

The relationship between personality factors of the Big Five model and the vocational interests in the pharmaceutical field. Pilot study

Vlad Burtăverde

Faculty of Psychology and Educational Sciences, University of Bucharest, Romania

Abstract

This research aims to investigate the relationship between personality factors of the Big Five model and the areas of interest for different specializations of pharmaceutical students from the Faculty of Pharmacy. Questionnaires were completed by 30 students of the second and fifth year of studies. The survey results showed that neuroticism correlated negatively with interest in research, extraversion correlates positively with all three specializations (community pharmacy, production and research), and openness towards experience correlates positively with interest in research and production, agreeability correlated positively with interest in community pharmacy and research and conscientiousness correlated positively with interest in community pharmacy. In conclusion, this research brings new scientific information in the vocational behavior area.

Keywords: *Big Five, personality, vocational interests, pharmaceutical community*

Corresponding author: Vlad Burtăverde

Phone number: -

E-mail address: vlad.burtaverde@gmail.com

I. INTRODUCTION

1. Lexical model of personality

Currently, the most used and most studied model of personality is the Big Five model or the model of five factors (Church, Katigbak and Reyes, 1998; Angleitner, Ostendorf and John, 1990; Saucier, and Goldberg, 2001; Ashton, and Lee, 2005; Ashton, Lee, Marcus and De Vries, 2007; John, Angleitner and Ostendorf, 1988; Borkenau, Paelecke and Yu, 2010). This model was built in time using the lexical method. Several researchers who studied the personality considered that the most valid model of the personality can be obtained through the use of vocabulary, considering that behavior patterns of people exist in the vocabulary of each language, being represented by those words that are meant to describe and label people. Examples of such words are "sociable", "bold", "helpful", "friendly", "tidy", etc.

Among the reasons why the lexical model of the personality imposed itself worldwide and has received positive feedback from leading researchers is consistency over time and regardless of the situation. This means that when a person is classified as being sociable, attribute that characterizes the person in general, that person is known to behave socially most of the time and in almost all cases they are in, this feature defines it as a personality and as a way of behaving. Thus, people's language descriptions refer directly to their personality, indicating stable behaviors over time. Thereby, McCrae and Costa (2006) state that a person which behaves anxiously and hostile today, but tomorrow will behave calm and jovial, their behavior can be blamed on an environmental situation, which means that the person cannot be described as an anxious person nor as a lively person. To be described as a cheerful person one must show behaviors regarded by others with whom they interact to be jovial in general, these behaviors represent stable patterns that define how that person should be and how to behave.

So, personality traits derived from the vocabulary of a language are more than mood states or situational context behaviors. Of course, if a person is described as being sociable that does not mean it will behave exclusively social no matter what happens. There are situations where the environment in which the context is so strong the trait is no longer manifested, and the behavior is no longer determined by the respective trait. For example, when a sociable person, extroverted and jovial loses someone close, because of the context he will not behave jovial and cheerful in those moments, showing behaviors that are rather specific to hostile and introverted persons. However, that person cannot be described as an introverted person because in the previously described moment the behavior was caused by the unusual environmental situation. From the previously explained we understand that this trait is an internal structure perceived as a predisposition to certain types of behaviors, in such way that the person characterized by a certain trait will behave

in almost all situations in which he is located according to the behaviors that define that trait. In other words, it is the natural tendency of a person to behave in a certain way and not in another. McCrae and Costa (2006) stated that the lexicon can be the best way to capture the term individual behavioral differences. Thus, in every language there are words that are meant to distinguish a person's behavior from that of others like honest and cunning or naive and caring.

Further on, we will be summarizing the steps the lexical model of the personality went through towards the materialization of the Big Five model of personality. The lexical model of the personality proposed by Allport and Odbert (1936) cited in McCrae and Costa (2006), who extracted from the English dictionary about 4000 words that they called personality traits. The next step was made by Cattell who grouped the 4000 features identified by Allport and Odbert in synonyms, obtaining 35 clusters. These clusters were used in a study to assess the personality in which numerous persons were assessed after these 35 clusters. The 35 scales were subjected to factorial analysis and there were obtained 12 personality factors. Cattell also added four factors he obtained in different studies about personality, forming one of the most popular personality assessment tools, 16PF (McCrae and Costa, 2006). Costa and McCrae began studying the lexicon theory by analyzing the 16 factors identified by Cattell. Data obtained from the questionnaire 16PF in which several volunteers participated in a longitudinal study (Costa and McCrae, 1976 cited McCrae and Costa, 2006) were analyzed, the two authors obtaining a final solution with three factors. The first two dimensions were similar to the neuroticism and extraversion from Eysenck's theory, the third being named by the authors opening to experience (McCrae and Costa, 2006). Furthermore, Costa and McCrae developed tools for evaluating these three factors which were welcomed by the scientific community. However, the two authors analyzed the results of several studies, concluding that this model with three personality factors is not comprehensive (McCrae and Costa, 2006).

The same opinion regarding the lack of global character of personality was also raised by other researchers who began to conduct studies to answer this question. Tupes and Christal (1961) subjected to factorial analysis Cattell's 35 scales and obtained a model of five personality factors, but the factors were found on different samples (cited by McCrae and Costa, 2006). Norman (1963) was drawn to the results found by Tupes and Christal and conducted replication studies, obtaining the same model of personality. Norman was under the opinion that the obtained model is an appropriate and comprehensive model of personality traits (McCrae and Costa cited, 2006). McCrae and Costa (2006) stated that at that time that Norman's results were not considered important, so the interest for that model fell drastically. . The five factors model was brought back to the attention of the scientific community when Lewis Goldberg extracted from the dictionary his own set of synonyms replicating the model of five factors again (McCrae and Costa, 2006).

The five factors identified by Warren Norman were composed of Extraversion or Positive Affect, Agreeableness, Conscientiousness, Emotional Stability, and Culture (McCrae and Costa, 2006). At the end of 1980 Costa and McCrae analyzed the model discovered by Norman and noticed that the Positive affect factor is the same as the Extraversion factor from their model, the same happening with the Neuroticism factor who was identical to Emotional stability and Opening towards experience who was identical with the Culture factor identified by Norman (McCrae and Costa, 2006). The two authors, notifying that there is a very strong resemblance between the three factors identified by them and 3 of the 5 identified by Norman, considered that it was necessary to submit once again their model analysis to complete the Agreeableness and Conscientiousness factors. Finally, Costa and McCrae obtained a final model with five factors of personality on which was built NEO - Personality Inventory which measures the following factors: Neuroticism, Extraversion, Openness, Agreeableness and Conscientiousness, each factor having 6 scales of measurement.

People characterized by neuroticism are vulnerable persons, anxious, self-pitying, and suffer from unjustified mood changes (John and Srivastava, 1999). People who are characterized by extraversion are optimistic persons, sociable, bold and active (McCrae and Costa, 2006). Those characterized by openness to experience are curious, creative, have a rich imagination, seeking to experience new activities and are open to culture and knowledge (John and Srivastava, 1999). People characterized by agreeability are attentive to the feelings and emotions of others, are empathic, altruistic, forgiving and usually trust people (McCrae and Costa, 2006). Those who are characterized by conscientiousness are organized people who value the details on norms and rules, usually working long enough, respect deadlines and are usually persevering individuals (McCrae and John, 1990).

2. The main models of career guidance

Burwell and Chen (2006) states that a successful career counseling is that in which a link is established and a balance between the individual's personal knowledge of the characteristics and demands from the labor market. Over time there were established five career counseling theoretical models. The models are summarized as follows.

The first model is represented by the labor adjustment model (Dawis and Lofquist, 1984). This theory is based on the individual differences regarding vocational behavior. This model is also called the model of matching between person and environment, focusing selection and career development as a continuous process of matching and accommodate the person (P) seeks organizations and environments (M) that meet his expectations regarding "needs "and organizations seek individuals who possess the features they need (Leung, 2008). Most of the

research that studied this counseling model investigated the model of continuous helping between the person and the work environment (organization), identifying four main variables responsible for the adjustment style between the person and organization. These are flexibility, activity, reactivity and perseverance. Flexibility refers to the ability of a person to tolerate an inconsistency between the individual and the environment and the ease with which the person can become unsatisfied with the organizational environment. Activity refers to the person's ability to transform the environment and organization to reduce the disparity and dissatisfaction. Contrary, reactivity refers to the use of a self-regulation conduct in order to fix inconsistencies, without thriving actively to change and transform the working environment. Perseverance refers to the person's ability to solve problems encountered in the process of adjustment and adaptation to the environment without leaving the due to existing inconsistencies. A key strength of this model of career counseling is that battery tests were built designed to measure the variables that make up this model, such as satisfaction, needs and values, skills and abilities and correlation indices (Dawis, 2005). In conclusion, this model tries to explain career development and satisfaction regarding the correlation between person and work environment and provides a way forward for specialists concerned with career orientation, helping to establish certain important aspects with regard to helping people adjusting their career choice and decisions.

The second consecrated career guidance model is developed by Holland (1997). Holland's model regarding vocational interests is probably the best known model, representing the basis for many of the systems of advice and career orientation worldwide. Holland believed that a person's vocational interest represents in fact the expression of its personality, vocational interests being conceptualized in 6 categories. These are the realistic, investigative, artistic, social, enterprising and conventional interests. Following the evaluation of the 6 categories of vocational interests, Holland recommends a scheme to document the three most representative interests for the person assessed (ex. Social-entrepreneurial-conventional). Also, regarding the environmental and professional areas, Holland stated that they can all be conceptualized according to the same 6 main categories. Therefore, in the process of choosing a career and career development, the person tends to seek that environment where he can put into practice his skills and abilities and can express personal attitudes and values. Just like the model presented above, Holland uses the term congruence to emphasize the matching between the individual and the professional area.

Another career counseling model is the model proposed by Super (1980), entitled as the self-concept model in career development. Super (1980) considers that the choice and career development is basically a process of developing a person's self. According to Super, the self-concept model is the result of numerous interactions between many factors including physical and psychological development, personal experiences and environment characteristics. Initially, Super considered that responsible for the development of the Self are physiological and cognitive

mechanisms, recently, it was demonstrated that there is a significant link between social context and interaction between the individual and the environment and self-development. Super (1990) proposed a gradual in developing the self, conceptualizing the following stages of development: growth, exploration, stabilization, maintaining (maintenance) and disengagement. In every stage of development of the self, a person must successfully fulfill expectations regarding activities and vocational aspects of an appropriate certain age. Thus, during exploration stage (15-24), a person must know their own interests, abilities, skills and values to make a career decision to satisfy his interests as well as expressing his abilities.

The fourth model is the model proposed by Gottfredson (1996) which was named the compromise theory. This model is more recently established in the international research and practice in the field of career guidance. Gottfredson believes that choosing a career is a process that requires a high level of cognitive expertise. He believes genetic factors play an important role in the cognitive development of a person. Thus, genetic factors are crucial in forming personal characteristics such as interests, skills and values, but these are expressed and finalized based on the characteristics of the environment in which the person operates. Career development is seen as an auto-determined process where individuals seek new ways and means to express their genetic tendencies within their own cultural environment. The defining aspect of this concept is compromise. Therefore, in response to the constraints within society such as continuously changing professional circles and the labor market, economic depressions, lack of transparency and meritocracy during the recruitment process and family obligations, people are forced to adjust their professional preferences so that they can be satisfied with the opportunities in the labor market.

The last important model in carrier counseling is the social cognitive model (Lent, Brown, & Hackett, 2002) which is based on the self-efficacy theory of Bandura's referring to a bidirectional and reciprocal relationship between the person and the environment. This model is composed from three segments related to career development that aim to explain (a) development of vocational interests, (b) the way a decision is made and choosing a career and (c) the stability and performance in a career. The three segments are explainable through the concepts of self-efficacy, expected results and personal goals. Self-efficacy refers to the global judgments that a person makes about their own capabilities. Expected results concern the opinions of people about the consequences of a certain behavior. Personal goals refer to one's initiative to engage in certain activities with the purpose of generating a certain result.

II. OBJECTIVE AND THE STUDY'S HYPOTHESES

The objective of the study is to investigate the relationship between the five personality factors of the Big Five model and the interest for the main professional specializations existing in Romania's pharmaceutical field.

Research Hypotheses:

- There is a statistically significant negative correlation between neuroticism and interest in working in community pharmacy.
- There is a statistically significant negative correlation between neuroticism and interest in working in production.
- There is a statistically significant negative correlation between neuroticism and interest in working in research.
- There is a statistically significant positive correlation between extraversion and interest in working in community pharmacy.
- There is a statistically significant positive correlation between extraversion and interest in working in production.
- There is a statistically significant positive correlation between extraversion and interest in working in research.
- There is a statistically significant positive correlation between openness and interest in working in community pharmacy.
- There is a statistically significant positive correlation between openness and interest in working in production.
- There is a statistically significant positive correlation between openness and interest in working in research.
- There is a statistically significant positive correlation between agreeableness and interest in working in community pharmacy.
- There is a statistically significant positive correlation between agreeableness and interest in working in production.
- There is a statistically significant positive correlation between agreeableness and interest in working in research.
- There is a statistically significant positive correlation between conscientiousness and interest in working in community pharmacy.
- There is a statistically significant positive correlation between conscientiousness and interest in working in production.

- There is a statistically significant positive correlation between conscientiousness and interest in working in research.

III. METHOD

1. Participants

For this research a number of 30 participants took part, 26 women, 4 men (Mage = 21.32, SD = 3.24) students of the second and fifth year in the Faculty of Pharmacy of the University of Medicine and Pharmacy Carol Davila.

2. Tools

2.1. International Personality Item Pool (IPIP)

The five personality factors were assessed using the IPIP questionnaire consisting of 50 items made by Goldberg (Goldberg, 1992). Each factor contains 10 items, each with five possible response options (1 = does not characterizes me at all, 5 = always characterizes me). The first factor, emotional stability, consists of items that measure mood state changes (ex, I am always relaxed, I get angry quite often) and has an alpha cronbach coefficient of .86. The second factor is extraversion, which is composed of items that are meant to assess the levels of sociability and energy, activities (ex. I am the soul of parties, do not talk too much) with an internal consistency of .87. The third factor is the openness to experience and aims to measure the degree to which people are interested in new things, abstract ideas and values (ex. I have a rich vocabulary, it is hard to understand abstract things) and has an internal consistency of .84. The next factor is agreeability which assesses the extent a person is interested in other people, empathic, attentive to the needs and feelings of others (ex. I'm interested in people, I sometimes offend others) with an alpha cronbach coefficient of .82. The last factor is represented by conscientiousness, which measures the extent to which people are organized, follow the rules (I always prepare myself carefully, I leave my things scattered) and having an internal consistency of .79.

2.2. Vocational guidance questionnaire for the pharmacist profession

In order to evaluate interests for the various types of pharmaceutical specialties a questionnaire was built, which assesses three main types of specializations: Community pharmacy, production and research. Each dimension contains 7 items, each item having 5 possible answers (1 = does not characterize me at all, 5 = always characterizes me). Internal consistency coefficients for each dimension are: .82 for community pharmacy, .79 for production and .84 for research.

3. Procedure

Before administering the questionnaires the informed consent was obtained from the participants. They were presented with the research objective. Questionnaires were applied through paper pencil format. The application took place at the Faculty of Pharmacy Carol Davila premises. Completing them lasted on average 8-10 minutes.

IV. RESULTS

Table 1. Mean, standard deviation and distribution shape indicators for the research variables

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
N	170	29.5176	7.24567	.120	.186	-.405	.370
E	170	46.2471	9.51350	-.435	.186	-.022	.370
O	170	45.7647	8.02533	.266	.186	-.543	.370
A	170	53.0412	6.78264	-.954	.186	2.085	.370
C	170	50.2000	6.11488	-.578	.186	.135	.370
Production	170	24.0529	4.31629	-.452	.186	.080	.370
Community pharmacy	170	25.4529	4.76558	2.371	.186	17.320	.370
Research	170	24.8706	4.41028	-.168	.186	-.205	.370
Valid N (listwise)	170						

In Table 1 we can notice mean, standard deviation and distribution shape indicators for research variables. Therefore, it is observed that the symmetry indicators of the distribution, Skewness and Kurtosis is the normal (Skewness = -2, +2, kurtosis = -3, +3), which means that the research variables have approximately a normal distribution.

Table 2. Pearson linear correlation results between research variables

		1	2	3	4	5	6	7	8
1. N	Pearson Correlation	1	-.187*	-.205**	-.200**	-.334**	-.102	-.024	-.198**
	Sig. (2-tailed)		.015	.007	.009	.000	.184	.758	.010
	N	170	170	170	170	170	170	170	170
2. E	Pearson Correlation	-.187*	1	.360**	.260**	.044	.356**	.202**	.232**
	Sig. (2-tailed)	.015		.000	.001	.566	.000	.008	.002
	N	170	170	170	170	170	170	170	170

3. O	Pearson Correlation	-.205**	.360**	1	.276**	.000	.290**	-.036	.513**
	Sig. (2-tailed)	.007	.000		.000	.996	.000	.639	.000
	N	170	170	170	170	170	170	170	170
4. A	Pearson Correlation	-.200**	.260**	.276**	1	.252**	.041	.211**	.174*
	Sig. (2-tailed)	.009	.001	.000		.001	.598	.006	.023
	N	170	170	170	170	170	170	170	170
5. C	Pearson Correlation	-.334**	.044	.000	.252**	1	.074	.233**	.069
	Sig. (2-tailed)	.000	.566	.996	.001		.336	.002	.371
	N	170	170	170	170	170	170	170	170
6. Production	Pearson Correlation	-.102	.356**	.290**	.041	.074	1	-.037	.623**
	Sig. (2-tailed)	.184	.000	.000	.598	.336		.636	.000
	N	170	170	170	170	170	170	170	170
7. Pharmaceutical Community	Pearson Correlation	-.024	.202**	-.036	.211**	.233**	-.037	1	-.072
	Sig. (2-tailed)	.758	.008	.639	.006	.002	.636		.350
	N	170	170	170	170	170	170	170	170
8. Research	Pearson Correlation	-.198**	.232**	.513**	.174*	.069	.623**	-.072	1
	Sig. (2-tailed)	.010	.002	.000	.023	.371	.000	.350	
	N	170	170	170	170	170	170	170	170

In Table 2 we can notice the Pearson linear correlation test results between research variables. There is a statistically significant negative relationship between neuroticism and the interest for pharmaceutical research. There is also a statistically significant positive relationship between extraversion and the interest for pharmaceutical community, production and scientific research. There is a statistically significant positive relationship between opening to experience and interest in production and research. There is a statistically significant positive relationship between agreeableness and interest in pharmaceutical community and scientific research. Finally, there is a statistically significant positive relationship between conscientiousness and interest in community pharmacy.

V. DISCUSSION

The objective of this research was to investigate the relationship between personality factors from the Big Five model and the interest for different specializations in the pharmaceutical field. The research results showed that neuroticism negatively correlated with researching interest. That means that people characterized by a high level of emotional instability do not want to work in the scientific research. The explanation for this association may be offered by saying that

research working with deadlines along with a large volume of work, can create pressure on employees. Therefore emotionally unstable people can hardly cope with the pressure, thus avoiding working in this field. It was also proved that there is a positive relationship between extraversion and all 3 pharmaceutical majors. That means that people who are sociable and are characterized as affectively positive prefer to work in any field. The explanation for this relationship is given by the fact that pharmaceutical environment requires a high level of interaction with people, making it a desirable situation for extroverts. Openness to experience is positively correlated with interest in production and research. This is explained by the fact that these people are always attracted to new information and that prefer a type of activity that involves assimilating new knowledge such as the areas of research and production. Agreeability correlated positively with interest in community pharmacy and research. That means that the individual who are attentive and interested in the feelings and needs of others prefer to work in an environment where they can help others. Finally, there is a positive correlation between conscientiousness and interest in community pharmacy. The explanation for this association is the fact that people who are very organized and attentive to detail prefer to work in a pharmacy because it is a procedural and repetitive type of work, which fits their personality.

In conclusion, this research brings new scientific information's in the vocational behavior area.

References

- Angleitner, A., Ostendorf, F., și John, O.P. (1990). Towards a Taxonomy of Personality descriptors in German: A Psycho-Lexical Study. *European Journal of Personality*, 4, 89-118.
- Ashton, M.C., și Lee, K. (2005). A Defence of the Lexical Approach to the Study of Personality Structure. *European Journal of Personality*, 19, 5-24.
- Ashton, M.C., Lee, K., Marcus, B., și De Vries, R. (2007). German Lexical Personality Factors: Relations with the HEXACO Model. *European Journal of Personality*, 21, 23-43.
- Borkenau, P., Paelecke, M., și Yu, R. (2010). Personality and Lexical Decision Times for Evaluative Words. *European Journal of Personality*, 24, 123-136.
- Burwell, R., și Chen, C.P. (2006). Applying the principles and techniques of solution-focused to career counseling. *Counseling Psychology Quarterly*, 19(2), 189-203.
- Church, A.T., Katigbak, M.S., și Reyes, J.A.S. (1998). Further exploration of Filipino personality structure using the lexical approach: do the big-five or big-seven dimensions emerge? *European Journal of Personality*, 12, 249-269.
- Dawis, R. V., & Lofquist, L. H. (1984). A psychological theory of work adjustment. Minneapolis, MN: University of Minnesota Press.

- Goldberg, L., R., (1992). The development of markers for the Big-Five factor structure. *Psychological Assessment*, 4, 24-42;
- Gottfredson, L. S. (1996). Gottfredson's theory of circumscription and compromise. In D. Brown & L. Brooks (Eds.), *Career choice and development: Applying contemporary approaches to practice* (3rd ed., pp. 179–232). San Francisco, CA: Jossey-Bass.
- John, O.P., Angleitner, A., și Ostendorf, F. (1988). The lexical approach to personality: a historical review of trait taxonomic research: *European Journal of Personality*, 2, 171-203.
- John, O.P., & Srivastava, S., (1999). *The Big Five Traits Taxonomy: History, Measurement, and Theoretical Perspectives* (2nd), New York: Guilford Press.
- Lent, R. W., Brown, S. D., & Hackett, G. (2002). Social cognitive career theory. In D. Brown & Associates (Eds.), *Career choice and development* (4th ed., pp. 255–311). San Francisco, CA: Jossey-Bass.
- Leung, S.A. (2008). The big five career theories. In Athanasou, J.A., Van Esbroek, R. (2008). *International Handbook of Career Guidance*. pp. 115-132. Springer.
- McCrae, R.R, și Costa, P.T.Jr. (2006). *Personality in adulthood. A Five-Factor Theory Perspective*. New York: Guilford Press.
- McCrae, R., R., & John, O., P., (1990). *An introduction to the Five-Factor Model and Its Applications*. National Institute on Aging, NIH, University of California at Berkeley
- Saucier, G., și Goldberg, L.R. (2001). Lexical Studies of Indigenous Personality Factors: Premises, Products, and Prospects. *Journal of Personality*, 69(6), 847-879.
- Super, D. E. (1990). A life-span, life-space approach to career development. In D. Brown & L. Brooks (Eds.), *Career choice and development: Applying contemporary approaches to practice* (2nd ed., pp. 197–261). San Francisco, CA: Jossey-Bass.