The Role of Personality and Some Demographic Factors on Empathy among Medical Undergraduates in the South-West of Nigeria

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ABSTRACT

The issue of medical doctors not possessing empathy for the patients in the country (Nigeria) is quite alarming. This has been found to influence the willingness to seek health care and also the compliance and adherence of patients to treatment; yet not much research has been done to look into this problem. The study therefore investigated the influence of personality, religious affiliation, gender and age on empathy among medical undergraduates in Nigeria. An expo-facto research design was employed, and using purposive and accidental sampling techniques, a total of 295 medical students (144 males and 97 females) with age range between 16 and 41 years (Mean = 22.72; SD = 3.82) were selected as participants in the research. One hypothesis was formulated and tested with hierarchical regression analysis. The result revealed that agreeableness (β = .17; t = 2.61; p< .01), conscientiousness (β = 0.22; t = 3.52; p<0.01) and neuroticism (β = -.16, t = -2.58, p< .05) significantly predicted empathic behavior among the undergraduates, while extraversion and openness to experience did not. Age also predicted empathy (β = -0.13; t = -1.98, p<.05) in an inverse relationship implying the younger students were more empathic. Similarly, religious affiliation predicted empathy (β = -0.17, t = -2.50, p < 0.01). All variables of study accounted for 14% variation in the prediction of empathic behavior among Nigerian medical undergraduates. Based on the findings, it was recommended among others that individualized intervention strategies based on personality traits should be integrated into programs to enhance empathy in medical education.

1. Introduction

The fact that other people have experiences can easily be understood theoretically. In contrast, to experientially understand consciousness outside of one's own is far more difficult. However, if one succeeds in experientially grasping the subjectivity of another person, this can be a remarkable experience that, by incorporating a new subjective world, literally expands one's own. The vast majority of philosophers and psychologists have regarded Empathy as a kind of understanding of another person's thoughts and feelings. It is fairly common that those who view empathy as a kind of understanding argue that others who speak about empathy as benevolence or concerns have blurred the distinction between understanding and caring. In many contexts, it is certainly reasonable to distinguish between understanding something and caring for it, but when it comes to the empathy phenomenon this may not be true. According to Eager (2010) and Rogers (1957) "It is impossible accurately to sense the perceptual world of another person unless you value that person and his world - unless you in some sense care". Moreso, it is often recognized that empathy is the phenomenon that connects otherwise isolated individuals (Barrett-Lennard, 1997; Davis, 1983).

The quality of medical care is influenced not only by technical skills but also by the interpersonal sphere (Larson & Yao, 2005).

Empathy greatly contributes toward facilitating the construction of interpersonal relationships in a helping context (Reynolds & Scott, 1999). It has been shown that in the health care field, patients may experience some outcomes when exposed to empathic treatment from physicians. Among the established results, it is possible to find an increase in the effectiveness of medical treatment through enhanced patient engagement in the process. Once practitioners begin to act empathically, patients are more likely to provide information, seek clarifications, and take an interest in acting as collaborators in their own treatment, which is reflected in their willingness to take medications, attend follow-up appointments, and make lifestyle changes (Bayne, Neukrug, Hays, & Britton, 2013). Empathy is an essential element in medical practice, which promotes positive physician-patient communication and is associated with improved patient satisfaction, treatment adherence and clinical outcomes.

While the construct of empathy has been construed as an anchoring and adjustment process, temporary state, or a stable personality trait, authors have recently conceptualized empathy as a complex multidimensional socio-emotional competency, which consists of both cognitive and affective components. Davis (1983) submitted that it can be analyzed taking a multidimensional approach and has been referred to as a construct that embraces the affective and cognitive domains, thereby reflecting on behavior.

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The cognitive domain refers to the capacity to understand another person's situation, or, in other words, to see the world from the perspective of another person. On the other hand, the affective domain is the ability to share this other person's feelings. In the clinical context, the cognitive component of empathy includes the physician's ability to understand the patient's perspective and select counseling and treatment accordingly, whereas the affective component is widely referred to as empathetic concern or sympathy, which includes the ability to recognize the patient's affect and respond with an appropriate emotion.

The importance of both the cognitive and affective components of empathy in medical practice has highlighted the necessity of medical schools to create a climate conducive to fostering empathy in medical students. Therefore, recent studies examining empathy in medical students have called greater attention to the potential importance and need for educators to implement curriculum changes designed to promote or slow the decline of empathy among medical students. The majority of previous studies on empathy in medical students have examined their levels of empathy throughout medical school using cross-sectional or longitudinal analyses.

Given the importance of empathy for the quality of the physician-patient relationship and its potential to influence patient treatment outcomes, many studies investigate the association between empathy and biopsychosocial variables among the medical population. The capacity to demonstrate empathy which has also been defined by (Formiga, Rique, Galvao, Camino, Mathaias, Mederios 2011) as the responses of one individual to the observed experiences of another varies according to biological and psychological traits. Previous findings on empathy amongst the medical population are inconsistent (Hasan, Al-Sharqawi, *et al.*, 2013; Hojat Zuckerman, *et al.*, 2005). In studies on personality, the Five-Factor Model (FFM) is broadly accepted due to its universal reliability. The FFM is based on evidence that there is a common human personality structure that can be divided into five dimensions or traits. These dimensions are usually referred to as Neuroticism (N), Extraversion (E), Openness to experience (O), Agreeableness (A), and Conscientiousness (C). Each of these dimensions includes a large set of more specific traits or facets (McCrae & Costa, 1997). Based on the Five-Factor Model (FFM or the Big Five), personality traits are hierarchically organized into five broad domains, consisting of extraversion, agreeableness, conscientiousness, neuroticism and openness to experience. The FFM has accumulated a compelling body of empirical support and has been validated in many cultures and universally accepted as a basis for comparing, contrasting and integrating diverse sets of personality traits. Big five traits have also been linked with behaviors, affective experiences and cognitive processes across the lifespan and cultures. It has been shown that agreeableness and openness to experiences were positively associated with empathy among Portuguese medical students (Song & Shi, 2017). Higher levels of empathy were also found to be correlated with higher sociability and lower aggressive-hostility among first-year medical students. Agreeableness was also shown to be the most important predictor of empathy across cultures among both college-age and adult samples since it is primarily a dimension of interpersonal behavior that represents the quality of social interaction (O'Tuathaigh, 2019)

There is documented evidence that agreeableness, which represents the tendency of being altruistic, tender-minded, cooperative, helpful and sympathetic, is responsible for communal and pro-social behavior, or behavior beneficial for others (O'Tuathaigh, 2019). Thus, it seems likely that agreeableness is substantially correlated with empathy, in particular, empathic concern, which reflects other-oriented emotion of helping others in need or feeling responsibility and concerns for the well-being of other people. Also, neuroticism, characterized by an inappropriate level of emotional arousal and negative emotions such as anxiety, depression and self-consciousness, shares many core features with personal distress which reflects the self-centered feelings of discomfort and anxiety when others are distressed. Furthermore, openness, especially its facet of attentiveness to inner feelings, may be expected to have positive associations with cognitive empathy, which implies the ability to understand the internal states including the thoughts, feelings, or intentions of other people. In addition, conscientiousness was also revealed to have predictive value for empathy.

Considering age and gender, studies on medical students have found that women show more empathy than men (Bylunda & Makoul, 2002; Hojat, Gonnella, *et al.*, 2002a). Osman (2011), along with many others, found that in general women are more empathetic towards victims of rape than men. Rueckert and Naybar (2008) found women to be more empathetic compared to men. Klein and Hodges (2001) found women performed significantly better than men on a measure of empathic. Also, Moe (2009) indicated that females perform better than males improved their performance on the task. Thus, changing the information given to participants prior to the task can reduce gender differences in tasks that are stereotypically associated with one gender. Contrary to this, Dar-Nimrod & Heine, (2006) found no gender difference between genders on empathy.

In their study, O'Brien, Konrath, Gruhn and Hagen (2012), found age to predict empathy. Their study revealed that older women are more empathic than men of the same age and than younger or older people. According to Kunzmann, Wieck, and Dietzel, (2018), there is a difference between age group on empathic behaviour. Richter and Kunzmann, (2011) stated that older adults generally reported and expressed greater empathy. However, a study by Wieck and Kunzmann, (2015) found that younger and older women's empathic accuracy did not differ in empathic behaviour. Bingha, Zhenbing, Wenwen and Weijian (2018) stated that correlation between age and empathy is not clear, with prior findings yielding mixed and inconsistent results.

Based on religious affiliation, Ayten, (2013) found that there is an important relationship between religiosity and providing- help behavior, between religiosity and empathic disposition. Zhao (2012) adds that it is not religion per se that influences the altruistic behavior, but rather the moral foundations that may or may not be an attribute of religious people. Decety, Cowell et al., (2015) showed that most religious parents reported greater empathy than those less religious. Huber and MacDonald (2012) mentioned that empathy is positively related both with nonreligious spirituality and religiosity, and negatively religious individuals.

The issue of medical doctors not possessing empathy for the patients in the country (Nigeria) is quite alarming. This has been found to influence the willingness to seek health care and also the compliance and adherence of patients to treatment. According to El-Mallakh and Findlay (2015), the treatment outcomes usually are negative because of this Communication between physicians and patients is usually

physician-centered amongst other negative attributes displayed by the physicians, all which have implication for patients' care and their satisfaction in the country. Death sometimes is inevitable because of these physicians inability to demonstrate empathy towards their patients. Previous studies have suggested personality traits should be taken into consideration in programs designed to enhance empathy in medical education before they become full-fledged physicians; this due to the association found between personality and empathy among medical students. They also see the need in determining the personality type among those seeking admission into medical colleges to ensure the suitable ones are considered. The associations between empathy and big five personality traits in medical education are still underrepresented in the existing literature in Nigeria, relevant studies have not been conducted among medical students in a situation where tensions in the physician-patient relationship have been reported as an outstanding problem. It is hoped that this study will fill in the gap.

In view of the foregoing, the research questions asked in this study are: Do medical undergraduates in Nigerian have ability to show empathy for their patients? What influence do personality traits, age, gender and religious affiliation have in the ability of these students to display empathy? One hypothesis was also generated.

1.1 Hypothesis

Personality traits, age, gender and religious affiliation will significantly predict empathic behavior among Nigerian medical students.

2. Method

2.1 Research Design and Participants

An ex post-facto research design was adopted. Setting was residential halls and lecture theatres for medical undergraduates of University Teaching Hospital, Ibadan Oyo State and University of Lagos Teaching Hospital, Lagos State, both in South-west of Nigeria, which really could be representative of what happens in the whole of the nation. A combination of purposive and accidental sampling technique was employed to select two hundred and forty one (144 males and 97 females) participants with age range of 16 and 41, and mean age 22.72±3.82. Majority 162(67.2%) of the respondents were Christians, 59 (24.5%) Muslims, while 20(8.3%) are engaged with other forms of religion.

2.2 Instrument

Personality traits were measured using Big Five Inventory Scale (BFI) developed by Rammstedt and John, (2007). The 10 items scale rated on a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5) was designed to measure the true description of how individuals see themselves. Items include "I see myself as someone that is reserved" and "I see myself as someone that has an active imagination". The scale has five subscales: Extraversion (.87), Agreeableness (.74), Conscientiousness (.84), Neuroticism (.88) and Openness (.79). This study found the reliability coefficient of .46 for extraversion, .65 for agreeableness, .60 for conscientiousness, .69 for neuroticism and .65 for openness. The measure was interpreted such that highest score on the traits for an individual is what they are labeled with or described as. **Empathic Behaviour** was measured using Jefferson Scale of Physician Empathy developed by Hojat and Gonnella (2011). This 16-item instrument was developed to measure attitudes or orientation toward physician-pharmacist collaborative relationships. The scale is measured on a 5-point Likert scale (from 1 = strongly disagree to 5 = Strongly Agree). Item includes "Patients feel

better when their physicians understand their feelings" and "I believe that empathy is an important therapeutic factor in medical treatment". The reliability coefficient (the Cronbach α coefficient of internal consistency) for the Jefferson Scale of Patient's Perceptions of Physician Empathy was 87. This study had reliability coefficient of .83. Those whose scores tend towards the high extreme of the continuum of the scale are regarded as being high on empathy and vice-vasa.

2.3 Procedure

Consent of each teaching hospital management was obtained before administration of the self-reported questionnaire to the medical undergraduates in their respective residential halls and lecture theatres. Since the questionnaire was not lengthy, their support was solicited to fill immediately. Participation was voluntary and confidentiality assured as names were not required. Purpose of research was also explained. Only the participants that consented participated in the study. A total number of 250 questionnaires were administered, 247 retrieved and 241 found usable for data analysis.

2.4 Data Analysis

Pearson Product Moment Correlation was used and hypothesis tested using hierarchical regression Analysis.

3. Results

3.1 Test of Relationships among the Study Variables

Table 3.1. Correlation Summary Showing the Relationships among the Study Variables

Variables	1	2	3	4	5	6	7	8	9
1. Age	1								
2. Religion	.18**	1							
3. Gender	-.24**	-.02	1						
4. Extraversion	-.01	.08	.01	1					
5. Agreeableness	.00	-.09	.02	-.08	1				
6. Conscientiousness	-.02	-.30**	.00	-.13	.21**	1			
7. Neuroticism	-.11	.08	.03	-.02	-.12	-.26**	1		
8. Openness	.00	-.26**	.10	-.12	.12	.18**	.06	1	
9. Empathic behavior	-.16*	-.25**	.07	.02	.17**	.22**	-.16*	.11	1
Mean	22.72	-	-	5.93	6.85	6.69	5.60	6.62	58.34
SD	3.82	-	-	2.15	1.74	1.89	1.80	1.80	10.44

Note: ** p < 0.01, * p < 0.05, N=241

3.2 Test of Hypotheses

Table 3.2. Summary of Hierarchical Multiple Regression Analysis Showing the Influence of Personality traits, Age, Gender and Religion on Empathic Behavior among Nigerian Medical Students

Models	β	t	R	R²	ΔR²	df	F	ΔF
Step 1			.30	.09	-	5, 230	4.52**	-
Extraversion	.02	.32						
Agreeableness	.17	2.61*						
Conscientiousness	.22	3.52**						
Neuroticism	-.16	-2.58*						
Openness	.11	1.75						
Step 2			.38	.14	.05	8, 227	4.70**	4.64**
Extraversion	.06	1.02						
Agreeableness	.12	1.91*						
Conscientiousness	.12	1.72						
Neuroticism	-.13	-1.94*						
Openness	.05	71						
Age	-.13	-1.98*						
Gender	.04	.59						
Religion	-.17	-2.50*						

Note: **p < .01, * p < .05, N= 241

The same variables that were found to be correlated to empathic behaviour also predicted it. The first step of the regression model indicated the prediction of empathic behaviour by personality traits. Agreeableness had a positive significant influence on empathic behavior among medical

undergraduates (β = .17; t = 2.61; p< .01), meaning that as agreeableness increases among medical undergraduates, empathic behavior also increases. Conscientiousness had a positive significant influence on empathic behavior among medical undergraduates (β = 0.22; t = 3.52; p<0.01), implying increase in empathic behavior as conscientiousness increases. However, neuroticism significantly and negatively predicted empathic behavior among the medical undergraduates (β = -.16, t = -2.58, p< .05). This was such that as neuroticism reduces, empathic behavior increases. Extraversion and openness to experience were not significant predictors as revealed in the study. Further observations revealed that personality traits jointly contributed 9% of the variance in empathic behaviour among the medical undergraduates. [R = .30, R^2 = .09; F (6, 234) = 3.75, *p*< .01].

In the second step of the model, age gender and religion were added and it was noted that age predicted empathy negatively (β = -0.13; t = -1.98, p<.05); empathic behaviours increase with decrease in students' age. Gender was not significant, however, religion did (β = -0.17, t = -2.50, p < 0.01). It was also noted that all variables of the study significantly a variance of 14% contribution to empathic behaviour. [R= .38, R^2= .14, F(8, 227)= 4.64, p < .01]. Based on the significant prediction of empathic behaviour by religion, One-Way ANOVA was conducted. The result is presented below.

Table 3.3. One-Way ANOVA Showing the Influence of Religion on Empathic Behaviour

Source	SS	df	MS	F	p
Between Groups	2144.59	2	1072.30	10.64	< .01
Within Groups	23995.83	238	100.82		
Total	26140.42	240			

The result indicated significant influence of religion on empathic behaviour among the medical students [F(2, 238)= 10.64, p < .01]. Post hoc scheffe test was also conducted for the mean difference.

Table 3.4. Post-hoc Scheffe Test Showing the Mean Difference in the Levels of Religion on Empathic Behaviour

Religion	Mean	SD	N	1	2	3
1. Christianity	59.65	10.76	162	-		
2. Islamic	58.02	8.83	59	1.64	-	
3. Others	48.70	6.67	20	10.95*	9.32*	-

Note: * Mean Difference is significant at 0.05

The mean scores showed that Christian medical students experienced the highest empathic behaviour (M=59.65; SD=10.76). This was followed by the Muslim students (M=58.02; SD=8.83). The least were those that were affiliated with other forms of religion (M=48.70; SD=6.67).

4. Discussion

The study was designed to examine the influence of personality traits, gender and religion on empathic behaviour among medical undergraduates in South-west of Nigeria. The hypothesis was partially confirmed and supported by the findings of (Melchers, Li, Haas, Reuter, Bischoff & Montag, 2016; Song & Shi, 2017). Melchers et al., (2016) found that associations between personality and empathy, with agreeableness and conscientiousness as the most important predictors of affective and cognitive empathy as well as for a one-dimensional empathy score, while Guilera, Batalla, Forné and Soler-González, (2019) found that big five personality traits showed weak and moderate correlation with the three dimensions of empathy, i.e. perspective taking, empathic concern and personal distress.

The current study revealed agreeableness to have a significant linear relationship with empathic behaviour of the medical undergraduates; as agreeableness increases, so does their empathic behavior. This report supports previous research findings indicating agreeableness personality dimension to be associated with higher level of empathic concern. (Costa & McCrae, 1999; Mooradian, Davis & Matzler, 2011; Melchers et al., 2016). The strong correlations between agreeableness and empathic behaviour may be due to the fact that the subscales of empathy share the other-oriented attributes reflected within the domain of agreeableness. That is, the tendencies toward altruism, tender-mindedness, forgiveness, and helpfulness subsumed within agreeableness seem consistent with efforts to reduce interpersonal conflict and maintain intragroup cooperation, and contrast a prosocial and communal orientation toward others with antagonism (Mooradian et al. 2011).

The result also revealed that conscientiousness had a positive significant influence on empathic behavior among medical undergraduates. The finding is attested to by Yang and Meng (2017) in their study; Song & Shi (2017) revealed that conscientiousness had a modest association with empathic behaviour. This may be explained by the fact that individuals with higher levels of conscientiousness tend to manage interpersonal conflicts more effectively and provoke fewer disagreements due to their self-disciplines and responsible behavior (Roberts, Jackson, Fayard, Edmonds & Meints, 2007).

Neuroticism had a significant negative influence on empathic behavior among medical undergraduates. Previous studies on the association between neuroticism and empathy have yielded mixed results, with some showing the absence of an association between these two constructs (Costa, Alves, Neto, Marvão, Portela, & Costa, 2014; Jabbi, Swart & Keysers 2007 & Magalhães, Costa & Costa 2012;). Magalhães, et al., (2012) found that neuroticism is an important predictor of empathic behaviour. Jabbi et al., (2007) submitted that the neuroticism factor was positively associated with emotional arousability, which underpins the emotional empathic response.

However, extraversion and openness to experience did not significantly predict empathic behavior among these medical undergraduates. The result to an extent contradicts the findings of Magalhães, et al.,(2012); Costa, et al., (2014). Magalhães, et al.,(2012) which revealed that openness to experience was positively associated with empathic behaviour, but the correlations were comparatively modest. Costa, et al., (2014) found that there were positive associations between openness to experience and empathy among Portuguese medical students. Although Butrus and Witenberg (2013) found that openness was negatively correlated with empathic behaviour.

Age predicted empathic behaviour; the younger the students, the more empathic they were, while older students experience less empathic behaviour. (Bingha, et al., 2018; Kunzmann et al., 2018). This is line with literature, even though mixed findings have been reported. O'Brien et al., (2012) found age to predict empathy. Bingha, et al., (2018) revealed that overall affective empathy increased in the elderly, but the age-related differences in affective empathy may be qualified by the valence of the film clips. Wieck and Kunzmann, (2015) who revealed that younger and older women's empathic accuracy did not differ if the protagonists' memorized personal experience was of high relevance to older adults. Findings did not support Rueckert and Naybar (2008) study, where it was found that men scored significantly lower than women on empathy questionnaire.

Klein and Hodges (2002) found women performed significantly better than men on a measure of empathic accuracy only when participants were led to believe that the measure was related to empathy prior to completing the task.

Religion also significantly predicted empathic behavior among medical students to buttress submission of (Ayten, 2013; Decety, Cowell, et al., 2015; Huber & MacDonald 2012; Zhao 2012;). Ayten, (2013) found that there is an important relationship between religiosity and providing- help behavior, between religiosity and empathic disposition. Zhao (2012) adds that it is not religion per se that influence the altruistic behavior, but rather the moral foundations that may or may not be an attribute of religious people. Decety, Cowell, et al., (2015) showed that most religious parents reported greater empathy and sensitivity towards justice in their children, than those less religious. This actually is considered the case amongst Nigerians who are known globally to be highly religious.

5. Conclusion

This study revealed that big five personality traits were important predictors of self-reported measures of both cognitive and affective empathy among medical students. Specifically, agreeableness, conscientiousness and neuroticism had relatively strong associations with their empathic behaviour, while religiousity also had it's influence. Empathic behaviour significantly increases with younger students, while older students experienced it less.

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