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Don't you know that you're toxic? Regression model of a toxic workplace environment identification

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Abstract. The aim of this paper is to identify key relevant characteristics of pathological workplaces and their importance via logistic regression and the creation of the model that would be based on this method. Online questionnaire survey was used for collecting the data. It has been realized in 2023 on the sample of 489 respondents. These respondents were employees of companies that

operated in the Slovak Republic. The model itself has been developed using logistic regression. The model has identified relevant characteristics of the pathological workplace: 1) sectoral type of the company; 2) type of corporate culture; 3) type of leadership. Toxic workplaces are present mostly in companies from accommodation and catering services where personal culture and authoritative leadership take place. With the same profile of corporate culture and leadership, also sectors of education, healthcare, and social assistance have been detected as more likely to be endangered by toxicity. However, little is known about the characteristics of pathological workplaces, which could help to prevent unhealthy relationships between managers and employees and lead the company to more effective production and operation on the market. The research abstracts from the generational specifics of subjects who are involved in the pathological working schemes.

Keywords: toxic workplace, pathological workplace, logistic regression model, NACE code, corporate culture, leadership

JEL Classification: O15, J81, J83

1. INTRODUCTION

Although the term "pathological workplace" is currently being widely discussed among scientists from various fields, there is still no established, precise definition of this term. One possible explanation could be the concept of the "dark triad" - composed of narcissism, Machiavellianism, and psychopathy - which helps to understand the nature of pathological behavior in terms of personality disorders (Muris et al., 2017). Generally, it is suggested that a pathological workplace is a environment where healthy relationships do not exist (Strenitzerova, 2016).

These relationships are established between a healthy boss and a healthy employee. Once the relationship between healthy individuals has been formed, the content of the relationship will automatically be healthy. Conversely, when there is imbalance and one of the individuals is not healthy, a pathological workplace is created. Thus far, the extent of pathological performance that can lead to workplace devastation has not been discussed. This would be determined based on the significance of different combinations of unhealthy statuses, specifically: 1) unhealthy boss vs. healthy employee; 2) healthy boss vs. unhealthy employee; and 3) unhealthy boss vs. unhealthy employee (Esaulova & Nagibina, 2017).

However, the topic of this paper does not pertain to this, but it could potentially serve as a foundation for further discussions on this topic within broader socio-economic contexts. The focus of this paper is on identifying the relevant factors of toxic or unhealthy workplace environments and their significance. This would allow for the assessment of whether pathological workplace relationships exist within a company, and enable more targeted efforts towards prevention and education in specific workplace settings. This approach would enable critical workplaces to be managed more effectively within the realm of HR management. By adopting this proactive managerial approach, rather than the prevailing reactive approach, the gap in scientific knowledge on this issue could be addressed. Currently, the scientific community primarily focuses on the consequences of toxic workplaces and the resulting circumstances, however, the emphasis on prevention is lacking. Both of these approaches revolve around toxicity, neglecting the need to prioritize prevention.

2. LITERATURE REVIEW

According to McKinsey and Company, toxic workplace behaviour is the primary indicator of employee burnout symptoms and intentions to leave (Kryshtanovych et al., 2022; Toxic Exodus, 2022). Additionally, Iqbal et al. (2022) have determined that despotic leadership, a toxic work environment, and cognitive distraction may elevate employee turnover intentions. The model for quantifying costs associated with "workplace monsters" was developed by Michalak and Ashkanasy (2020). This demonstrates the economic importance of avoiding toxic work environments as identified by Anjum et al. (2018). As previously stated, burnout symptoms are a negative consequence of a toxic work environment. This concept was formulated by Koropets and Polents (2019), who examined how employees perceive toxic factors in the workplace based on their level of emotional burnout. Their study concludes that the presence of objective toxic factors is relevant to the creation of a toxic workplace, as well as the individual personal characteristics of employees and managers. Therefore, they have not only verified the theory of the triple nature of toxicity in the workplace based on the involved subjects but have also indirectly identified the importance of corporate culture (Iershova et al., 2022;). The reason for this is that there are similarities between the characteristics of corporate culture and the characteristics of individual employees. Studies have shown that employees are more likely to work for companies where there is compatibility between the corporate values and their personal values (Illes & Vogell, 2018). This can have positive impact on work atmosphere in case when managerial efforts are aimed at increase of comfort at workplaces, particularly, by use of advanced technologies (Holoči & Chromjaková, 2022). In developing this point of view, Page and Mgwenya (2023) assert that a significant factor contributing to toxicity in the workplace is the presence of toxic HR practices, challenges encountered by HR professionals, and the pursuit of business results at all costs. Currently, there is much more developed research on the individual attributes and consequences of toxic workplaces, with a focus on identifying critical factors in the creation of toxic workplaces. This is the case of research focused on identification of prospective toxic workplace victims realized by Coate et al. (2023). Sull and Sull (2022) identified a gap in current knowledge on this topic and found that three main factors can contribute to toxic cultures in organizations: poor leadership, toxic social norms, and inadequately designed job roles (AlHumeisat, 2023). The essential components of toxicity in corporate culture, as stated by Besieux (2017) and Kulik et al. (2020), are leadership and social norm functional patterns. In addition to these two components, the sector of the national economy in which the company operates is also relevant according to Dartey-Baah et al. (2023).

The sectoral character of the company is one of the crucial characteristics (Monika & Strenitzerova, 2015). It is possible to anticipate that dysfunctional work environments would be more prevalent in sectors that involve manual labor (Vartiak, 2015). Conversely, sectors that are more intellectually focused are likely to be more resistant. This is because the employees in these sectors are typically more educated about the negative effects of a toxic workplace and generally have higher levels of IQ than those in sectors where manual labor is the primary focus (Creech, 2020; Potjanajaruwit, 2023). Surprisingly, the current research shows completely different findings. Specifically, Tregear et al. (2022) analysed the pathological aspects of the Australian academic workplace. They have discussed some of the institutional and cultural traits of the work environment that suggest high levels of workplace stress and mental harm. They have also stated that the change in the Australian academic environment could only be achieved if there is a generational change in the management of universities. The managerial aspect of unhealthy work environments in academic settings has also been highlighted by Zulkifly et al. (2021) in Malaysia and Loveday (2021) in the UK.

The interest in pathological work environments in academic settings has been established by the research of Urbina-Garcia (2020), who has focused on the mental health of academics. Additionally, stress has been an individual topic of research within the context of mental health and therefore could also be considered a potential unhealthy work environment in an academic setting (Wolniak & Szromek, 2020). It

is clear that terms such as pathological workplace, mental health, and stress are closely related, with a subtle distinction between them. This is partially due to the lack of a universally established definition for the term pathological workplace. However, what is much more significant in the realm of research focused on the unhealthy workplace in an academic setting is that the research is accumulating during and after the COVID-19 pandemic. This is also evident in the broader scientific interest in this issue. One possible explanation for this situation could be that changes in managerial communication strategies have occurred, leading to a shift towards a more directive management style and a more authoritarian form of communication in the workplace (Tannenbaum et al., 2021). Therefore, the toxic dynamic between unhealthy managers and employees is beginning to thrive. Managers now see employee independence as a form of rejection, leading to increased dissatisfaction and anxiety. Another industry that is extensively examined in terms of negative workplace characteristics is healthcare (Tastan, 2017; Jang & Lee, 2023). It could be said that the scientific interest in this issue is focused on helping professions, which are commonly discussed in relation to the phenomenon of burnout. Therefore, it could be assumed that the more a sector focuses on interacting with consumers through providing services, the greater the likelihood of a toxic workplace environment. Based on the SK NACE categorization and the literature review provided, these sectors are primarily healthcare and education, but other service sectors may also be relevant.

The importance of corporate culture is significant as it has the potential to create a negative work environment, regardless of other factors (Belas et al., 2024; Curseu et al., 2020; Mishchuk et al., 2021). A widely accepted concept of corporate culture, developed by Harrison and Handy, known as the Four Power Structures, includes: 1) personal culture; 2) power culture; 3) role culture; and 4) task culture (Usul & Caglan, 2023). Wilde (2016) has pointed out that a performance management system is one of the factors that could contribute to the development of a toxic workplace. This is because corporate culture is typically defined as a set of beliefs and behaviours that govern how a company's management and employees communicate and work together. This is one of the earliest connections identified between corporate culture and workplace toxicity. Most research is focused on the toxicity of corporate culture as an independent pathological phenomenon. This approach has been particularly developed by vanRooij and Fine (2018), who have highlighted that detoxifying corporate culture requires more than just changing leadership or incentive structures. Therefore, the researchers have identified the mutual connection between corporate culture, leadership, and toxicity. On the other hand, further direction for more analytical research in this area has been established. While originally, the reverse relationship between corporate culture and toxic workplaces (i.e., how toxicity in the workplace influences corporate culture) has been discussed, nowadays the cultural aspect of toxic workplaces in the scope of individual components and indicators of corporate culture dominates. Appelbaum et al. (2007) investigate the effects on organizations of negative deviant workplace behaviours, which are actions that go against organizational norms, policies, or internal rules, as well as positive deviant workplace behaviours, which are actions that violate them in a positive way. Clark (2023) analyses whistleblowing as an important indicator of the health of corporate culture, not only in terms of its content but also in terms of corporate attitudes towards this phenomenon.

It is clear that corporate culture and its various forms are not extensively considered in terms of their precise influence on workplace toxicity. There are only indirect indicators of the mutual relationship between them. However, it can be assumed that the more corporate culture based on power, the more fragile the workplace is to be harmed by toxicity. Within the typology used, power culture would be more likely to be a relevant factor of toxic workplace creation.

Although Too and Harvey (2012) have noted that toxic workplaces can give rise to dysfunctional social behaviours, specifically bullying and destructive leadership, it is not often that leadership and its patterns are directly linked to the concept of pathological workplaces. Instead, discussions more commonly focus on psychological deficiencies in individuals, such as narcissism in managerial roles. Therefore, toxicity and

leadership are mostly analysed in terms of the mutual interconnections within their environment of occurrence, which unify political and managerial dimensions and discuss similar pathological consequences such as sustainability and long-term development (Boddy, 2023). These discussions align with research on the consequences of ethical and unethical leadership (Kristinsson et al., 2022). In their study, Jang and Lee (2022) investigate whether nurses' pathological narcissism and interpersonal cognitive distortions can predict workplace bullying, while taking into account organizational culture, work-related factors, and demographic variables. Their research strongly emphasizes the intersection with corporate culture. They ultimately determine that the presence of psychological flaws in managers and team leaders is common, and the important issue is whether they have any impact on the model of leadership. Based on this fact, corporate culture is a key factor in the development of narcissistic traits in managerial roles. While the number of narcissistic personalities in leadership positions is increasing, their negative influence on the workplace could be mitigated by a functional corporate culture. This situation was also addressed by LaGuardia and Oelke (2021), who analysed the impact of incivility and bullying in healthcare. They conducted a critical analysis of how organizational culture and neoliberal ideology affect the pervasiveness and persistence of these negative behaviours. However, in this study, the leadership patterns have not been discussed separately. The authors have simply noted that there is a relationship between corporate culture and the promotion of dysfunctional environments in the workplace. Abalkhail (2022) has identified the consequences of dysfunctional leadership and clearly stated that toxicity in the workplace is one of them. However, there has been no identification of forms of pathological leadership that may be more suitable for the cultivation of toxic workplaces, as mentioned by Mackey et al. (2021). On the contrary, positive leadership, as highlighted by Łucjan (2023) contributes to organizational commitment, and innovative development in business, as noted by Oliinyk et al. (2024). There is just stated how the characteristics of a toxic leader are. Thus, it can be just expected that the more autocratic the type of leadership would be, the more toxic workplace would be cultivated if the personality of the leader would somehow defect. One of the most widely used concepts of corporate culture distinguishes between: 1) authoritative leadership; 2) democratic leadership; 3) liberal leadership; and 4) participatory leadership (Hopp & Pruschak, 2023). Therefore, it can be assumed that workplaces with a more centralized and autocratic style of leadership are more susceptible to harm from toxic behaviour. Within the framework being discussed, authoritative leadership is likely to play a significant role in the creation of a toxic work environment.

3. METHODOLOGY

The method of inquiry, namely an online questionnaire survey, was used to collect the data. There were 31 questions in the online survey. The questionnaire was created based on the professional knowledge of individual authors. The questions were created based on previous research by authors such as Krizanova and Michulek (2022), Michulek et al. (2022), and Michulek and Krizanova (2023). A general section of the questionnaire asked participants to provide their gender, age, greatest level of education, and SK NACE. Questions about the working environment, corporate culture, work commitment, leadership, communication, information, motivation, disputes, and bullying at work were then developed.

To make the research relevant, it is required to determine the number of respondents. However, before we can calculate the sample size, we must first establish the size of the base file. The data were compiled using demographic and social statistics from the Statistical Office's website, as well as the DATAcube database. According to the demographic balance by age, the Slovak Republic has a total population of 3,412,091 people aged 18 to 64 as of December 31, 2022. Residents aged 18 to 64 were chosen because they are an economically engaged demographic (with work experience). The sample calculation was performed using the sample calculation formula (1).

$$Sample\ size = \frac{\frac{z^2 \cdot p \cdot (1-p)}{e^2}}{1 + \frac{z^2 \cdot p \cdot (1-p)}{e^2 \cdot N}} \quad (1)$$

Where: N is the sample size, which in our instance is 3,441,509 Slovak Republic residents aged 18 to 64. e is the allowed margin of error. In our computation, it is set to 5%, and it enters the formula as a decimal number, 0.05. p denotes the probability value of the response distribution. In reality, 50% is most commonly replaced for the p value, with a decimal number (0.5) entering the formula. Z denotes the Z-score. It is a value that is entered into statistical tables. If the significance threshold is $\alpha = 0.05$ and the confidence level is 95%, the Z-score will be 1.96, as shown in the tables.

$$Sample\ size = \frac{\frac{1{,}96^2 \cdot 0{,}5 \cdot (1-0{,}5)}{0{,}05^2}}{1 + \frac{1{,}96^2 \cdot 0{,}5 \cdot (1-0{,}5)}{0{,}05^2 \cdot 3\,441\,509}} = 384\ respondents \quad (2)$$

The questionnaire was developed with the Google Forms program, which is used for online data collection. Questionnaires were then e-mailed to over 1,000 subjects. The companies mentioned came from the Finstat database. The required sample size of 384 respondents was met, with 489 replies received, and the survey was concluded. 489 respondents who worked for businesses with operations in the Slovak Republic in a range of economic sectors answered the questionnaire. Data were gathered between August 1 and October 1 of 2023. All data gathered via the online survey were analysed using IBM SPSS Statistics 25.

Logistic regression (logit model) was used for data processing, which is mainly used for models that have a dichotomous output variable (Durica et al., 2019). In logit models, the logarithm of the odds ratio of the predicted variable is calculated as a linear combination of predictors (Kliestik et al., 2018). The logit model thus provides the possibility of modelling complex relationships between variables but assumes a log-linear relationship between the explained and explanatory variables (Garbarova et al., 2017). Logistic regression is particularly useful when predicting a binary outcome from continuous independent variables (Jankalova & Vartiak, 2016; Kovacova & Kliestik, 2017).

Logit is defined as ln (odds) = $\ln\left(\frac{\pi}{1-\pi}\right)$ with values from $-\infty$ to ∞. If we use logit as the explanatory variable, the logistic regression function will be:

$$logit(\pi) = \ln\left(\frac{\pi}{1-\pi}\right) = \beta_0 + \beta_1 X_1 + \cdots + \beta_k X_k \quad (3)$$

The odds and the probability are then obtained by the reverse transformation:

$$\frac{\pi}{1-\pi} = e^{\beta_0 + \beta_1 X_1 + \cdots + \beta_k X_k} \quad (4)$$

where logit is the 100 percent quantile of the logistic distribution.

The logistic regression model is used as an integral part of any data analysis, which concerned with explaining the correlation between a response variable and one or more analytical variables (Setiawan et al., 2019). The logistic regression model is frequently used for the analysis of data in the field of labour condition research as well (Lohela-Karlsson et al., 2015; Rubio, et al., 2015; Karhula et al., 2017; Kim et al., 2020; Davidescu et al., 2020; Oh et al., 2021; Garbarova & Vartiak, 2022). When building the model step by step, checking if the variable removed from the model is significant, so if the model can be simplified, the logistic regression test is recommended (Davidescu et al., 2020; Nattino et al., 2020; Garbarova & Vartiak, 2021), so the Omnibus test of Model Coefficients and Hosmer and Lemeshow goodness-of-fit test was also used in this study. In our research, we used variables in logistic regression that were coded. Their explanation is given in the following Table 1.

Table 1

Explanation of coded variables

	Variable	Coded Variable
SK NACE	SKNACE	Wholesale and retail
	SKNACE(1)	Accommodation and catering services
	SKNACE(2)	Administrative and support services
	SKNACE(3)	Agriculture, forestry and fishing
	SKNACE(4)	Arts, entertainment and recreation
	SKNACE(5)	Construction industry
	SKNACE(6)	Education
	SKNACE(7)	Financial and insurance activities
	SKNACE(8)	Healthcare and social assistance
	SKNACE(9)	Industrial production
	SKNACE(10)	Information and communication
	SKNACE(11)	Supply of electricity and gas
	SKNACE(12)	Transport and storage
Company Culture	Company Culture	Task Culture
	Company Culture(1)	Personal Culture
	Company Culture(2)	Power Culture
	Company Culture(3)	Role Culture
Leadership	Leadership	Participatory Leadership
	Leadership(1)	Authoritative Leadership
	Leadership(2)	Democratic Leadership
	Leadership(3)	Liberal Leadership

Source: Own processing

4. EMPIRICAL RESULTS

The research involved 489 respondents. All measurements were valid, meaning that none of the responses were excluded from further research. If we look at the demographic composition of the respondents' answers, out of the total number of 489 respondents, 50.92% were women (249) and 49.08% were men (240). We can conclude that the sample exhibits gender equality. In terms of age, the respondents were divided into three age groups, namely 18-25 years, 26-45 years, and 46 and over. The age of 18 was chosen because many residents of the Slovak Republic are getting their first work experience. We did not set an upper limit, as the retirement age in the Slovak Republic is 64, but some residents work until retirement age. We decided to create the age groups in this way because people aged 18–25 are gaining their initial working experience and looking for a suitable job position. People aged 26-45 are people with work experience who have stabilized in their work. Workers aged 46 and over are considered very experienced people, mostly in higher positions. The least numerous group were respondents aged 18–25, and they made up 20.56% of the total number, which represents 102 respondents. The group aged 26-45 was the most numerous, with a frequency of 234, which is 47.85% of respondents. The second largest group were workers aged 46 and over—31.29% (153). This structure also corresponds to the age distribution of the population of the Slovak Republic aged 18-66 (age of the oldest respondent). Figure 1 shows the age composition of respondents by gender. At the age of 18–25, women predominate (68). In the remaining age groups, the respondents were more male. Men were the most frequent respondents aged 26–45 (119), which also applies to women (115).

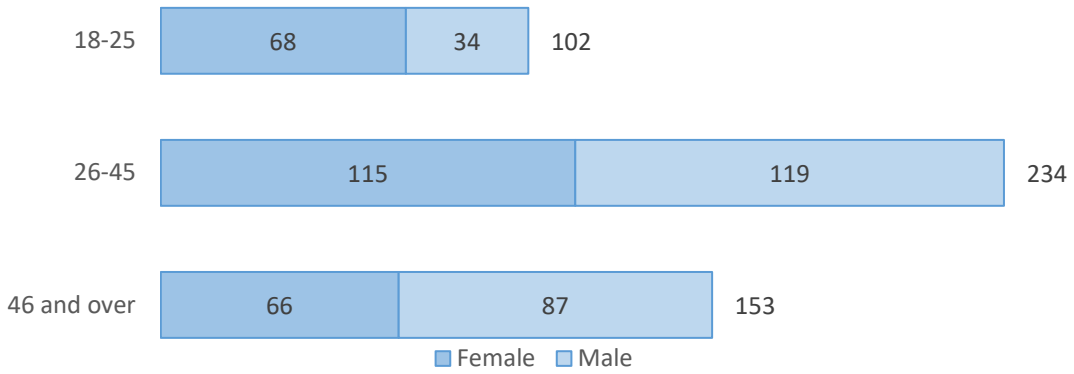

Figure 1. Age composition of respondents by gender
Source: Own processing

61.9% of respondents answered no to the question of whether they had witnessed pathological relationships at the workplace. There are a total of 300 respondents. It follows that 189 respondents answered yes to the question, which is 38.7%. Most respondents were employed in microenterprises—167, which represents 34.2%; 128 employees (26.2%) worked in large companies; 106 employees (21.7%) worked in small companies; and the least number of them worked in medium-sized companies: 88 (18.0%). In terms of company size, 57 respondents working in microenterprises answered that they had witnessed pathological relationships in the workplace. It follows that more than 34% of respondents working in microenterprises experienced manifestations of pathological relationships at the workplace. This is a surprising finding, as many microenterprises in the territory of the Slovak Republic are characterized by a family and friendly atmosphere. Table 2 shows that employees of medium-sized enterprises experienced pathological relationships at the workplace in only 49 cases out of a total of 88.

Table 2

Occurrence of pathological relationship according to company size

Company Size * Occurrence of pathological relationships Crosstabulation				
Count				
		Occurrence of pathological relationships		Total
		No	Yes	
Company Size	Large Company	88	40	128
	Medium-sized Company	39	49	88
	Micro Company	110	57	167
	Small Company	63	43	106
Total		300	189	489

Source: Own processing

In 56 cases, most employees worked in enterprises in SK NACE category D—Supply of electricity and gas. It was followed by SK NACE F—Construction industry—with a number of 49, SK NACE H—Transport and storage (47), or SK NACE C—Industrial production (44). The fewest respondents worked in SK NACE R—arts, entertainment, and recreation—with only 23 respondents, or SK NACE I—accommodation and catering services (32). These are not surprising results, as the Slovak Republic is considered an industrial country. In terms of the occurrence of pathological relationships at the workplace, the riskiest industry is SK NACE I—accommodation and catering services (25 cases of bullying). In SK NACE P—Education, the occurrence of these unethical relationships also prevails in as many as 23 cases. SK NACE Q: Healthcare and social assistance have the same number of occurrences. In the case of SK

NACE K—Financial and insurance activities, the number of occurrences is 50% of respondents. Pathological relationships had the lowest occurrence in SK NACE N—administrative and support services. More detailed results can be seen in Table 3.

Table 3

Occurrence of pathological relationship according to SK NACE

SKNACE * Occurrence of pathological relationships Crosstabulation				
Count				
		Occurrence of pathological relationships		Total
		No	Yes	
SK NACE	Accommodation and catering services (1)	7	25	32
	Administrative and support services (2)	32	4	36
	Agriculture, forestry, and fishing (3)	22	9	31
	Arts, entertainment, and recreation (4)	13	10	23
	Construction industry (5)	32	17	49
	Education (6)	5	23	28
	Financial and insurance activities (7)	17	17	34
	Healthcare and social assistance (8)	14	23	37
	Industrial production (9)	27	17	44
	Information and communication (10)	20	14	34
	Supply of electricity and gas (11)	44	12	56
	Transport and storage (12)	37	10	47
	Wholesale and retail (13)	30	8	38
Total		300	189	489

Source: Own processing

When investigating the issue of corporate culture, we used the division according to Harrison and Handy, who divided corporate culture as follows: personal culture, power culture, role culture, and task culture. Task culture occurred in 47% of cases (230). The least common culture was power culture in 79 cases, which represents 16.2%. Table 4 shows that the most frequent pathological relationships at the workplace occurred in the Tas culture environment (61), which represents approximately 26.5%. The smallest occurrence was in the case of personal and power cultures, namely 40 (48.2%), respectively. 39 (49.4%).

Table 4

Occurrence of pathological relationship according to company culture

Company Culture * Occurrence of pathological relationships Crosstabulation				
Count				
		Occurrence of pathological relationships		Total
		No	Yes	
Company Culture	Personal Culture	43	40	83
	Power Culture	40	39	79
	Role Culture	48	49	97
	Task Culture	169	61	230
Total		300	189	489

Source: Own processing

The most common style of leadership in the examined companies was democratic leadership. It occurred in 177 cases, which represents 36.2%. The least used type was participatory leadership, with 66 occurrences, which represents 13.5%. If we take a closer look at the results in Table 5, pathological relationships at the workplace had the highest occurrence in the case of authoritative leadership, up to 78

times, which represents 70.3%. Bullying also had a high share in liberal leadership, namely 40.7%. These unethical manifestations of behaviour occurred the least in participatory leadership, in only 18 cases.

Table 5

Occurrence of pathological relationship according to leadership

Leadership * Occurrence of pathological relationships Crosstabulation				
Count				
		Occurrence of pathological relationships		Total
		No	Yes	
Leadership	Authoritative Leadership	33	78	111
	Democratic Leadership	139	38	177
	Liberal Leadership	80	55	135
	Participatory Leadership	48	18	66
Total		300	189	489

Source: Own processing

Subsequently, we processed the data through logistic regression, where the Forward:LR method was used. The method consists of several steps, where in the zero step only the constant enters the model, and then the variables with the highest scores are assigned, while the statistical significance of the contribution of the given variable is subsequently verified. Logistic regression in our research took place in three steps, which can be seen in the first column of Table 6. The Omnibus Tests table contains the $\chi 2$ test of model significance, which is analogous to the F-test in linear regression. The change in the model from the previous model 0, where only a constant was included, was statistically significant in each of the three steps.

Table 6

Omnibus tests of model coefficients

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	73.425	3	0.000
	Block	73.425	3	0.000
	Model	73.425	3	0.000
Step 2	Step	66.677	12	0.000
	Block	140.102	15	0.000
	Model	140.102	15	0.000
Step 3	Step	10.617	3	0.014
	Block	150,719	18	0.000
	Model	150,719	18	0.000

Source: Own processing

Table 7 contains statistics characterizing the quality of the explanatory power of the model. Based on the Nagelkerke R square value in the third step of selecting explanatory variables, it can be concluded that the model explains 36% of the variability of the dependent variable. The Hosmer and Lemeshow goodness-of-fit test is also presented, which, as we can see, is significant in the last step as its value is higher than the α 0.05 significance level. Based on the result of this test, it is also possible to state that the models in previous steps were also significant.

Table 7

Model summary and Homer and Lameshow test

Model Summary				Hosmer and Lemeshow Test		
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square	Chi-square	df	Sig.
1	579.055a	0.139	0.189	0.000	2	1.000
2	512.379b	0.249	0.338	5.369	8	0.717
3	501.762b	0.265	0.360	5.350	8	0.720
a. Estimation terminated at iteration number 4 because parameter estimates changed by less than 0.001.						
b. Estimation terminated at iteration number 5 because parameter estimates changed by less than 0.001.						

Source: Own processing

In the Table 8, it is possible to see how individual variables were entered into the model. First, the leadership variables (1-3), which represent authoritative, democratic, and liberal leadership, entered the model. In the next step, the SK NACE variables were added: accommodation and catering services; administrative and support services; agriculture, forestry, and fishing; arts, entertainment, and recreation; construction industry; education; financial and insurance activities; healthcare and social assistance; industrial production; information and communication; supply of electricity and gas; transport and storage. In the third step, company culture variables entered the model. Specifically, it was personal, power, and role culture. The table shows that the variable enterprise size is insignificant for our model and was not included in it.

Table 8

Variables in the Equation

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 3c	SKNACE			53.990	12	0.000	
	SKNACE(1)	2.559	0.627	16.633	1	0.000	12.920
	SKNACE(2)	-0.488	0.701	0.484	1	0.487	0.614
	SKNACE(3)	0.565	0.610	0.857	1	0.355	1.759
	SKNACE(4)	1.405	0.633	4.923	1	0.027	4.077
	SKNACE(5)	0.645	0.546	1.396	1	0.237	1.906
	SKNACE(6)	2.535	0.732	11.999	1	0.001	12.615
	SKNACE(7)	1.586	0.579	7.512	1	0.006	4.884
	SKNACE(8)	2.018	0.624	10.453	1	0.001	7.520
	SKNACE(9)	1.058	0.555	3.638	1	0.056	2.881
	SKNACE(10)	1.288	0.578	4.968	1	0.026	3.627
	SKNACE(11)	0.361	0.568	0.404	1	0.525	1.434
	SKNACE(12)	-0.001	0.593	0.000	1	0.999	0.999
	Company Culture			10.637	3	0.014	
	Company Culture(1)	0.928	0.325	8.149	1	0.004	2.530
	Company Culture(2)	0.737	0.336	4.800	1	0.028	2.089
	Company Culture(3)	0.137	0.363	0.143	1	0.705	1.147
	Leadership			39.632	3	0.000	
	Leadership(1)	1.445	0.411	12.375	1	0.000	4.240
	Leadership(2)	-0.570	0.372	2.351	1	0.125	0.566
	Leadership(3)	0.159	0.370	0.186	1	0.666	1.173
	Constant	-1.995	0.527	14.349	1	0.000	0.136
c. Variable(s) entered on step 3: Company Culture.							

Source: Own processing

The results of the model can be written in the following form:

$$
\begin{aligned}
&logit(occurance\ of\ pathological\ relationships)\\
&= -1.995 + 2.559\ SKNACE(1) - 0.488\ SKNACE(2)\\
&+ 0.565\ SKNACE(3) + 1.405\ SKNACE(4) + 0.645\ SKNACE(5)\\
&+ 2.535\ SKNACE(6) + 1.586\ SKNACE(7) + 2.018\ SKNACE(8)\\
&+ 1.058\ SKNACE(9) + 1.288\ SKNACE(10)\\
&+ 0.361\ SKNACE(11) - 0.001\ SKNACE(12)\\
&+ 0.928\ Company\ Culture(1) + 0.737 Company\ Culture(2)\\
&+ 0.137\ Company\ Culture(3) + 1.445\ Leadership(1)\\
&- 0.570 Leadership(2) + 0.159 Leadership(3)
\end{aligned}
\tag{5}
$$

Based on the results that can be obtained after the calculation through the previous equation (1), it is possible to determine whether there are pathological workplace relations in the company or not. As part of the classification, the threshold value was set at 0.5. This information follows from Table 9.

Table 9

Classification table of logistic regression

Classification Table[a]					
	Observed		Predicted		
			Occurrence of pathological relationships		Percentage Correct
			No	Yes	
Step 3	Occurrence of pathological relationships	No	259	41	86.3
		Yes	81	108	57.1
	Overall Percentage				75.1
a. The cut value is 0.500					

Source: Own processing

From Figure 2, it can be seen that under a value less than 0.5, the majority of responses indicated that there were not pathological relationships present in the workplace. At the same time, we can say based on the previous table that the correctness of the classification of the answer no in the model is 86.3%. If yes, it has a value of 57.1%. These values are located above the value 0.5 on the histogram. From this, it can be concluded that the classification ability for the studied category is not the best.

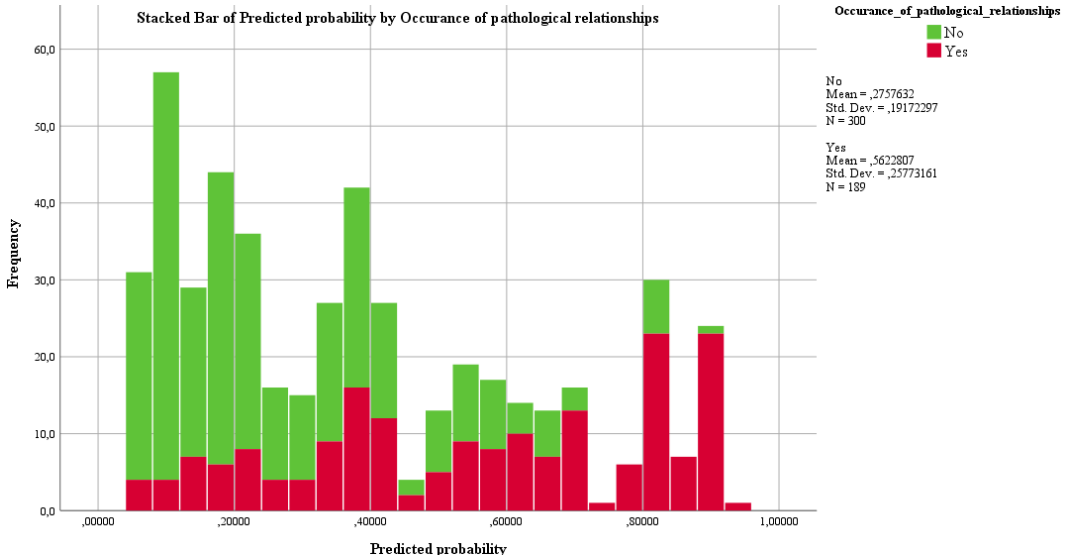

Figure 2. Histogram of predicted probability

Source: Own processing

Based on the implementation of decision trees, it can be concluded that for categorical dependent variables, the Table 10 shows the number of cases classified correctly and incorrectly for each category of the dependent variable. From this, we can conclude that the overall classification ability of the model is 72.8%. If the answer to the occurrence of pathological relationships at the workplace was no, then these values were included in the models correctly in 76.7% of cases. In the case of yes, these values were classified correctly only in 66.7% of cases.

Table 10

Classification table of Decision tree

Classification			
	Predicted		
Observed	No	Yes	Percent Correct
No	230	70	76.7%
Yes	63	126	66.7%
Overall Percentage	59.9%	40.1%	72.8%
Growing Method: CRT Dependent Variable: Occurrence of pathological relationships			

Source: Own processing

5. DISCUSSION

The research outcomes develop the current state of knowledge in the field of pathological workplaces and workplace toxicity. Especially, the research follows the conclusion of Coate et al. (2023), who state that currently, the scientific attention is mainly paid to the issue of toxic workplace consequences and circumstances that follow the toxicity on the workplace. Thus, the focus on the prospective ex ante approach platform via identification of toxic workplace characteristics significantly enriches contemporary scientific optics of this phenomenon. Our research has proved the influence of leadership on workplace toxicity, as it has been identified by Sull and Sull (2022), Besieux (2017), and Kulik et al. (2020). Similarly, the importance of the sector of the national economy where the company operates, as stated by Dartey-Baah et al. (2023), has been proved via our research. Moreover, specific status of corporate culture, which has been so far included in the research of the phenomenon of workplace toxicity mainly indirectly, has been identified (Curseu et al., 2020). Based on the literature review, it has been assumed that the more the sector focused on the contact with consumers via providing services, the higher would be the probability of toxic workplace cultivation. Within the SK NACE categorization used and according to the provided literature review, these sectors would be mainly healthcare and education, but possible is also relevancy of other service sectors (Tastan, 2017; Urbina-Garcia, 2020; Wolniak & Szromek, 2020; Zulkifly et al., 2021; Loveday, 2021; Tregear et al., 2022; Jang & Lee, 2023). The research itself has verified this original presumption, and service sectors have been identified as more willing to create toxic workplace environments—especially in the case of accommodation and catering services, education, and healthcare. Surprisingly, the first sector, which is listed, is analyzed in contemporary scientific literature in terms of selected issues just marginally, and the majority of scientific attention is paid to the second and third sectors, i.e., education and healthcare services. Regarding the corporate culture, it has been assumed that the more corporate culture based on power, the more the workplace the workplace would be fragile to be harmed by toxicity (Wilde, 2016; vanRooij & Fine, 2018; Clark, 2023). Within the typology used, power culture would be more likely to be a relevant factor of toxic workplace creation. However, our research has shown that personal culture is the most relevant to the toxic workplace identification. In scope of style of leadership, it has been assumed that the more centralized and authocratic the style of leadership would be, the more would be the workplace fragile to be harmed by toxicity (LaGuardia & Oelke, 2021; Abalkhail, 2022; Boddy, 2023). Within the typology used, authoritative leadership would be more likely to be a relevant factor of toxic workplace creation. This assumption has

been confirmed via our research. Prospective future directions of the research could follow the research of Koropets and Polents (2019), who have analyzed the features of employees' perceptions of toxic factors in the workplace depending on the degree of their emotional burnout. As they have concluded that not only the presence of objective toxic factors is relevant to the toxic workplace creation but also the individual personal characteristics of employees and managers, it could be presumed that there is still space for more analytical research focused on the generational specifics of workplace toxicity perception. Here, also one of the limits of own research could be present, as the outcomes are of general character regardless of the generational specifics of subjects who are involved in the pathological working schemes. This theoretical flow relevant to the subject of the toxicity has been identified as significant for the whole research in this area (Strenitzerova, 2016; Muris et al., 2017; Esaulova & Nagibina, 2017). Thus, the research of the content and real perception of workplace toxicity takes place not only in an economic and managerial context but also in a wider social context. Despite this limit, own research doesn´t lose scientific importance because the research sample has been chosen based on normal distribution. It means that the results should be adequate for the whole population. On the other hand, not only such general outcomes are valuable for the theory and practice of toxic workplace phenomena but also demographically analyzed outcomes where prospective divergences across models could be detected due to the generational specifics (resp. others relevant like education, working period, character of living place, and so on). Another prospective limit of own research could be present in the regional character of the research. However, in this case, the regional approach forms one of the pillars of research in this area (Karhula et al., 2017; Loveday, 2021; Dartey-Baah et al., 2023). The reason is that national psychographic specifics are a significant factor in toxic workplace perception when the theory of subjects that has been mentioned above is applied. However, research outcomes and the model itself could be applied in the countries, which have convergent national psychographic profiles. The prospective future direction of further research in this area could be the cross-national analysis among nations, which is divergent from a psychographic point of view for purposes of multinational workplace HR management.

6. CONCLUSION

The aim of this paper was to identify key relevant characteristics of pathological workplaces and their importance via logistic regression and the creation of the model that would be based on this method. To collect the data, it has been used the method of an online questionnaire survey. The survey has been realized between August 1 and October 1 of 2023 on the sample of 489 respondents. These respondents were employees of companies that operated in the Slovak Republic in a range of economic sectors and answered the questionnaire. The questionnaire contained 31 questions divided between a demographic part and a descriptive part focused on the working environment, corporate culture, work commitment, leadership, communication, information, motivation, disputes, and bullying at work. The model has been developed using logistic regression. The validity of the model has been calculated at the level of 72.8%. Based on the model, it is possible to determine whether there are pathological workplace relations in the company or not. The variables that entered into the model were NACE classification, corporate culture, and leadership. Once substituting to the formula of the model, the result with a positive value indicates the existence of pathological relations, and vice versa, the result with a negative value does not indicate the existence of pathological relations. It has been identified that toxic workplaces occur mostly in companies from accommodation and catering services where personal culture and authoritative leadership take place. With the same profile of corporate culture and leadership, also sectors of education, healthcare, and social assistance have been detected as more likely to be endangered by the toxicity of the workplace.

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