BIOPSYCHOSOCIAL CORRELATES OF WORK MOTIVATION

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Abstract. Background, purpose. Work motivation is a potential predictor of employee turnover, job satisfaction, commitment, job performance and psychological wellbeing. Researchers argue that motivated employees work more effectively. The purpose of the current study was to identify biological (gender, age and health), psychological (personality traits) and social (marital status, children, work sector and position) factors related to employees’ work motivation. It was also predicted that subjectively perceived job effectiveness might contribute significantly to the model of employees’ work motivation. Material and methods. The sample for the study consisted of 310 Lithuanian employees. The questionnaire constructed according to the instructions of Vroom Expectancy Theory was used to assess work motivation. Personality traits were assessed by Big Five Inventory. Biological and social factors were identified via a self constructed questionnaire that assessed socio-demographic information as well as employee health issues. A two item scale was devised for assessing perceived work effectiveness. Results. Results of the study showed that extraversion, conscientiousness, openness to experience and managerial position were related to work motivation. Conclusions. Structural equation modeling results indicated that work motivation was associated with the personality factors of extraversion and conscientiousness when the subjective work effectiveness has the mediating effect.

Key words: work motivation, biopsychosocial model, work effectiveness.

INTRODUCTION

Authors discuss the importance of different factors that impact the effectiveness of the organizations (Lau & Shaffer, 1999; Vasiliauskas, 2000). Looking from the psychological perspective organization can reach a goal only by its employees’ efforts. Some authors propose that the em-

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Employee is the most critical factor related to organizational effectiveness (Mullins, 1999, Poluchina, 2004). Previous research has identified that the most important factor related to the work performance efficiency and wellbeing of employees in the organization is work motivation (Woodard, Cassill & Herr, 1994; Barrick & Mount, 2005; Wood & Beckmann, 2006). According to Mullins (1999) if the leader wants to increase the effectiveness of the organization he/she has to increase the employees’ work motivation. Especially the problem of low motivation arises when we deal with Lithuanian employees.

In this study work motivation was based on Vroom’s Expectancy Theory. Vroom’s theory postulates that employees will perform best when they expect their assigned work to be feasible and lead to outcomes that they value. According to Vroom (Woodard, Cassill & Herr, 1994), individual’s behavior is dependent upon the individual’s perception of the situation verses the actual situation. This means that if leaders want to have highly motivated employees they must match the expectations of the employee with the goals of the organization.

According to Langfred & Moye (2004), work motivation and work performance depend on individual differences and organizational structure. To assess individual differences related to work performance in this study we employed a biopsychosocial model. This model dictates that the person’s well being and performance in any given situation is impacted by an interaction of biological, psychological and social factors (Crossley, 2000). We propose that the same three factors will apply to the work setting. The main idea of our study was to investigate the integrated influence of these factors on employee work motivation.

Age, gender and physical health were the biological factors investigated in this study. According to Irwin and Millstein (1986) biopsychosocial risk model, age is a biological factor. Other authors agree that age is an important variable, but they are not in agreement as to the optimum age related to work motivation (Kanfer and Ackerman, 2000; Woodard, Cassill & Herr, 1994). In this study we have a prediction that elder employees are more motivated to work than younger.

Many authors agree that gender is an important predictor of work motivation (Carlson & Latta, 1980; Bishay, 1996; Blickle, Schlegel, Fassbender & Klein, 2006), but others disagree that there is an significant relationship between gender and work motivation (Hausknecht, Day &
Thomas, 2004). Previous research showing that men behave in inappropriate way more often that women (Blickle, Schlegel, Fassbender & Klein, 2006) and that women are more motivated in their studies than man (Carlson & Latta, 1980) let us predict that women are more motivated to work than men. Health is usually related to employee age. We propose that the combination of these two factors will impact work motivation. Therefore, we predict that employees with poorer health are less work motivated.

Many authors and researchers claim and have validated the impact of personality traits on work performance and job satisfaction (Jong, Velde & Jansen, 2001; Judge & Ilies, 2002; Latham & Pinder, 2005). To assess this factor we selected the Big Five personality trait model. The model consist of five factors–extraversion, agreeableness, conscientiousness, emotional stability and openness to experience. This assessment model emphasizes the importance of stable emotional, interpersonal experience and motivational constructs to explain personal behavior in different situations (Mount and others, 2006). It is most often used in the research related to work behavior (Judge & Ilies, 2002; Barrick & Mount, 2005; Mount & others, 2006). Previous research has revealed the significant relation between conscientiousness, emotional stability and work performance (Judge & Ilies, 2002; Neubert, 2004; Lee, Ashton & Shin, 2005; Barrick & Mount, 2005; Mount & others, 2006; Wood & Beckmann, 2006). Openness to experience, extraversion and agreeableness might be useful if we want to predict desirable work performance in some specialized professions (Jong, Velde & Jansen, 2001; George & Zhou, 2001; Neubert, 2004, Barrick & Mount, 2005; Wood & Beckmann, 2006, Mount & others, 2006). Summarizing the possible relations between personal traits and work motivation, we predict that employees’ conscientiousness, extraversion, agreeableness, openness to experience and emotional stability are positively related to work motivation.

Although job satisfaction is primary related to personal characteristics, extrinsic factors are also very important when we want to clarify the background of employees’ work motivation (Bishay, 1996). Research conducted with a Belgian population revealed that employees in public setting are less motivated to work than those in private setting (Buelens & Broeck, 2007). Whereas wellbeing and work performance are related to a feeling of importance and the higher level of responsibility (Bishay,
1996; Zinovieva, Dienes & Ten Horn, 2000; Langfred & Moye, 2004), we predict that employees in leadership or management positions will exhibit a higher level of work motivation than those in non-management positions.

Today we could not find research related to marital status and children as it is related to work motivation. Yet we believe these factors may have some impact on work motivation. Still, the family is the nearest social environment so we predict that married and having children employees are more motivated to work than single and without children because of their higher responsibility level. We predict that marital status and family composition will be related to the employees' work motivation.

Summarizing all the investigated variables, we predict that biological (age, gender, health), psychological (extraversion, agreeableness, conscientiousness, emotional stability and openness to experience) and social (work setting, work position, marital status and having children) factors are related to employees' work motivation.

**METHOD**

**Sample and Procedure**

310 employees from different types of organizations participated in this study. Teachers from three different schools and the employees from private organizations were chosen following the collaboration contract of Vytautas Magnus University and these organizations. There were 236 (76%) female and 74 (24%) male. The age range of participants was 18 to 76 years with a mean of 35 years. 184 (59.4%) work in a public sector and 126 (40.6%) in a private sector.

**Measures**

A 43-item questionnaire constructed by the researchers based on the instructions of Vroom’s Expectancy Theory (Woodard, Cassill and Herr, 1994) and the items of Minnesota Job Satisfaction Survey was used to assess teachers’ work motivation (Cronbach's alpha = 0.90). There were 20 items (Cronbach’s alpha = 0.83) which participants had to rate on a Likert scale from 1 to 5 according to the individual importance of each item (for example items „good salary“ or „social status which I get from my
job”). Then the same 20 items (Cronbach’s alpha = 0.70) were given with the instruction „If you did your job perfect, would these 20 items describe your job?“. Additionally there were 3 item (Cronbach’s alpha = 0.92) related to the importance of individual efforts in the work place. *Subjectively perceived effectiveness* was assessed using 2 items (Cronbach’s alpha = 0.69): his/her work effectiveness from individual and leaders position that had to be rated on a Likert scale from 1 to 10.

*Personality traits* were assessed by the Big Five inventory (Oliver John and others, 1991), 44 items (Cronbach's alpha = 0.62). There were assessed such personality traits as Extraversion (Cronbach’s alpha = 0.75), Agreeableness (Cronbach’s alpha = 0.69), Conscientiousness (Cronbach's alpha = 0.70), Emotional stability (Cronbach’s alpha = 0.75), Openness to experience (Cronbach’s alpha = 0.50). *Biological and social factors* were assessed by socio-demographic questionnaire and specially for this research created scale of four items about employee’s health (Cronbach’s alpha = 0.70).

**RESULTS**

The first part of the analysis consisted of separate correlations and compared averages. Our results revealed significant relation between subjectively perceived effectiveness and work motivation \((r = 0.141, p = 0.015)\).

Next step was to check the relations between separate bio-psychosocial factors and work motivation (table 1). Spearman correlations for the scale variables, t-values for the binary variables and ANOVA analysis for the other nominal variables were conducted to assess the bio-psycho-social factors (table 1). No biological factors were related to work motivation. Two personality traits of Extraversion and Openness to experience were related to work motivation \((p<0.05)\). Work position was that social factor related to work motivation showing that employees in the managerial positions are more motivated to work than those in followers’ positions \((p<0.05)\).

To assess correlations and compared averages of motivation in different factors’ groups we conducted a Path analysis. The Path analysis was conducted to assess hypothetical causality relationships.
A model that included psychological factors, perceived work effectiveness and work motivation was constructed based on previous research findings (Judge & Ilies, 2002; Latham & Pinder, 2005). A second model was created separately for women and men because before there

Table 1. Relations between biopsychosocial factors and work motivation

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<thead>
<tr>
<th>Biopsychosocial factors</th>
<th>Relation with Work Motivation</th>
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<td>Criteria</td>
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<td>Biological</td>
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<tr>
<td>Health</td>
<td>r = 0.058</td>
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<tr>
<td>Gender</td>
<td>t = 0.387</td>
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<td>Age</td>
<td>r = -0.011</td>
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<tr>
<td>Extraversion</td>
<td>r = 0.147</td>
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<td>Agreeableness</td>
<td>r = 0.067</td>
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<td>Conscientiousness</td>
<td>r = 0.086</td>
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<td>Neuroticism</td>
<td>r = -0.019</td>
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<td>Openness</td>
<td>r = 0.162</td>
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<td>Psychological</td>
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<tr>
<td>Extraversion</td>
<td>t = -0.445</td>
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<tr>
<td>Agreeableness</td>
<td>t = 2.242</td>
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<td>Neuroticism</td>
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<td>Work sector</td>
<td>t = 1.882</td>
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<td>Marital status</td>
<td>F = 1.882</td>
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<td>Children</td>
<td>t = 0.921</td>
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*Bold* - statistically significant relations.

Figure 1. Psychological factors of women's work motivation: structural equation modeling

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RMSEA = 0.070; GFI = 0.97; CFI = 0.97
was found the significant difference between men’s and women’s personality traits. There was created work motivation model for women (figure 1). Structural models’ indicators (RMSEA = 0.070; GFI = 0.97; CFI = 0.97) showed that this model is proper for our data (Jöreskog & Sörbom, 1996). Work motivation can be best predicted through the subjectively perceived work effectiveness by the conscientiousness in a group of women.

After we had constructed the structural model for women there was created the same model for men (figure 2). This model fits our data (RMSEA = 0.074; GFI = 0.98; CFI = 0.98) and shows that work motivation can be best predicted through the subjectively perceived work effectiveness by the conscientiousness and extraversion (Jöreskog & Sörbom, 1996).

Later we created the structural model for both men and women using three personality traits, age and work position. This model fits our data (RMSEA = 0.038; GFI = 0.99; CFI = 0.98) and confirms that work motivation can be best predicted through the subjectively perceived work effectiveness by the conscientiousness and extraversion (Jöreskog & Sörbom, 1996).

There was made structural model using another factors (figure 4). According to Jöreskog & Sörbom (1996) there we can see that still extraversion and conscientiousness are the only good predictors for

![Figure 2. Psychological factors of men's work motivation: structural equation modeling](image-url)
work motivation through subjectively perceived work effectiveness (RMSEA = 0.041; GFI = 0.99; CFI = 0.98)

Summarizing all created structural models we can see that the conscientiousness is the best predictor for work motivation through the

![Diagram](Image)

Figure 3. Some psychological factors, age and work position in work motivation: structural equation modeling

![Diagram](Image)

Figure 4. Some psychological factors, gender, health and work position in work motivation: structural equation modeling
subjectively perceived work effectiveness for both men and women. Extraversion also predicts work motivation but more for men than for women.

**Discussion**

The purpose of the current study was to test the biopsychosocial model related to work motivation. Some findings were consistent with previous research. Other findings did not support previous research on work motivation. Contrary to our expectations, however, we did not find a statistically significant relationship between work motivation, age, health, family variables or the work setting. These findings did not support previous studies on motivation research. Our findings did indicate that the personality attributes of extraversion, openness to experience and managerial position in the organization was positively associated with work motivation.

Results concerning the biological factors added little to the controversial research related to age and work motivation (Woodard, Cassill & Herr, 1994; Warr, Miles & Platts, 2001; Kanfer & Ackerman, 2004). Our findings did support the non-importance of gender in work motivation (Hausknecht, Day & Thomas, 2004).

Results of this study supported some of the previous research related to the connection between the personality traits of conscientiousness and emotional stability and work motivation (Jong, Velde, Jansen, 2001; Judge & Ilies, 2002; Latham & Pinder, 2005; Barrick & Mount, 2005). Our findings support the personality trait association and work motivation by identifying that extraversion and openness to experience are also important traits. These personality traits were related to work motivation among the employees of some professions in previous studies (Jong, Velde, Jansen, 2001). Bishay (1996) tells that Big Five traits can be more useful for some scientific research and explanations but not for job performance where should be measured more concrete and narrow personal traits. Kanfer & Ackerman (2000) suggest not to use Big Five traits in a work motivation research still the present study linked two of those personality traits to the work motivation. There weren’t found the relations between consciousness and work motivation. The rationale for
the argumentation is illustrated by previous findings where situational factors have been also recognized as related to work motivation and placed in a mediating position between personality traits and work behavior (Barrick & Mount, 2005). It is argued that unusual situations can raise behavior that doesn’t fit personality traits. We can also think that a person can have specific personality trait but it can be not shown for others or just have no impact to his/her work.

Of the variety of social factors assessed in this study only the managerial position variable was found significant related to work motivation in our study. Our findings were that it appears as the individual in the organization is placed in a position of more authority work motivation increases. These findings compliment the ideas of Bishay (1996) who proposed that extrinsic factors are important to include when investigating work motivation. On the other hand there could be some others important social factors such as social class or living condition that could also influence work motivation. These factors were not investigated in this study.

**CONCLUSIONS AND RECOMMENDATIONS**

There are many factors that may contribute to work motivation that we did not include in this study. We attempted to increase the knowledge base by integrating as many as possible by employing the biopsychosocial theoretical model as our point of exploration. We used Path analysis to find the predictors for employees’ work motivation. Some biopsychosocial factors, subjectively perceived work effectiveness and work motivation were included in our model. Some of the biopsychosocial factors were found to be significantly associated with work motivation with a mediating effect of the subjectively perceived work effectiveness.

The best predictor in our study related to work motivation was the personality factor of extraversion. This factor was the best predictor for work motivation in all the structural models we constructed to investigate the topic. Extraversion was found to be significantly associated to work motivation for men as well as women. The importance of extraversion may be insusceptible of the changes occurring in the work place with a higher premium placed on team work, social intelligence and interpersonal skills. Consciousness was also an important predictor for work motiva-
tion in a man’s sample and the sample of both genders. These results were different from the separate relations and supported the previous studies where this personality trait was identified as a contributor of the work motivation (Jong, Velde, Jansen, 2001; Judge & Ilies, 2002). Trying to reach the higher effectiveness level there is important to evaluate employees’ conscientiousness and openness to experience. Results of our study supported the idea of Bishay (1996) that job satisfaction and work motivation is primary related to personal characteristics.

This study revealed an interesting relation between subjectively perceived work effectiveness and work motivation. The significant association of subjectively perceived work effectiveness and work motivation is in line with the previous research findings (Woodard, Cassill & Herr, 1994; Wood & Beckmann, 2006). In terms of causation, the path between subjectively perceived work effectiveness and work motivation went the unexpected way: work motivation could be predicted by subjectively perceived work effectiveness, not in an opposite way. Such results could arise because of the fact that we didn’t measure objective work effectiveness, such as evaluation of the supervisor, just subjectively perceived one. Subjectively perceived information about ourselves might be taken as a psychological construct that could be not a result but a cause of some other factors.

The reader must assess the forgoing finding of the relation of biopsychosocial factors and work motivation in light of the following limitations of the study. The primary instrument was one based on theory but constructed by the research team. Therefore we may have not included questions that could have uncovered additional data. In addition all self constructed instruments are limited due to reliability and validity issues, as well as to the translation to Lithuanian language. However, our findings did support previous research and added some additional issues to address when exploring the subject of work motivation. Another limitation is one related to the structural modeling approach. According to Storseth (2006), any suggested link between two variables in the structural models may in reality be explained by a third variable that is not included in a model. Consequently, the path of influence must be interpreted in light of such limitation of evidence.

Despite these limitations, our findings, on personality factors may well improve our understanding between work motivation and the indi-
individual fit within the organization. It appears in this study that Lithuanian managers may be viewed as becoming more sensitized to the people side of management as reflected in the extraversion trait identified in our study. We propose our finding of managerial position in the organization and work motivation is and important insight for organizational personnel. If this finding holds true in future research it may provide management personnel in organizations some insights on better ways to motivate employees. We believe that this finding may indicate that work motivation increases as the employee in the organization senses more power in the decision making process. This may mean that work teams and other methods that can be used by organizations to include more workers in the decision making process may directly impact the work motivation attitude of employees. We believe this is most critical in the present business setting in Lithuania in that one of the major challenges is to maintain a stable work force that are motivated to meet the production goals of the organization.

References
Jong, R. D., Velde, M. E. G., & Jansen, P.G.W. (2001). Openness to Experience and Growth Need Strength as Moderators between Job Characteristics and Satisfaction;
Storseth, F. (2006). Changes at work and employee reactions: Organizational ele-

BIOPSICHOSSOCIALINIAI DARBO MOTYVACIJOS VEIKSNIAI

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Raktiniai žodžiai: darbo motyvacija, biopsichosocialinis modelis, darbo efektyvumas.

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