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The application of Wong-Law Emotional Intelligence Scale in companies in Serbia

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Abstract: *The emotional intelligence (EI) is a significant concept that affects the management processes and employees in organisations. The psychologists and managers worldwide have also accepted the concept by applying different emotional intelligence models in their working practice. The paper emphasises the importance of measuring emotional intelligence in contemporary management and analyses the application of the Wong-Law Emotional Intelligence Scale (WLEIS) in companies in the Republic of Serbia. The WLEIS model is a 16-item self-report measure of emotional intelligence based on the revised Mayer and Salovey (MEIS) model with four branches (assessment of own emotions, assessment of others' emotions, use of emotions and regulation of emotions). The survey presented in this manuscript included top and middle managers (N=128) and tested their emotional intelligence abilities. The aim of this study was to apply the Wong-Law Emotional Intelligence Scale within the managers in companies in the Republic of Serbia, and to determine the difference between the genders and management levels. The research findings have demonstrated that the managers in tested companies had moderately high scores in the scale. However, the highest scores were registered for the variables of Others-*

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Emotion Appraisal and the research was further oriented towards the analysis of this aspect of emotional intelligence by gender and management levels.

Keywords: *emotional intelligence (EI), WLEIS model, emotions, emotional intelligence measurement, Others-Emotion Appraisal*

Primena Wong-Law skale emocionalne inteligencije u kompanijama u Srbiji

Apstrakt: *Emocionalna inteligencija (EI) je značajan koncept koji utiče na procese upravljanja i zaposlene u organizacijama. Psiholozi i menadžeri širom sveta su takođe prihvatili koncept na osnovu primene različitih modela emocionalne inteligencije u svojoj radnoj praksi. U radu se ističe značaj merenja emocionalne inteligencije u savremenom menadžmentu i analizira primena Wong-Law skale (WLEIS) u srpskim kompanijama. WLEIS model je mera emocionalne inteligencije koja obuhvata 16 stavki samoprocene na bazi revidiranog Mayer and Salovey (MEIS) modela, sa četiri oblasti (procena sopstvenih emocija, procena emocija drugih, upotreba emocija i regulacija emocija). Istraživanje predstavljeno u ovom radu obuhvatilo je najviše i srednje nivoe menadžera (N=128) iz srpskih kompanija kod kojih su testirane sposobnosti emocionalne inteligencije. Cilj ove studije je bio da se primeni Wong-Law skala emocionalne inteligencije kod menadžera u kompanijama u Republici Srbiji i da se utvrdi razlika između polova i nivoa menadžmenta. Rezultati istraživanja su pokazali da su menadžeri u testiranim kompanijama imali umereno visoke rezultate na skali emocionalne inteligencije. Najveći rezultati su zabeleženi za varijable koje se odnose na procene emocija drugih, tako da je istraživanje dalje orijentisano ka analizi ovog aspekta emocionalne inteligencije prema polu i nivoima upravljanja.*

Ključne reči: *emocionalna inteligencija (EI), WLEIS model, emocije, merenje emocionalne inteligencije, procena emocija drugih*

1. Introduction

Regarding the increasing importance of emotional intelligence in management studies, the paper analyses the application of the Wong-Law Emotional Intelligence Scale (WLEIS) in practice. The WLEIS model is a self-report measure of emotional intelligence based on the revised Mayer and Salovey (MEIS) model with four group of variables (assessment of own emotions, assessment of others' emotions, use of emotions and regulation of emotions). The scientific significance of this model is that it has a wide application in different cultural contexts, which has been proven in numerous studies conducted in Eastern and Western Europe, South America, Canada and Asian

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countries (Li et al., 2012; Libbrecht, et al., 2014; Illicento & Fino, 2017; Extremera et al., 2019; Shah, 2022). The starting point in this research was the fact that there is a certain research gap in literature dealing with the application of Wong-Law Emotional Intelligence Scale in the Republic of Serbia. However, it should be noted that some authors in literature (Nikolić et al., 2014; Nikić & Mitrović, 2015, Kontić et al. 2023) dealt with the issue of emotional intelligence of managers in Serbia indicating its importance from the context of entrepreneurship, job satisfaction, productivity, and communication in organisation. In addition, certain studies have analysed the application of the Trait Emotional Intelligence Questionnaire, as a research instrument for emotion-related self-perceptions of managers in Serbia (Jolić – Marjanović & Altaras – Dimitrijević, 2015) and Emotional and Social Competency Inventory Scale that was related to organisational performance of employees (Strugar et al, 2022).

Bearing in mind the stated starting points of the research, the aim of this study was to apply the Wong-Law Emotional Intelligence Scale within the managers in companies in the Republic of Serbia, and to determine the difference between the genders and management levels.

The survey was conducted on a sample of 128 managers during May and June 2022. Data analysis was performed by SPSS program functions of descriptive statistics, t-test, and factor analysis. Bearing in mind that respondents' answers regarding variables of others-emotions appraisal were assessed with highest scores, the research was particularly oriented towards this branch of emotional intelligence from the scale. Therefore, the study was focused on the following variables: var 13: I am able to control my temper so that I can handle difficulties rationally; var 14: I am quite capable of controlling my own emotions; var 15: I can always calm down quickly when I am very angry; var 16: I have good control of my emotions. The selected variables were tested between different genders and management levels.

2. Literature review

Emotional intelligence originates from the concept of "social intelligence", a term used by E. L. Thorndike in 1920 (Thorndike & Stein, 1937). Social intelligence was defined as the ability to understand and manage people and act wisely in human relationships (Wong &, Law, 2002). Salovey and Mayer were among the first to introduce the term "emotional intelligence," describing it as the ability to recognise the meaning of emotions and their interrelationships (Salovey & Mayer, 1990). This term implies accurate assessment and expression of emotions in oneself and others, as well as constructive management of emotions.

In recent years, Goleman has popularised the concept of emotional intelligence and attracted the attention of academics and practitioners worldwide. The author indicates that emotional intelligence is not opposed to rational intelligence, but is a different, separate ability. The emotional and rational mind are not incompatible, but rather complementary abilities, which strongly affect our happiness and success in life. Therefore, the logic of mind and heart, must be in balance for a person to be happy and to work well and successfully (Goleman, 1995). According to Sparrow and Knight (2009) emotional intelligence is a common practice:

- using emotional information from ourselves and other people;
- integrating this information with our thinking;
- and using it to inform decision-making to help us get what we want from our current situation and from life in general.

Relevant scientific studies in literature (Sy, Tram & O'Hara, 2006; Prati et al., 2003, Papathanasiou & Siati, 2014 and Wen et al., 2019) have shown that emotional intelligence of employees is positively related to job satisfaction and that employees (both leaders and followers) with higher emotional intelligence have greater work ability. Other studies have demonstrated the significance of emotional intelligence competences in leadership (Saha et al., 2023). Therefore, the emotional intelligence has been recognised as a significant concept that affects the management processes and human resources in organisations. The psychologists and human resource managers worldwide have also accepted the concept by applying different emotional intelligence models in their working practice. According to literature review there are several important models that are highly accepted in scientific circles. Goleman's model defines the concept of emotional intelligence through four key dimensions that include: 1) self-awareness, 2) self-management, 3) social awareness and 4) relationship management (Goleman, 2000). The Mayer-Salovey model is an ability-based model of emotional intelligence that is described as a subset of social intelligence and represents an empirically derived combination of emotions and intelligence (Mayer et al., 1999). This model defines emotional intelligence as the ability to monitor one's own and other people's feelings, recognise their meaning and relationships, understand them, and solve problems based on all this knowledge. The Multifactor Emotional Intelligence Scale (MEIS) is an ability-based test (Mayer, Salovey, & Caruso, 1997). Initial research with these scales suggests that they are internally consistent, have adequate content validity, and construct validity. A newer version of the test, which is known as the Mayer - Salovey - Caruso Emotional Intelligence Test (MSCEIT) measures the subject's ability to perceive, use, understand and regulate emotions (Mayer et al. 2002). Another dominant instrument for self-assessment of emotional intelligence in business and scientific practice, is known as WLEIS model (Wong & Law, 2002). It is a

16-item self-report measure of emotional intelligence based on the revised MEIS model with four dimensions (assessment of own emotions, assessment of others' emotions, use of emotions and regulation of emotions).

The WLEIS was originally developed in the Far East (Hong Kong and China), and its four-factor structure has been endorsed in different countries and cultural contexts worldwide. The study conducted by Libbrecht et al. (2014) has also indicated that the measurement structure of the WLEIS was invariant across different cultures. Iliceto and Fino (2017) were using the model for measuring the levels of emotional intelligence on a sample of community participants in Italy. Similar tests were provided in the studies made by Sulaiman and Noor (2015) on a sample of government officers in Malaysia, Extremera et al. (2019) on a large sample of 1,460 adults (university students and community participants) in Spain, Carvalho et al. (2016) on a sample of medical students, Acosta-Prado and Zárata-Torres who applied the instrument on a sample of 100 managers in Chile.

In comparison with other models of emotional intelligence, the WLEIS has certain specificities. Brannick et al. (2009) have indicated that WLEIS scores have higher correlations with respondents' personality scales compared to the Meyer–Salovey–Caruso Emotional Intelligence Test. In addition, Trivellas, Gerogiannis, & Svarna, S. (2013) have recognised that the model is reliable for predicting external variables such as life satisfaction and job performance.

Furthermore, Lountzis & Palaskas (2022) consider the WLEIS model suitable for providing measurements on empathy and social skills within managers. The study conducted by Oztimurlenk (2020) indicated that the WLES scale was reliable (Cronbach's alpha values were higher than 0.8 for all four EI dimensions) for assessing the emotional intelligence of managers in Turkey. Acosta-Prado, Zárata-Torres & Tafur-Mendoza (2022) have also proposed the WLEIS model as a reliable assessment for leadership and management studies.

3. Research methodology

2.1. Hypothesis development

Considering relevant studies in literature review showing the convenience of applying the WLEIS model in different cultural and economic contexts, the authors considered the instrument suitable for measuring emotional intelligence of managers in Serbian companies.

Regarding the fact that in scientific studies the WLEIS model was used for different comparisons, such as cross-cultural comparison (Libbrecht et al., 2014), gender Whitman et al. (2009) and age comparison (Kong, 2017), it was assumed that the model can be applied for comparing the scores of EI between

different genders and levels of management. In accordance with this assumption the following hypothesis were developed.

H01: There is a statistically significant difference in emotional intelligence scores of managers between the genders.

H02: There is a statistically significant difference in emotional intelligence scores between deferent levels of managers.

2.2. Instruments and data collection

The survey was conducted on a sample of 128 managers in Serbian companies during May and June 2022. For the purposes of this research, an anonymous survey was constructed. The first part of the questionnaire referred to respondents' particulars (age, gender, the length of service and management level). The second part of the survey included 16 statements (variables) aimed at measuring the scores of emotional intelligences, which were designed according to WLEIS instrument. The respondents used a seven-point scale (1=strongly disagree; 2 = disagree; 3 = slightly disagree; 4 = neither agree nor disagree; 5 = slightly agree; 6= agree; 7=strongly agree) for assessing the statements.

The 16 variables from WLEIS instrument measures four aspects of emotional intelligence, as following:

- Self-emotions appraisal = variables 1- 4 presented in table 4
- Regulation of Emotions = variables 5 - 8 presented in table 5.
- Use of Emotion = variables 9 -12 presented in table 6.
- Others-Emotion Appraisal = variables 13-16 presented in table 7.

The respondents' statements regarding emotional intelligence were compared with their management levels and gender. Data analysis was performed by SPSS program functions of descriptive statistics, t-test and factor analysis with Principal Component Analysis.

4.Research findings and discussion

The research sample included managers (N=128) in Serbian companies, of which 26.6% were top level management and 73.4% middle level of management (table 1). Regarding the length of service in the company, the majority of respondents (57%) had 6-10 years of service (table 2).

Table 1: The respondents' level of management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	top management	34	26.6	26.6	26.6
	middle management	94	73.4	73.4	100.0
	Total	128	100.0	100.0	

Source: Authors' calculations in SPSS

Table 2: Sample structure - the length of service

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5 years	10	7.8	7.8	7.8
	6-10 years	73	57.0	57.0	64.8
	11-15 years	23	18.0	18.0	82.8
	16-20 years	11	8.6	8.6	91.4
	20-25 years	10	7.8	7.8	99.2
	above 25 years	1	.8	.8	100.0
	Total	128	100.0	100.0	

Source: Authors' calculations in SPSS

Table 3 is showing the sample structure by gender, consisting of 46.1% male and 53.9% female managers.

Table 3: Sample structure by gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	59	46.1	46.1	46.1
	female	69	53.9	53.9	100.0
	Total	128	100.0	100.0	

Source: Authors' calculations in SPSS

Table 4: Assessment of managers' emotional intelligence using WLEIS scale

	N	Mean	Std. Deviation	Std. Error Mean
Self-emotions appraisal – statistics				
Var1: I have a good sense of why I feel certain feelings most of the time.	128	5.5547	1.70598	.15079
Var 2: I have a good understanding of my own emotions.	128	5.3516	1.77733	.15710
Var 3: I really understand what I feel.	128	5.5391	1.77871	.15722
Var 4: I always know whether I am happy or not.	128	5.2188	1.66926	.14754
Reliability Statistics		Cronbach's Alpha	N of Items	
		.974	4	
Regulation of emotions – statistics				
Var 5: I always know my friends' emotions from their behaviour.	128	5.3750	1.58735	.14030
Var 6: I am a good observer of others' emotions.	128	5.2578	1.51240	.13368
Var 7: I am sensitive to the feelings and emotions of others.	128	5.4063	1.49770	.13238
Var 8: I have a good understanding of the emotions of people around me.	128	5.2813	1.54684	.13672
Reliability Statistics		Cronbach's Alpha	N of Items	
		.967	4	
Use of emotions – statistics				
Var 9: I always set goals for myself and then try my best to achieve them.	128	5.5938	1.61410	.14267
Var 10: I always tell myself I am a competent person.	128	5.4219	1.46136	.12917
Var 11: I am a self-motivating person.	128	5.5625	1.12768	.09967
Var 12: I would always encourage myself to try my best.	128	5.9531	.96277	.08510
Reliability Statistics		Cronbach's Alpha	N of Items	
		.893	4	
Others-Emotion Appraisal – statistics				
Var 13: I have good control of my emotions.	128	5.9141	1.33415	.11792
Var 14: I can always calm down quickly when I am very angry.	128	5.9453	1.12459	.09940
Var 15: I am quite capable of controlling my own emotions.	128	5.9453	.95000	.08397
Var 16: I am able to control my temper so that I can handle difficulties rationally	128	5.6797	.88677	.07838
Reliability Statistics		Cronbach's Alpha	N of Items	
		.888	4	

Source: Authors' calculations in SPSS

The scores of managers' emotional intelligence (presented in Table 4) for self-emotions appraisal, regulation of emotions, use of emotion and others-emotion appraisal were assessed by calculating Means in respondents' answers ranging from 1 (the lowest score) to 7(the highest score). The results demonstrated in Table 4 indicate moderately high levels of self – emotions appraisal for var 1, Mean =5.55, SD=1.7; var 2, Mean =5.3, SD=1.777; var 3, Mean=5.5, SD=1.78; var 4, Mean=5.2, SD=1.67. The scores of Means for variables related to regulation of emotions were also higher than 5.2. Var 5, Mean =5.3, SD=1.58; var 6, Mean = 5.2, SD=1.51; var 7, Mean = 5.4, SD=1.5; var 8, Mean = 5.28, SD= 1.5. Furthermore, the scores related to use of emotions were slightly higher in compare with the previous variables (Mean ranging from 5.4 to 5.95). Highest score was registered for var 12: I would always encourage myself to try my best (Mean = 5.95, SD= 0.9). The Means for variables related to others – emotion appraisal were the highest in compare with other three EI branches (Means ranging from 5.7 to 5.94), as follows. Var 13: I have good control of my emotions, Mean =5.9, SD=1.33. Var 14: I have good control of my emotions, Mean = 5.94, SD=1.12. Var 15: I am quite capable of controlling my own emotions, Mean = 5.94, SD=0.95. Var 16: I am able to control my temper so that I can handle difficulties rationally, Mean =5.68, SD = 0.88. Cronbach's Alpha scores for all four EI dimensions from the WLEIS scale were $\alpha > 0.8$ indicating high reliability of the research instrument.

The further course of research has included factor analysis of the examined variables. The data was tested with Kaiser-Meyer-Olkin (KMO) test to indicate the suitability for structure detection. Bearing in mind that the result was 0.814, ($p = 0.00 < 0.05$) which was higher than the proposed minimum of 0.6 it was concluded that the data was suitable for the factor analysis (Table 5).

Table 5: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.814
Bartlett's Test of Sphericity	Approx. Chi-Square	4111.640
	Df	120
	Sig.	.000

Source: Authors' calculations in SPSS

The application of factor analysis with the extraction method of principal component analysis provided the table of communalities before and after extraction. In principal component analysis it is assumed that the communalities are initially 1. According to the results presented in table 6 the values of communalities after extraction for all variables from the WLEIS model were high, between 0.713 and 0.945.

Table 6: Communalities in factor analysis

Communalities		
	Initial	Extraction
Var1: I have a good sense of why I feel certain feelings most of the time.	1.000	.889
Var 2: I have a good understanding of my own emotions.	1.000	.857
Var 3: I really understand what I feel.	1.000	.851
Var 4: I always know whether I am happy or not.	1.000	.894
Var 5: I always know my friends' emotions from their behaviour.	1.000	.903
Var 6: I am a good observer of others' emotions.	1.000	.909
Var 7: I am sensitive to the feelings and emotions of others.	1.000	.891
Var 8: I have a good understanding of the emotions of people around me.	1.000	.840
Var 9: I always set goals for myself and then try my best to achieve them.	1.000	.802
Var 10: I always tell myself I am a competent person.	1.000	.857
Var 11: I am a self-motivating person.	1.000	.713
Var 12: I would always encourage myself to try my best.	1.000	.546
Var 13: I am able to control my temper so that I can handle difficulties rationally	1.000	.902
Var 14: I am quite capable of controlling my own emotions.	1.000	.945
Var 15: I can always calm down quickly when I am very angry.	1.000	.922
Var 16: I have good control of my emotions.	1.000	.944
Note: Extraction Method: Principal Component Analysis.		

Source: Authors' calculations in SPSS

The table of Total Variance Explained (table 7) demonstrates that two factors have eigenvalues higher than 1. Together they account more than 85% of the variability in the original variables. The Eigenvalues and component numbers are also illustrated on a Sree Plot in figure 1. However, when interpreting the results of the factor analysis, one should bear in mind the limitation of the research related to the sample size (N=128).

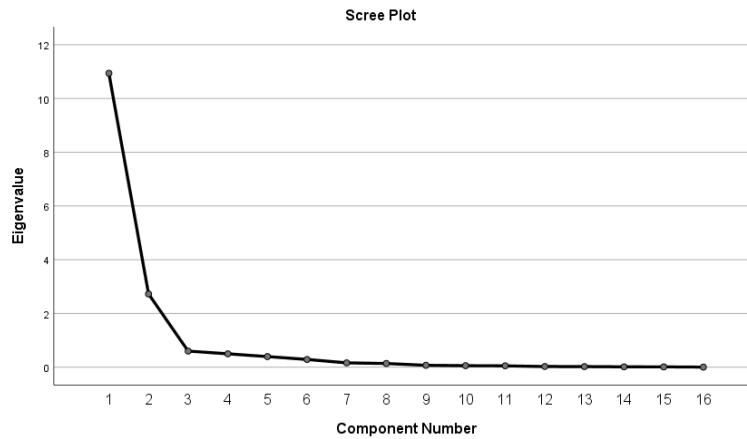
Table 7: Total Variance Explained

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.940	68.375	68.375	10.940	68.375	68.375
2	2.725	17.030	85.405	2.725	17.030	85.405
3	.599	3.742	89.147			
4	.499	3.118	92.265			
5	.396	2.474	94.739			
6	.287	1.795	96.533			
7	.161	1.004	97.537			
8	.138	.865	98.402			
9	.071	.445	98.847			
10	.057	.356	99.203			
11	.051	.319	99.522			
12	.026	.163	99.686			
13	.022	.135	99.821			
14	.013	.082	99.902			
15	.011	.071	99.973			
16	.004	.027	100.000			

Extraction Method: Principal Component Analysis.

Source: Authors' calculations in SPSS

Figure 1: Scree Plot



Source: Authors' calculations in SPSS

Table 8 presents the Component Matrix with the loadings of sixteen variables on the two factors extracted. The components can be interpreted as the correlation of each item with the components. According to the presented results, the second factor is highly associated with the variables related to others-emotion appraisal dimension of the WLEIS Scale. Furthermore, the

findings indicate that the variables included within the EI branches of self-emotions appraisal, regulation of emotions and the use of emotions were grouped into the first factor.

Bearing in mind the higher scores of Means related to variables 13 – 16, as well as the results of the factor analysis demonstrating higher communality values for stated variables, further research was oriented towards the analysis of others-emotion appraisal between the genders. Whitman et al. (2009) suggested in their study that scores on the WLEIS can be comparable across gender. In addition, Kong's (2017) findings from the survey on 1160 health workers indicated that the WLEIS model can be reliably applied to respondents from different gender and age groups.

Table 8: Component Matrix

		Component Matrix ^a	
		Component	
		1	2
Self-emotions appraisal	Var 1: I always know my friends' emotions from their behaviour.	.947	-.080
	Var 2: I am a good observer of others' emotions.	.940	-.157
	Var 3: I am sensitive to the feelings and emotions of others.	.937	-.110
	Var 4: I always know whether I am happy or not.	.936	-.133
Regulation of emotions	Var 5: I have a good understanding of my own emotions.	.920	-.106
	Var 6: I have a good understanding of the emotions of people around me.	.908	-.124
	Var 7: I have a good sense of why I feel certain feelings most of the time.	.902	-.273
	Var 8: I always tell myself I am a competent person.	.897	-.227
Use of emotions	Var 9: I really understand what I feel.	.897	-.214
	Var 10: I always set goals for myself and then try my best to achieve them.	.871	-.208
	Var 11: I am a self-motivating person.	.829	-.159
	Var 12: I would always encourage myself to try my best.	.724	-.149
Others-Emotion Appraisal	Var 13: I have good control of my emotions.	.693	.681
	Var 14: I am able to control my temper so that I can handle difficulties rationally	.410	.857
	Var 15: I am quite capable of controlling my own emotions.	.593	.770
	Var 16: I can always calm down quickly when I am very angry.	.583	.763
Extraction Method: Principal Component Analysis.			
a. 2 components extracted.			

Source: Authors' calculations in SPSS

Regarding the gender (tables 9 and 10), the study indicated higher scores of others – emotions appraisal variables for female respondents (Means ranging from 6 to 6.33) in compare to male managers (Means ranging from 4 to 4.5). Independent Sample test demonstrated that the results are statistically significant ($p= 0.00 < 0.05$) for all variables presented in table 10. The highest

Mean in female answers (M=633, SD=0.9, $t(126) = -7.361$, $p = .000 < 0.05$) was calculated for var 15: I am quite capable of controlling my own emotions in compare to male answers (Mean= 4.39, SD=1.9). According to these findings the hypothesis H01 was confirmed.

Table 9: Group statistics Others-Emotions Appraisal between the genders

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
I have good control of my emotions.	Male	59	4.4237	2.15121	.28006
	Female	69	6.0725	1.35385	.16298
I can always calm down quickly when I am very angry.	Male	59	4.5593	2.14373	.27909
	Female	69	6.0000	1.11144	.13380
I am quite capable of controlling my own emotions.	Male	59	4.3898	1.93887	.25242
	Female	69	6.3333	.94972	.11433
I am able to control my temper so that I can handle difficulties rationally	Male	59	4.0678	1.73070	.22532
	Female	69	6.1449	.91194	.10978

Source: Authors' calculations in SPSS

Table 10: Independent Samples Test

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	Lower	Upper
I have good control...	Equal variances assumed	28.377	.000	-5.265	126	.000	-1.64873	.31318	-2.26850	-1.02897
	Equal variances not assumed			-5.088	94.676	.000	-1.64873	.32404	-2.29206	-1.00541
I can always calm...	Equal variances assumed	24.375	.000	-4.871	126	.000	-1.44068	.29576	-2.02598	-.85538
	Equal variances not assumed			-4.655	83.944	.000	-1.44068	.30951	-2.05617	-.82519
I am quite capable of controlling...	Equal variances assumed	32.139	.000	-7.361	126	.000	-1.94350	.26403	-2.46601	-1.42099
	Equal variances not assumed			-7.014	81.320	.000	-1.94350	.27711	-2.49482	-1.39218
I am able to control my temper	Equal variances assumed	31.299	.000	-8.665	126	.000	-2.07713	.23972	-2.55152	-1.60274
	Equal variances not assumed			-8.287	84.734	.000	-2.07713	.25064	-2.57549	-1.57877

Source: Authors' calculations in SPSS

Presented results can be compared with findings provided in a study by Extremera et al. (2019) in Spain. The authors indicated that females had scores significantly higher than males on other's emotion appraisal and total EI score. Similar results were found by Lopez-Zafra and Gartzia who demonstrated higher scores to women than to men in most EI dimensions. Furthermore, Fida et al. (2018) in their study have also applied the WLEIS for determining higher EI scores for women. A significant contribution to this research subject was made by Acosta-Prado & Zárate-Torres (2019) who were exploring emotional intelligence of Chilean managers. Their study indicated statistically significant gender differences in other's emotion appraisal and use of emotion, which were favourable for women. Besides the cited research, the literature review has shown the lack of studies dealing with the application of WLEIS model in exploring the gender differences of managers. Therefore, this manuscript provides an insight into the possibilities of the model application in business sector and scientific basis for future research of emotional intelligence of managers, particularly between the genders.

Further study included the exploration of others emotion appraisal between the levels of management. The sample consisted of two management lines: top management and middle management. Group statistics in table 11 demonstrates small differences in Others- Emotions Appraisal scores between the levels of management, with slightly higher results in middle managers' answers. However, Independent Samples Test (table 12) showed that findings for var 13 ($p=0.6 > 0.05$), var 14 ($p=0,4 > 0.05$) and var 15 ($p=0.7 > 0.05$) were not statistically significant, while the remaining var 16 had statistically significant result $t(126) = -2.321, p=0.02 < 0.05$.

Table 11: Group statistics Others- Emotions Appraisal between the levels of management

	Level of management	N	Mean	Std. Deviation	Std. Error Mean
I have good control of my emotions.	top management	34	5.8235	1.29030	.22129
	middle management	94	5.9468	1.35494	.13975
I can always calm down quickly when I am very angry.	top management	34	5.8235	1.24245	.21308
	middle management	94	5.9894	1.08256	.11166
I am quite capable of controlling my own emotions.	top management	34	5.9118	.62122	.10654
	middle management	94	5.9574	1.04640	.10793
I am able to control my temper so that I can handle difficulties rationally.	top management	34	5.3824	.88813	.15231
	middle management	94	5.7872	.86599	.08932

Source: Authors' calculations in SPSS

Table 12: Independent Samples Test Emotions Appraisal between the levels of management

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
I have good control of my emotions.	Equal variances assumed	1.981	.162	-.460	126	.646	-.12328	.26783	-.65331	.40675
	Equal variances not assumed			-.471	61.123	.639	-.12328	.26172	-.64660	.40004
I can always calm down quickly when I am very angry.	Equal variances assumed	5.141	.025	-.736	126	.463	-.16583	.22547	-.61202	.28036
	Equal variances not assumed			-.689	52.215	.494	-.16583	.24056	-.64851	.31684
I am quite capable of controlling my own emotions.	Equal variances assumed	8.095	.005	-.239	126	.811	-.04568	.19083	-.42333	.33196
	Equal variances not assumed			-.301	98.628	.764	-.04568	.15165	-.34661	.25525
I am able to control my temper so that I can handle difficulties rationally	Equal variances assumed	.050	.823	-2.321	126	.022	-.40488	.17448	-.75017	-.05959
	Equal variances not assumed			-2.293	57.200	.026	-.40488	.17657	-.75843	-.05133

Source: Authors' calculations in SPSS

Considering the presented findings, it can be concluded that H02 was not confirmed during this research. However, when interpreting the results, one should bear in mind certain limitations of the research regarding the sample that included a smaller percentage (26.6%) of respondents from top management level.

By comparing the results with other research, the literature review showed few relevant studies dealing with the issue of emotional intelligence of top and middle managers. Cabral et al. (2020) were analysing the application of WLEIS regarding the managerial level of the international SMEs, demonstrating that the top managers of the firms with high levels of international exposure have

higher levels of EI. In addition, Neffe et al. (2022) suggested the significance of the emotional intelligence of a family-based CEO and top-management team. Furthermore Zampetakis (2011) used WLEIS model for measuring the emotional intelligence of middle managers in banking sector. However, the literature review did not recognise other significant studies that applied WLEIS for comparing EI score between different management levels.

Conclusion

The study presented in this paper provided an additional example of WLEIS application in business sector on a sample of 128 managers in Serbian companies. The findings demonstrated moderately high scores (Means ranging from 5.2 to 5.9) for all four dimensions (self-emotions appraisal, regulation of emotions, use of emotion, others-emotion appraisal). Having in mind higher scores for variables within the others-emotion appraisal, they were further analysed and compared between the genders and management levels. The study indicated statistically significant difference between genders ($p = 0.00 < 0.05$). Higher scores of others – emotions appraisal variables were recorded for female respondents (Means ranging from 6 to 6.33) in compared to male managers (Means ranging from 4 to 4.5). The highest Mean in female answers ($M=633$, $SD=0.9$, $t(126) = -7.361$, $p = .000 < 0.05$) was calculated for var 15: I am quite capable of controlling my own emotions in compare to male answers (Mean= 4.39, $SD=1.9$). In accordance with these results, the hypothesis H01 was confirmed. However, the research has some limitations related to higher percent of female population in the sample that has to be taken into account.

The comparison of emotional intelligence between the levels of management did not show the existence of significant difference, resulting in rejecting the hypothesis H02. The findings demonstrated small differences in others-emotions appraisal scores between the levels of management, with slightly higher results in middle managers' answers. When interpreting these results, the smaller share of top management respondents in the sample should be considered.

Furhermore, the application of factor analysis in this research indicated that the variables from WLEIS scale were in association with only two factors. Total Variance Explained has demonstrated that two factors have eigenvalues higher than 1. Together they accounted more than 85% of the variability in the original variables. The findings indicated that the variables related to the EI branches of self-emotions appraisal, regulation of emotions and the use of emotions were grouped into the first factor. The second factor was highly associated with the variables of others-emotion appraisal dimension within the WLEIS Scale.

The contribution of this research is in providing an additional insight into the possibilities of the WLEIS application in assessing the emotional intelligence of managers on the example of companies in the Republic of Serbia. The study has also opened questions for further research that could include comparisons of emotional intelligence of managers by age and the length of service, as well as to relate the EI scores of managers with business performance and job satisfaction.

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