionnaires. Among these we found a non-significant trend for females to have higher EAT scores than men. When compared to a previously reported undergraduate population, medical students had elevated levels of perfectionism on two of the three perfectionism subscales, specifically; self oriented and socially prescribed perfectionism. Finally, in the population we did not find any associations between career choices (primary care vs. technical specialty) and perfectionism scores.

Conclusions and significance: We can conclude that medical students on average exhibit higher disordered eating attitudes and/ or symptoms. This is consistent with

other studies that have shown the same relationship. Additionally, medical students do exhibit higher levels of perfectionism than undergraduates. This is especially true for perfectionism that is related to demanding strict self-standards and expectations and/or pleasing others. But it does not appear that perfectionistic medical students are more likely to enter a technical specialty. Finally, medical students that exhibit disordered eating attitudes do not exhibit more perfectionistic traits.

Introduction

The aim of this study is to assess the prevalence of eating disorders in a medical school population. Additionally, we will be assessing perfectionistic traits among medical students. The above research will build upon the literature to determine if medical students are, indeed, more perfectionistic than other community samples and if this perfectionism could be associated with the presence of eating disorder related characteristics or symptoms.

The prevalence of eating disorders in the general population is approximately 4% of all adolescent and young student females. Although much smaller, the prevalence of eating disorders may be increasing in males as well. (Saddock & Saddock, 2003). The category of eating disorders encompasses anorexia nervosa, bulimia nervosa, and a range of other disorder “not otherwise specified” including binge eating disorder.

Anorexia nervosa is “characterized by willful and purposeful behavior directed toward losing weight, weight loss, preoccupation with body weight, peculiar food patterns of handling food, intense fear about gaining weight, disturbances of body image, and amenorrhea .” (Saddock & Saddock, 2003, p.739). In order to cope with these concerns most patients with anorexia nervosa sharply reduce their caloric intake and many also develop a rigorous exercise program. Some also develop patterns of binge eating and/or purging.

Bulimia nervosa is defined as recurrent episodes of binge eating: a sense of lack of control over eating during the eating binges; self induced vomiting, the misuse use of laxatives or diuretics, fasting or excessive exercise to prevent weight gain; and persistent self evaluation unduly influenced by body shape and weight (Saddock and

Saddock, 2003). Thus a common theme in both anorexia nervosa and bulimia nervosa is a drive for some idealized notion of perfection of the body. Although many risk factors for eating disorders have been identified, the personality trait of perfectionism has consistently been shown to be present in a high percentage of women with eating disorders (Bastani, 1995, Bulik, 2003, Davis, 1997, Fairburn, 1999, Garner 1983, Halmi, 2000, Pratt, 2001, Vohs, 1999, Woodside, 2002). Studies reported in the early literature investigating perfectionism and eating disorders employed a uni- dimensional perfectionism scale to assess the relationship between perfectionism and eating disorder (Dally, 1969 & Halmi, 1979). Until the early 1990's most of the research literature relied on the small perfectionism scale embedded with in the Eating Disorder Inventory (EDI). The use of this scale helped lay the foundation for the development future multidimensional scales. Two multi dimensional perfectionism scales have been subsequently developed independently. The scales have been used to assess different traits of perfectionism associated with eating disorders (Frost, 1990 & Hewitt, 1991). Frost et al. (1990) developed a 35 item scale that identifies five dimensions of perfectionism: concern over mistakes, personal standards, parental expectations, doubts about actions, and organization, order, and precision. Hewitt and Flett (1991) developed a 45-item multidimensional perfectionism scale (MPS H & F) that distinguishes three types of perfectionism: self-oriented, other oriented and socially prescribed perfectionism. Both scales have been shown to be reliable and valid for identifying perfectionism (Frost, 1993 & Hewitt, 1991). Hewitt and Flett (1995) used the MPS H & F to assess the association between dimensions of perfectionism and eating disorder symptoms in 81 female college students. They found that socially oriented

perfectionism was associated with anorexic tendencies and attitudes, whereas socially prescribed perfectionism was related to eating disorder symptoms and self esteem. To build upon the previous data, Cockell et al. (1996) found that patients with anorexia nervosa or bulimia nervosa had elevated self oriented perfectionism and self perceived perfectionism as compared to normal controls, but the groups (anorexics and bulimics) did not differ from each other. To extend his research Cockell et al. (2001) investigated 21 women with anorexia nervosa against two control groups: a psychiatric population and normal controls. They used the MPS Hewitt and Flett and found elevated SOP and SPP scores in the anorexia nervosa group as compared to the overall psychiatric and normal control groups. Bastani et al (1995) used both MPS scales to assess perfectionism in 11 women with anorexia nervosa, 8 anorexics whose weight had been restored, and 10 controls without eating disorder symptoms. They found statistically significant differences between those with active anorexia nervosa and anorexics with weight restoration on both MPS scales, as compared to controls. As shown above, the use of perfectionism scales has gone from a general descriptor of perfectionism to studying the differences within perfectionism. Not only have relationships been shown between perfectionism measures and eating disorders, but also certain perfectionistic traits appear to be more correlated with the disorders than others.

To our knowledge, these associations have not been examined regarding medical students and perfectionism. Although it is generally assumed that perfectionistic traits are high in medical students, based upon the traits needed to become a doctor and to master a large quantity of new information in short periods of time, support from the

literature is lacking. A Pub Med search revealed only two articles that address the relationship between trait perfectionism and medical students. Henning et al (1998) compared 221 medical, 82 nursing, 72 pharmacy and 102 dental students. Contrary to their expectations, they found no significant differences between undergraduate and health professional's perfectionism scores. Those individuals who were very perfectionistic were found to be at greater risk for psychological distress. In addition, medical students who were exhibiting high levels of distress had higher socially prescribed perfectionism compared to controls. As a group (medical, pharmacy, dental, and nursing students) the health professionals were at a higher risk for psychological distress compared to controls; 27% were currently experiencing levels of psychological distress rated as clinically significant. In the second study, Enn et al (2001) compared 96 medical students and 289 art students and found that medical students showed a different perfectionism profile than the art students. Medical students showed higher levels of personal standards, lower doubts about actions, and lower maladaptive perfectionism scores. Additionally, a trend toward significance for higher adaptive perfectionism was demonstrated among medical students.

In one of the first studies to evaluate the prevalence of eating disorders and medical students Herzog et al (1995) found a 15% lifetime rate of bulimia nervosa or anorexia nervosa in 121 medical students, alarmingly elevated compared to the general population rate of 4%. In a follow up study to expand on Herzog's work, Szweda et al (2002) compared eating disorder scores between 112 medical, 235 nursing, and 185 undergraduate students. They found no significant differences between the groups eating disorders prevalence, although 19% of the medical students exhibited disordered

eating patterns. Those results are consistent with other studies that demonstrate elevated risk for eating disorders in medical students (Herzog, 1987, Futch, 1988). Barbar et al (2002) measured the prevalence of anorexic behaviors (a possible indicator of anorexia nervosa) in nursing and medical students, and found a 21.7% prevalence rate. Interestingly, 48.4% of the 180 students interviewed felt that their food intake decreased during examination time or periods of stress. Conceivably, the stresses associated with medical school could perpetuate a disordered eating pattern and bring the disturbance to the forefront.

In a study of the associations among stress, perfectionism and eating patterns, Ruggerio et al (2003) found that stress might stimulate behaviors related to eating disorders in individuals with a perfectionistic personality. The 42 female high school students completed the Eating disorder inventory and the Multidimensional perfectionism scale three different times: on an average school day, on the day of an examination, and on the day they received their evaluation of the exam. On the average school day there was not an association between perfectionism and drive for thinness, although concern over mistakes and parental criticism were associated with body dissatisfaction. On the exam day concern over mistakes and body dissatisfaction was the only significant relationship. But on the day the students received their evaluations a significant relationship occurred among concern over mistakes (perfectionism), drive for thinness and a highly significant relationship with body dissatisfaction. Although body dissatisfaction remained stable in all situations (stress and non-stress), drive for thinness became significant during a high stress situation.

From these results, they theorized that a stress situation might trigger abnormal eating and eating disorders in individuals with a perfectionistic personality.

To summarize, although there appears to be a relationship between psychological distress and elevated perfectionism, to our knowledge no prior studies have investigated the extent to which these relationships might be further associated with eating disorder symptoms in medical students. Therefore, the purpose of this study is to examine those relationships. This study will also compare the perfectionism scores we will examine in medical students with those of other student populations reported in the literature, to assess whether our sample of medical students is, on average, more perfectionistic than other student populations.

Aims and Hypotheses

AIMS: The overall aims of the study are to examine eating disorder symptoms, perfectionism trait scores, and their relationships in female and male medical students.

Hypotheses:

1. We hypothesize that female and male medical students will have higher perfectionism scores as measured by the Multidimensional Perfectionism scale than scores reported in the literature for undergraduates. We base this hypothesis on our assumption that medical students tend to be more perfectionistic based upon their career choice to become a doctor and the intensity of academic work necessary to gain entrance to medical school.
2. We hypothesize that a positive relationship will occur between elevated EAT-26 scores and perfectionism scores in medical students.
3. We hypothesize that perfectionism scores will be higher among students who see themselves headed for technical specialties and subspecialties rather than primary care fields of Medicine.

Methods

Participants

The study population included all first and second year medical students (not physician assistants students) currently enrolled at the University Of New Mexico Medical School. The only inclusion criterion is medical students and not the physician assistant students can complete the inventories. Currently, there are 146 medical students in the first and second year class.

Comparison group

The comparison group for the first hypothesis consists of 1106 university students (399 men and 707 women) from the University of New York. Hewitt and Flett (1991) surveyed this group to assess the multidimensional perfectionism scales validity. This control group has also been used in another study (Henning et al 1998) to compare perfectionism scores between health professional students and undergraduates.

Procedures

The surveys were administered to the class of 2010 and 2011 during normally scheduled activities. The participants were informed that completion of the surveys was voluntary and that their grades were not affected if they chose not to participate. The surveys were identified solely on the basis of an anonymous numbering system.

Measures

The Multidimensional Perfectionism scale was administered to assess trait perfectionism. The MPS is a 45- item scale that rates each question on a 7 point Likert scale (from strongly agree 7 to strongly disagree 1). The measure is divided into 3 subscales: Self oriented perfectionism (SOP), other oriented perfectionism (OOP), and

socially prescribed perfectionism (SPP). Self-oriented perfectionism is defined as attempts to be perfect in one's work and too regularly criticize one's performance. Other-oriented perfectionism is related to unrealistic standards for others and stringently evaluating others performance. Finally, socially prescribed perfectionism encompasses the views that others expect a great deal of you and will strongly criticize if you do not meet their standards. The MPS has been used extensively in research (Bastani, 1995, Davis, 1997 & 2000, Enns, 2001, Henning, 1998, Hewitt, 1995, Ruggerio, 2002). The three subscales have excellent internal consistency (Cronbach's $\alpha = 0.86, 0.82,$ and 0.87) and strong reliability over time ($0.88, 0.85,$ and 0.75) (Hewitt & Flett 1991).

Demographic

A demographic survey embedded in the MPS was used to gather information about gender and age.

Eating Attitudes Test (EAT – 26)

The EAT is a 26-item scale that assesses eating disorders symptoms. The EAT is comprised of three sections (A, B and C). Section A inquires about demographics. Section B contains 26 items relating to eating attitudes that include dieting (thirteen items), bulimia and food preoccupation (six items), and oral control (seven items). Each item is rated on a 6-point Likert scale ranging from "never" to "always." The most symptomatic answer receives a 3, the next adjacent receives, a 2 and so on. The three least symptomatic responses receive a 0. Section C consists of 4 yes or no behavioral questions about eating attitudes. Question1, 'Have you gone on eating binges where you feel that you may not be able to stop? (Eating much more than most people would

eat under the same circumstances)'. Question 2 asks 'Have you ever made yourself sick (vomited) to control your weight or shape?'. Question 3 'Have you ever used laxatives, diet pills or diuretics (water pills) to control your weight or shape?' Question 4, 'Have you ever been treated for an eating disorder?'. If one of the four questions is answered yes then inquiry about how many times in the last six months is requested. The EAT is for screening purposes and a total above 21 is a recommended cutoff and/or endorsing one of the behavioral questions in section C.

Results

One hundred and forty survey packets were distributed to the first and second year medical students at the University of New Mexico School of medicine. Ninety six people returned the packets, a 68% completion rate. Of the 96 respondents only 51 included demographics. Therefore, all gender analysis only included those who completed that portion of the demographics for a total N of 51 (Males =27, Women = 24). The average age of was 26.2 (range 22-34).

Of the 96 respondents, nine (9.4%) scored higher than 20 and 15 (15.6%) endorsed one of the behavioral items. Of the 15 endorsing one or more behavioral items, the most frequently endorsed item (N=11) was 'Have you gone on eating binges where you feel that you may not be able to stop?'. The second most frequently endorsed question was (N=5) 'Have you ever used laxatives, diet pills, or diuretics to control your weight or shape?'. Therefore, 24 (25%) of the responding medical students exhibited disordered eating attitudes and/or symptoms (Table 1). When examined by gender no significant differences emerged between men and women, but women tended to record higher

scores than males (Table 2). Using a Wilcoxon two sided t test for significance the mean score for males on the EAT was 22.3 and the mean for females was 30.1 ($p = 0.066$).

Seventy-seven of the 96 medical students completed the MPS, an 80% completion rate among respondents. MPS surveys were excluded from all analyses if 4 or more questions were not completed. There were 19 (20%) respondents that excluded four or more questions; therefore seventy-seven MPS surveys were included in our analysis.

Comparing our medical student respondents with the published undergraduate data, significant differences between the two groups were found on two of the three perfectionism subscales (SOP and SPP) (Table 3). For the SOP subscale, the mean score for the medical students was 64.62 (SD = 9.5) and for the undergraduates was 68 (SD=14.95) ($p = .005$). For the OOP subscale, the mean value for medical students was 56.85 (SD = 7.69) and for the undergraduates was 57.94 (SD= 11.74) ($p = 0.25$). Finally, for the SPP subscale, the mean value for the medical students was 59.68 (SD = 8.28) and the for the undergraduates was 59.68 (SD= 13.85) ($p = <0.001$). A raw score of 60 or above on any of the MPS subscale is deemed as elevated. Among our respondents 74% of medical students (N=57) scored over 60 on SOP, 36.4% (N=28) scored over 60 on OOP, and 50.6% (N=39) scored over 60 on the SPP.

Potential relationships between MPS subscales and EAT scores were examined within the medical student group using a t test. The EAT scores were divided into two groups (elevated vs. normal EAT scores). Elevated EAT scores included those subjects who

scored above 20 or endorsed one of the four behavioral questions at the end of the EAT. The three MPS subscales utilized were those described in the previous analyses. As stated previously, nineteen of the 96 excluded four or more questions on the MPS. Of the seventy seven completed MPS's, there were 61 normal EAT scores and 16 elevated EAT scores. Comparing these two groups we found no significant differences between groups on any of the perfectionism subscales (Table 4). For the SOP subscale, the mean score for the elevated EAT group was 63.6 (SE = 1.2) and 64.8 (SE=2.5) for the normal EAT group ($p = 0.65$). For the OOP subscale the mean score for the elevated EAT score group was 57.8 (SE=1.4) and 56.6 (SE=1.0) for the normal EAT group ($p = 0.46$). Finally for the SPP subscale, the mean score for the elevated EAT group was 61.2 (SE=2.4) and for the normal EAT group 59.3 (SE=1.0) ($p = 0.42$).

A medical specialty career choice survey was distributed to determine which fields of medicine medical students were contemplating. For our purposes primary care was defined as family practice, general internal medicine, and general pediatrics. All other categories were considered specialty choices. Ninety-six medical students completed the survey, of which 32% (N=31) endorsed an interest in primary care, 50% (N=48) in a specialty, with 17% (N=17) undecided (Table 5). Our last hypothesis between career specialty and perfectionism was analyzed using a t test. We looked at the different mean values on the three MPS subscales and compared the means between those students who were interested in primary care versus a specialty. We found no significant differences between groups on any of the MPS subscales (Table 6). On the SOP scale the primary care group had a mean score of 62.9 (SE=2.4) and the non

primary care specialty group had a mean score of 65.7 (SE=1.4) ($p = 0.28$). On the OOP scale the primary care group had a mean score of 57.8 (SE=1.6) and the non primary care specialty group had a mean score of 57.1 (SE=1.3) ($p = 0.76$). Finally, on the SPP scale the primary care group had a mean score of 59.2 (SE= 1.9) and the non primary care specialty group had a mean score of 59.6 (SE= 1.3) ($p = .87$).

Discussion

Based on general population surveys, estimates of the prevalence of eating disorders in the general population suggest an approximately 4% prevalence rate (Saddock and Saddock, 2003). Although one study has reported a rate as high as 15% among female medical students (Herzog, 1985). Research examining eating disorder rates among medical students is limited, but previous studies have shown that medical students consistently exhibit higher levels of abnormal eating attitudes when compared to controls (Barbar, 2002, Herzog, 1995, & Szweda 2002). In our study we utilized the EAT-26, a screening eating disorder inventory, to estimate the prevalence of abnormal eating attitudes within the first and second year medical students. Of the 96 students sampled, 24 (25%) had a score on the EAT that correlated with an abnormal eating attitude. In our sample the percentage of students with an abnormal eating attitude is higher than demonstrated in previous studies (Herzog, 1995 & Szweda, 2002). This can mostly likely be contributed to the breakdown of the EAT scoring within our sample. More than half of the students that were categorized as having an abnormal eating attitude endorsed one of the four behavioral questions at the end of the survey. The most frequently endorsed question inquired about eating binges and the inability to stop eating. Although this does indicate a problem with consumption of food it is more

normative than an elevated raw score on the questionnaire itself. Endorsement of this question is more concerned with the control of intake rather than an abnormal view of eating and/or dieting. The question then arises why are medical students more prone to a skewed view of eating? It could be situational, in that, those subjects who are prone to an eating disorder are now expressing those traits because of the high stress and demand of medical school. This has been demonstrated in a previous study that students under stressful situations exhibit eating disorders more readily (Ruggiero, 2003).

Another interesting finding in our study, was a non significant gender difference on the EAT, although women did exhibit higher scores than their male counterparts. It is consistently reported that in general, females are more likely to have a problem with eating disorders than males (Saddock and Saddock, 2003). Our results could be attributed to a low completion rate of the demographics portion on the MPS. In fact, we could speculate that if more subjects had completed this portion, the observed trend of significance would have been, indeed, been significant.

The multidimensional perfectionism scale examines three trait dimensions of perfectionism: Self oriented perfectionism, other oriented perfectionism, and socially oriented perfectionism. Self oriented perfectionism(SOP), is an intrapersonal dimension where one expects perfection from self. Therefore, the perfectionistic behaviors are derived from self and directed toward self. The main characteristic in SOP is a strong motivation to be perfect. Other oriented perfectionism (OOP), is the opposite, these individuals expect perfectionistic behaviors from others. And finally, socially prescribed perfectionism (SPP) is an interpersonal dimension of perfectionism that involves

meeting the standards and expectations prescribed by significant others. Previous literature looking at the relationship between medical students and perfectionism has not shown consistent results (Henning, 1998 & Enn, 2001). In our study, medical students scored significantly higher than undergraduates on two of the perfectionism subscales. More specifically, self prescribed and socially prescribed perfectionism. As described earlier, self prescribed perfectionism entails strict self standards, while socially prescribed perfectionism entails adhering to standards and expectations set forth by significant others. Those individuals with these particular perfectionistic traits may be selected for during the medical school application process. In that, admission requirements and committees may favor students who set very high standards for themselves and are able to maintain those standards. Secondly, becoming a doctor is looked upon by society and family as a tremendous achievement, therefore, acceptance in to medical school could satisfy expectations set forth by significant others (parents, spouses, extended family, etc). Although, it appears that these traits could be attributes to medical school success, it has been demonstrated that both of these perfectionistic traits may be associated with other disorders. For example, it has been proposed that individuals with SOP may have higher rates of depression and eating disorders (Hewitt and Flett, 1993). This could be attributed to the cognitive thinking of SOP individuals. Individuals with SOP focuses on their flaws and past failures, rather that on their successes and/or strengths. They tend to over generalize perceived failures, which then creates a great deal of stress because they have not maintained their own perfectionistic goals and standards. Additionally, these individuals engage in more than

average amounts of self-criticism and self punishment. Therefore, it is important to identify these medical students and monitor them for depression.

Individuals with SPP base their self worth on meeting perceived expectations and standards. They believe that attaining these goals will win acceptance and caring from others. They have tremendous fear of rejection and looking foolish. Because they have these strong interpersonal concerns, it has been proposed that these individuals may have more social relationship difficulties (Hewitt and Flett, 2002).

Individuals with the combination of SOP and SPP may be prone to severe psychological difficulties, including eating disorders, depression and suicidal tendencies (Hewitt and Flett, 2004). They are pulled in two directions, the first is their own unrealistic standards and the second is their perceived standards set by others. Therefore, they have a tendency to always feel inadequate. Although there appears to be concerns associated with high levels of perfectionism, our results need to be looked at cautiously due to our small sample and representative size.

Previous literature has shown that individuals with eating disorders have more perfectionistic tendencies (Bastani, 1995, Bulik, 2003, Davis, 1997, Fairburn, 1999, Garner 1983, Halmi, 2000, Pratt, 2001, Vohs, 1999, Woodside, 2002). Therefore, we looked at the relationship between eating attitudes and perfectionism in medical students. Interestingly, we did not find any relationship between eating attitudes (normal or disordered) and perfectionism scores. This is interesting because it is contrary to previous studies.

Finally, we looked at medical career choices and perfectionism scores. A previous Pub med search did not produce any previous studies looking at this topic. The only

published literature examines gender differences in choosing a medical specialty, which indicated that men consistently pick technical specialties and female choose primary care jobs. Our population did not demonstrate any significant differences between perfectionism and career choices. We initially hypothesized that medical students who exhibited more perfectionistic traits would choose a technical specialty. The major limitation in our study is the perfectionism scale we utilized. The MPS examines broad categories of perfectionism rather than individual traits. For example, a perfectionism scale developed by Frost (1990) looks at more specific traits including, concern over mistakes, and doubts about actions, organization and precision. These perfectionistic traits would appear to be more relevant to career choices rather than the three broad perfectionism categories we utilized.

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Table 1 EAT scoring break down

EAT score	N	Endorsed behavioral question	Did not endorse behavioral question
Above 20	9	6	3
Below 20	87	15	72

Table 2 Gender and EAT total score

Gender	EAT score	P value
Male (N= 27)	22.3	.066
Female (N= 24)	30.1	

Table 3 Perfectionism scale scores and student populations

Perfectionism scale	Medical Students score	Undergraduates score	P value
Self oriented	64.62	68.00	.005
Other oriented	56.85	57.94	.25
Socially prescribed	59.68	59.62	.001

Table 4 Perfectionism scale scores and EAT groups

Perfectionism Scale	Elevated EAT (N=61)	Normal EAT (N=16)	P value
SOP	63.8	64.8	0.65
OOP	57.8	56.6	0.46
SPP	61.2	59.3	0.42

Table 5 Career Choices

Specialty	Frequency	Percent
Primary Care	31	32%
Technical Specialty	48	50%
Unknown	17	17%

Table 6 Career choice and perfectionism scale scores

Perfectionism Scale	Primary Care (N=22)	Technical Specialty (N=40)	P value
SOP	62.87	65.69	0.28
OOP	57.76	57.13	0.76
SPP	59.22	59.61	0.87

