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Influence of Eysenckian Personality Traits in Choice of Specialization by Young Omani Doctors

Mohammed Al-Alawi[1]*, Hamed Al-Sinawi[2], Salim Al-Husseini[1], Samir Al-Adawi[2], Sathiya Murthi Panchatcharam[3], Sahar Khan[1] and Lakshmanan Jeyaseelan[4]

[1]Psychiatry Residency Training Program, Oman Medical Specialty Board, Muscat, Oman
[2]Department of Behavioral Medicine, College of Medicine and Health Sciences, Sultan Qaboos University, Muscat, Oman
[3]Studies and Research Section, Oman Medical Specialty Board, Muscat, Oman
[4]Department of Statistics and Health Information, Sultan Qaboos University Hospital, Muscat, Oman

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ABSTRACT

Objectives: The role of personality in occupational specialty choices has been explored in many parts of the world. To our knowledge, there is a dearth of such studies in the Arab/Islamic population and Oman is no exception. This study aimed to explore the relationship between personality traits and specialty choice among residents of Oman Medical Specialty Board (OMSB). ***Methods***: A cross-sectional study was carried out among Omani resident physicians working under OMSB. The Eysenck Personality Questionnaire–Revised was employed to quantify personality subtypes (e.g., psychoticism, extraversion, and neuroticism). Specialties were categorized as surgical, medical, and diagnostics as per standard of North American medical specialties. A total of 255 residents in 17 medical specialties participated in the study (m = 40.4%; f = 59.6%) of 300 eligible subjects giving a response rate of 85.0%. ***Results:*** Respondents who had chosen surgical specialties scored significantly higher on the psychoticism subscale than those who had opted for medical and diagnostic specialties. As for individual specialties, orthopedic respondents had statistically significant higher mean scores on psychoticism and neuroticism compared to radiologists and psychiatrists who scored the lowest in the two personality traits, respectively. ***Conclusions:*** This study found statistically significant associations between personality traits and choices of specialty by young Omani doctors. We recommend more detailed studies that examine further psychological and cultural variables that are likely to affect the choices of specializations by young Omani professionals in both medical and non-medical fields.

Eight centuries ago, Jalāl ad-Dīn Rūmī asserted, "Everyone has been made for some particular work, and the desire for that work has been put in every heart".[1] In modern psychological parlance, we may paraphrase his assertion to read: "People's personality types and motivations strongly influence their career choices". Modern empirical research validates Rūmī's intuition because youth worldwide are seen to prefer careers that match their personality types.[2] Studies further suggest that workers' personality factors will continue to influence how they experience and respond to their work demands.[3,4]

Recently, researchers have studied the link between personality and career choices among medical professionals. Sievert et al,[5] examined the personality-related factors that motivated young people to seek a career in medicine and choose a specialty in the Midwestern United States. They administered the Temperament and Character Inventory to 169 medical residents. The results showed that residents with an "investigative" personality were likely to choose internal medicine or pathology, those with a "commanding" personality appeared to prefer surgery, while the "rescuers" chose emergency medicine. The "dependable" sought pediatrics while the "compassionate" chose psychiatry. In another US study, Borges et al,[6] administered the 16 Personality Factors Questionnaire to 161 resident physicians. Higher scores in "tough-mindedness" were strong predictors of career choices in surgery, anesthesiology, and family practice. In Saudi Arabia, Mehmood et al,[7] examined the role of personality in the occupational specialty choice using the Zuckerman-Kuhlman Personality Questionnaire among 590 medical students. They found that distinct externalization and internalization temperaments among the students may have a direct bearing on

*Corresponding author: ✉alalawim@squ.edu.om

their occupational specialty choices. Pawełczyk et al,[8] explored temperament traits using the Behaviour-Temperament Inventory among medical students in Poland. Significant personality differences were found in the indices of "emotional reactivity" and "endurance and briskness" between students who preferred a surgical or nonsurgical specialty. The surgical group received higher scores on "endurance and briskness" while the nonsurgical group scored higher in "emotional reactivity".

Bexelius et al,[9] employed the Big Five Inventory to determine traits such as extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience among 399 respondents undergoing specialty training. Surgeons endorsed lower scores in agreeableness compared to physicians in primary care, internal medicine, and hospital services. On the other hand, psychiatrists and hospital service physicians scored lower in conscientiousness compared with surgeons.

There is an abundance of studies on the role of personality in occupational specialty choices,[2] and they indicate a significant correlation between personality types and specialty choices. However, there is limited knowledge on the personality profiles of the medical profession in Arab/Islamic countries and on how they are related to their specialty choices with a few exceptions.[7]

This study aimed to examine the role of personality in the occupational specialty choice among Omani medical residents. Specifically, we explored the relationship between personality traits and specialty choice among residents enrolled in different training programs under the auspices of the Oman Medical Specialty Board (OMSB).

METHODS

This was a cross-sectional observational study conducted between March and August 2015. The subjects were residents enrolled in OMSB training programs (n = 389). Eighty-nine residents were excluded because they were either busy with their exit examinations or were on sick leave. Using OpenEpi computer program the optimum sample size was estimated to be 250 respondents with a type-1 error of 5% (alpha = 0.05), 95% level of significance. Three hundred residents agreed to participate in this study.

Respondents completed the Eysenck Personality Questionnaire–Revised (EPQ-R) while they were attending the mandatory workshops organized by OMSB. All respondents were assured in writing that their participation would be anonymous and voluntary, that the data gathered would be aggregated, and they could withdraw from the study at any time. If undue distress was experienced by the respondents while responding to sensitive questions, counseling support would be provided. The respondents were asked not to discuss the questions among themselves to avoid peer influence.

For brevity, specialties were grouped into surgical, medical, and diagnostic as done in literature from the North American population.[8] In the second model of comparison, individual specialties with more than 10 residents participating in the study were compared according to the four personality traits.

The EPQ-R is a self-administered Likert-type scale that measures three major dimensions of personality.[10] EPQ-R has 100 items that require "yes" or "no" answers. The EPQ-R measures the following traits: extraversion (E scale); neuroticism (N scale); psychoticism or sensation seeking (P scale); and control–lie (L scale), which determined whether one present oneself in a favorable way while answering item of the instrument. EPQ-R has been validated in various populations, and its application has been noted in Arab/Islamic countries.[10,11,12–15] The calculated reliability (Cronbach's alpha) of EPQ-R in our sample was 0.71.

Data analysis was conducted using IBM SPSS for Windows, (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Armonk, NY: IBM Corp) version 22.0. Continuous variables were summarized as mean ± standard deviation (SD). The one-way analysis of variance (ANOVA) with post hoc analysis was used to find the relationship between personality traits and certain specialties. A p-value of < 0.050 was considered statistically significant.

Informed consent was collected from all participants. Ethical approval was granted by the OMSB Research Ethics Committee and the College of Medicine and Health Sciences at Sultan Qaboos University, Muscat, Oman (MREC#1058).

RESULTS

A total of 260 respondents returned the EPQ-R of whom five were excluded because of non-consent, returning uncompleted questionnaire, or revealing that their current specialty was not their first choice.

Table 1: Demographics and specialty characteristics of the respondents according to gender.

Variables	Gender		
	Male (n = 103) n (%)	Female (n = 152) n (%)	Total (n = 255) n (%)
Level of training			
R1	52 (50.5)	69 (45.4)	121 (47.5)
R2	20 (19.4)	24 (15.8)	44 (17.3)
R3	31 (30.1)	59 (38.8)	90 (35.3)
Age, years			
25–30	90 (87.4)	132 (86.8)	222 (87.1)
31–35	13 (12.6)	20 (13.2)	33 (12.9)
Residency program			
Anesthesia	3 (2.9)	4 (2.6)	7 (2.7)
Child Health	15 (14.6)	21 (13.8)	36 (14.1)
Dermatology	2 (1.9)	3 (2.0)	5 (2.0)
Ear, Nose, and Throat Surgery	7 (6.8)	6 (3.9)	13 (5.1)
Emergency Medicine	4 (3.9)	11 (7.2)	15 (5.9)
Family Medicine	10 (9.7)	21 (13.8)	31 (12.2)
Hematopathology	3 (2.9)	1 (0.7)	4 (1.6)
Histopathology	1 (1.0)	2 (1.3)	3 (1.2)
Internal Medicine	18 (17.5)	27 (17.8)	45 (17.6)
Microbiology	-	4 (2.6)	4 (1.6)
Obstetrics and Gynecology	-	19 (12.5)	19 (7.5)
Ophthalmology	4 (3.9)	4 (2.6)	8 (3.1)
Oral Maxillofacial Surgery	1 (1.0)	2 (1.3)	3 (1.2)
Orthopedics	14 (13.6)	-	14 (5.5)
Psychiatry	6 (5.8)	11 (7.2)	17 (6.7)
Radiology	6 (5.8)	9 (5.9)	15 (5.9)
Surgery	9 (8.7)	7 (4.6)	16 (6.3)

R1: first-year resident; R2: second-year resident; R3: third-year resident.

The net response rate was thus 85.0% (255/300). The distribution of age, year of residency, and specialties are presented in Table 1. Overall, 47.5% of respondents were first-year residents (R1), 17.3% were second-year residents (R2), and 35.3% were third-year residents (R3). About 87.1% of the respondents were aged between 25–30 years.

Around 18% of the residents were from internal medicine, 14% from child health, 12% from family medicine, and 37% belonged to surgical specialties.

Table 2 presents the mean (± SD) of all the trait scores by surgical, medical, and diagnostic specialties classification. The mean psychoticism trait score of 6.5±2.5 for surgical specialties was significantly higher than that of medical and diagnostic specialties (5.7±1.9 and 5.4±1.7, respectively; $p = 0.008$).

Table 3 presents the mean (± SD) of each trait score according to all specialties, which had more than 10 respondents. The mean psychoticism trait score (8.1±3.5) was significantly higher among orthopedic residents compared to those from other specialties ($p = 0.005$). Radiology respondents scored the lowest mean score of 4.9±1.7 on the psychoticism scale. On the neuroticism scale, orthopedic respondents scored statistically higher than other specialties (11.1±5.1, $p = 0.041$), whereas psychiatrists had the lowest mean score (5.5±3.7).

DISCUSSION

Eysenck proposed that human personality is composed of three main domains: extraversion, neuroticism, and psychoticism.[16] Extroversion is marked by the need for external stimulation, which in turn triggered by the low threshold arousal of the reticular formation.[16] The phenotypical presentation of extroversion is outgoing, talkative, and includes other forms of externalization behavior. Neuroticism is parallel to the melancholic personality type often characterized by emotionality. Psychoticism is conceptually similar to the impulsivity and sensation-seeking with all the features of egocentrism and non-conformism. There is empirical support for orthogonality of extroversion and neuroticism.[16]

Table 2: Mean (± SD) for the personality traits derived from the Eysenck Personality Questionnaire–Revised of residents collapsed into surgical, medical, and diagnostic specialties.

Personality traits	Surgical (n = 95)	Medical (n = 134)	Diagnostics (n = 26)	*p*-value
Control scale	10.8 ± 3.6	11.6 ± 3.3	10.7 ± 3.1	0.165
Extroversion	12.7 ± 4.3	11.8 ± 4.1	12.6 ± 3.9	0.205
Psychotism	6.5 ± 2.5	5.7 ± 1.9	5.4 ± 1.7	0.008
Neuroticism	9.3 ± 5.4	8.5 ± 5.4	8.8 ± 4.7	0.552

SD: standard deviation.

Table 3: Personality trait scores derived from the Eysenck Personality Questionnaire–Revised of all specialties with an adequate number (n ≥ 10) of respondents in each specialty.

Specialties	Extroversion	Control Scale	Psychoticism*	Neuroticism*
Child Health (n = 36)	11.6 ± 4.0	11.8 ± 3.2	5.5 ± 1.7	8.2 ± 5.0
Ear, Nose, and Throat (n = 13)	12.6 ± 3.6	10.8 ± 3.3	6.2 ± 1.4	9.7 ± 5.0
Emergency Medicine (n = 15)	14.5 ± 4.6	9.6 ± 3.9	6.5 ± 2.8	10.5 ± 5.0
Family Medicine (n = 31)	11.2 ± 4.2	11.1 ± 3.4	5.6 ± 1.9	9.0 ± 6.1
Internal Medicine (n = 45)	12.5 ± 4.1	12.0 ± 3.1	5.8 ± 2.0	9.7 ± 5.3
Obstetrics and Gynecology (n = 19)	12.7 ± 3.8	12.1 ± 3.1	5.5 ± 1.3	7.5 ± 4.2
Orthopedics (n = 14)	13.3 ± 4.4	9.7 ± 3.6	8.1 ± 3.5	11.1 ± 5.1
Psychiatry (n = 17)	10.9 ± 4.6	11.1 ± 4.1	6.2 ± 1.8	5.5 ± 3.7
Radiology (n = 15)	10.7 ± 4.0	10.5 ± 3.9	4.9 ± 1.7	9.9 ± 5.0
Surgery (n = 16)	12.7 ± 4.8	11.0 ± 3.5	6.0 ± 2.3	7.2 ± 3.9

**p-value < 0.050.*

Studies of Eysenck's personality dimensions have been conducted in various populations. However, there is a dearth of literature on Eysenckian dimensions among medical specialties, albeit with a few exceptions.[17] Therefore, this study attempted to address two interrelated themes. The aim of this study was to compare endorsement of residents of surgical, medical, and diagnostic specialties. Specifically, the study examined whether there were differences in trait scores among surgical, medical, and diagnostic specialties. The score for psychoticism trait was higher in the surgical specialties when compared to others. Previous studies have examined personality profiles using International Personality Item Pool of the Big Five Factor Marker (FFM) of surgical trainees in the UK, who scored high in the indices of neuroticism,[18] a finding contradictory to us. It is possible that FFM solicited different aspect of personality compared to Eysenck's dimensions.

The second step to address the hypothesis of the study was to explore whether there were differences in trait scores among individual specialties (for this analysis 10 specialties with more than 10 residents). The first Eysenck's dimension that became statistically significant was psychoticism. Radiology residents scored low in psychoticism, suggesting that the cohort might have a tendency for reclusiveness, quietness, and unassertiveness. In contrast, psychoticism was noted to be high among orthopedic residents.

The second dimension that was statistically significant was neuroticism, which was found to be lower among psychiatry residents and highest among orthopedic residents. This suggests that residents in orthopedics may have higher levels of negative effects, such as depression and anxiety, which are largely absent in psychiatrists. Alternatively, it is possible that psychiatry residents, being more exposed to psychometric testing principles, may have inadvertently become "test-wise".

Despite the fact that other studies have used different personality assessment inventories to investigate the relationship between personality factors and career choice, some of their results do support the present finding. A high psychoticism trait reflects qualities like assertiveness, egocentricity, achievement, orientation, and not being concerned with conforming to the views of others.[9,19–22] This trait probably fits with the functional requirements of surgical treatment, which relies on the technical and manual skills of the surgeon. Furthermore, this trait is essential in surgery, which often requires making critical decisions regarding life or death. Conversely, radiology residents scored the lowest in psychoticism traits as opposed to orthopedic residents. This finding could indicate the importance of radiologists being open-minded and concerned with other's opinions, as they are often required to handle their colleagues' overwhelming demands.[23]

These types of studies are often marred by limitations. The most obvious limitation of our study was the uneven number of respondents from some specialties. This resulted in suboptimal statistical power. To circumvent these constraints, we collapsed the specialties into surgical, medical, and diagnostic. On the second level of analysis, those specialties with less than 10 respondents were excluded from analysis.

The second limitation is derived from the fact that this study employed a self-rated scale which is likely to have social desirability bias. The presently used instrument, EPQ-R, is equipped to detect social desirability via 'Control scale' or 'L-Scale'. The L-Scale is out of 9. As detailed elsewhere,[24] those who score 5 or more are prone to fall prey to social desirability bias. Indeed, this study showed elevated L-scale scores. Future studies should, therefore, be equipped to reduce the high desirability observed. On the other hand, rather than interpreting L-Scale to solicit social desirability bias, Jackson et al,[25] have indicated that "elevated lie scores may reflect some other characteristic".

Thirdly, the assumption underpinning the present study is a link between personality and career choice. This resonates with the idea that personality determines the profession we will thrive. However, it is possible some respondents have taken specialties that were not their first choice. To overcome such a limitation, this study selected only those respondents who admitted their specialty was their first choice. The fourth limitation could be related to a conceptual issue. This study only focuses on personality. Some studies have indicated there is more to occupational specialty choice than personality. For example, Buddeberg-Fischer et al,[26] suggested that career motivation and life goals are stronger predictors of occupational specialty choices than temperament. Sievert et al,[5] concluded that 'plasticity and resilience of physicians' were more important for their life satisfaction than matching personality to the prototype of a particular specialty. Therefore, future studies ought to include other variables such as career satisfaction and performance appraisal in examining the trajectory of occupational specialty choice.

CONCLUSION

This study aimed to investigate possible associations between personality traits and choice of specialty among Omani doctors enrolled in different specialty programs. Although there were no distinctive personality profiles unique to a particular specialty, certain personality traits were found to feature prominently in some specialties. In this study, respondents from surgical specialties, especially orthopedic, scored significantly higher in psychoticism, while radiologists scored the lowest. Respondents from psychiatry program had the lowest neuroticism score. Our findings support the hypothesis that there is an association between personality traits and certain specialty choices among young Omani doctors. The present findings have the potential to help future research into mechanisms to improve both the training and selection of medical students into various respective specializations. However, further studies are needed to address other factors determining the choice of certain specialty among young Omani doctors. Future studies could also incorporate other disciplines with subspecialties (such as engineering) for gaining further insights into the connection between personality and career choice.

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