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Validation Of Hospital Information System Quality Scale Into Turkish

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ABSTRACT

Purpose: This study aims to translate and validate the Hospital Information System Scale developed by Kuo, Liu, Talley, and Pan (2018) into Turkish within the hospital information system quality and satisfaction framework.

Metarial and Method: The study data were completed between 15 September - and 15 October 2023 through a survey link shared online with consenting and volunteering participants via an online survey. The study was conducted with healthcare professionals, and the online forms were filled out in Turkish. Hospital information system quality is measured by three dimensions: system, information and service quality, while satisfaction is measured by a single dimension. The research sample consists of data collected from 299 healthcare professionals by survey. The construct and relationship validity of the scale were tested by taking into account the variance structure and covariance relationships. The reliability of the scales was assessed through internal consistency tests.

Results: The scale's system, service, and information quality dimensions were observed to have significant relationships in the same direction as the satisfaction scale. According to all analyses, the scale was valid and reliable.

Conclusion: It is expected that this scale will be guiding and supportive in future studies on this subject to add patient satisfaction in health institutions that are aware of the importance of hospital information systems developed within the scope of the research.

Keywords: Information Quality, Hospital İnformation System, Satisfaction, Scale Validation, System Quality, Service Quality.

ÖZET

Amaç: Bu çalışmanın amacı Kuo, Liu, Talley ve Pan (2018) tarafından geliştirilen Hastane Bilgi Sistemi Ölçeğinin hastane bilgi sistemi kalitesi ve memnuniyeti çerçevesinde Türkçeye çevrilmesi ve geçerliliğinin sağlanmasıdır.

Materyal ve Metot: Çalışma verileri, çevrimiçi bir anket aracılığıyla izin veren ve gönüllü katılımcılarla çevrimiçi olarak paylaşılan bir anket bağlantısı aracılığıyla 15 Eylül - 15 Ekim 2023 tarihleri arasında tamamlandı. Çalışma sağlık profesyonelleri ile yürütülmüş olup online formlar Türkçe olarak doldurulmuştur. Hastane bilgi sistemi kalitesi; sistem, bilgi ve hizmet kalitesi olmak üzere üç boyutla ölçülürken, memnuniyet tek boyutla ölçülmektedir. Araştırmanın örneklemini 299 sağlık çalışanından anket yoluyla toplanan veriler oluşturmaktadır. Ölçeğin yapı ve ilişki geçerliği, varyans yapısı ve kovaryans ilişkileri dikkate alınarak test edilmiştir. Ölçeklerin güvenirliği iç tutarlılık testleri ile değerlendirilmiştir.

Bulgular: Ölçeğin sistem, hizmet ve bilgi kalitesi boyutlarının memnuniyet ölçeği ile aynı yönde anlamlı ilişkilere sahip olduğu görülmüştür. Yapılan tüm analizlere göre ölçek geçerli ve güvenilirdir.

Sonuç: Araştırma kapsamında geliştirilen hastane bilgi sistemlerinin öneminin bilincinde olan sağlık kuruluşlarında hasta memnuniyetinin artırılması açısından bu ölçeğin bundan sonra bu konuda yapılacak çalışmalara yol gösterici ve destekleyici olması beklenmektedir.

Anahtar kelimeler: Bilgi Kalitesi, Hastane Bilgi Sistemi, Memnuniyet, Ölçek Doğrulama, Sistem Kalitesi, Servis Kalitesi.

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In today's technological age, there are changes in many economic, political, cultural, social, and agricultural fields. The impact of rapid advances in information and communication technologies is also evident in the health sector. The introduction of communication and information technologies in health institutions facilitates the work of health service recipients and health professionals. Digital transformation in healthcare institutions has brought about significant changes in the follow-up and delivery of healthcare services (1). With digitalization in healthcare services, the systems in the sector are computerized, and information flow is provided by establishing connections between all channels. In this way, information about patients and other areas in the institution is quickly delivered to the point where it is needed, processed, used, analyzed, and made ready for presentation (2). With the spread of technology in the health sector, digital applications have manifested themselves in many areas of hospitals. However, the rapid advancement of technology has increased the need to use information technologies to solve numerous problems in the health sector with resource constraints, cost pressure, and increased demand (3). Modern developments in information technology have completely changed the face of the world, and information technology-based services have significantly improved healthcare (4). Among these, hospital information systems are one of the most widely used health information systems. HIS (Hospital Information System) is a comprehensive software that integrates patient information to send and share health information between departments in order to provide quality service, accelerate patient care and treatment, and increase satisfaction (5). In other words, a HIS is defined as a system that undertakes the functions of information collection and information dissemination to assist decision-makers at various levels of hospital enterprises, as a system that can integrate data obtained from different sources, realization of services through computer; automatic exchange of information in an electronic environment; recording and converting detailed information arising in terms of medical financial/financial services into details with a computer-based information system (6). HIS is a vital part of contemporary hospital infrastructure and the effective delivery of quality healthcare services in healthcare. Hospital Information Systems (HIS) is a needful efficiently providing high-quality healthcare services in hospitals (7). Hospital information systems support hospital activities in technical, practical, and strategic terms and provide better service to patients, reduce medical costs, and shorten service delivery time. It also helps minimize medical errors by ensuring that patients' medical and organizational processes are used separately and in an integrated manner. A quality information system is needed to control costs, meet the needs of service users, and assist the medical process (8). A quality health information system; it can effectively increase the relevance of information, readable health information, and subsequent results, and lead users to develop a positive attitude towards information systems (9). Although there are limited studies on hospital information systems and quality in the literature, in the domestic literature, according to healthcare workers, hospital information systems are mainly used for easier access to information, providing better quality medical services, preventing loss of time, facilitating communication between employees, making appointments for outpatients and assigning patients, the use of information technologies in hospitals contributes positively to the quality-efficiency of the information management system (10), the use of information systems facilitates the workload of health sector employees, the realization of the medical equipment supply chain quickly and with minimum cost, accounting, and financial records, human resources management, workforce planning, etc. In healthcare institutions using HIS, these factors appear to positively affect patient satisfaction and loyalty in terms of efficiency (11), reliability, patient satisfaction, quality, and corporate image (12). In foreign literature, it is seen that hospital information quality can significantly predict physician satisfaction (13). The hospital information system has a significant impact on user satisfaction (14), the interaction of services, the availability of information, and the usability of the system have a substantial impact on the quality of services (15) and the effect on the quality of health services and hospital information systems (16). This study aims to examine the hospital information system quality to evaluate each variable's effect on satisfaction and contribute to the local literature with the Turkish validation of the hospital information system quality scale so that researchers can directly measure the hospital information system quality. In this way, it can help ensure the success of the information system and provide the desired service quality, such as ease of contact, system response time, ease of use, and learning. The quality of these systems is mainly related to customer satisfaction. HIS can improve the work process of staff, reduce the possibility of errors, and improve the quality of healthcare services by better communication in the work of healthcare professionals and increasing their precision in daily tasks (8).

Materials and Methods

This study used a quantitative research method and was conducted with a relational research design. The population of this study consists of health professionals in Turkey. The research is a cross-sectional study, and the data was collected using the convenience sampling method. In order to reach the required sample size, the criterion suggested by Hair et al. is that it should not be less than five times the total number of items in the survey. As a result, the required sample size was achieved. Data was provided from consenting and voluntary participants via the online survey and the survey link shared online between September 15 and October 15, 2023. According to the age variable of the healthcare professionals participating in the research, 154 (51.5%) are between the ages of 20-30, 88 (28.4%) are between the ages of 31-40, and 47 (15.7%) are between the ages of 41-50. range and 10 (3.3%) were over 50 years old. According to the gender variable, 200 (64.9%) of the participants were women and 99 (35.1%) were men. According to the marital status variable, 133 (44.5%) were married and 166 (55.5%) were single. According to the work organization variable, 254 (84.9%) of the participants work in public hospitals and 45 (15.1%) work in private hospitals. It was determined that 119 (39.8%) of the participants used hospital information systems for 0-5 hours, 104 (34.8%) for 6-15 hours, and 72 (24.4%) for 16 hours or more. The professions of the healthcare professionals participating in the research are as follows: 42 (14%) doctors, 92 (30.7%) nurses, 89 (29.8%) medical secretaries, 76 (25.4%) other healthcare personnel (dentists, psychologists, dietician), laboratory, radiology, administrative unit).

Measurement Tool

Kuo et al. developed a three-dimensional and 10-item measurement tool for hospital information system quality. The scale consists of information, service, and system quality dimensions. System quality and information quality consist of three statements and service quality consists of four statements. The satisfaction scale consists of five statements. The scale consists of a 7-point Likert-type scale ranging from strongly disagree to strongly agree.

Process

The scale was first translated into Turkish by taking the opinions of two linguists who are experts in their field. The understandability of the sentences and the suitability of words and sentence structures were also evaluated by three academics who are experts in health management and were not involved in the translation. The research questions were created in consultation with the researcher to determine whether they reflected the purpose of the research and whether the number of questions was sufficient. In data analysis, SPSS Amos software focused on the covariance-based features of the measurement tools, and Smart PLS software was used to look at the variance-based features. The frequency tables were examined before starting the data analysis to check whether the data was entered correctly. The reliability of the scale was determined by Cronbach's alpha (α) coefficient. In factor analysis, considering the sufficient sample size and missing data, 50 is considered very poor, 100 is poor, 300 is good, 500 is very good, and 1000 is excellent (17). In the literature, it is seen that a sample of 200 people is sufficient for factor analysis, and 5 or 10 times the number of items may be enough for sample size (18, 19). There are studies stating that the minimum number of observations should be 300 (20). Considering all these, it can be said that the sample size in this study is sufficient. Firstly, the validity and then the reliability analyzes of the scale were conducted. For validity analysis, structure and criterion-related validity were tested and the partial least squares method (Smart PLS program) was used. Construct validity was ensured by testing the explained variance and the proposed factor structure using the observed covariance matrix (IBM AMOS program). SmartPLS is also a variance-based partial least squares structural equation modeling (PLSSEM) software that does not require a normal distribution assumption. In other words, predictions can be made regardless of whether the data is normally distributed or not (21). It also can effectively test complex models (22). In this way, the validity of the proposed structure was tested using both structural tests. Cronbach's alpha coefficient and split-half reliability coefficient (IBM SPSS program) were used to test reliability and internal consistency of the scale items.

Results

Validity Findings of the Scale

Construct and concurrent validity were tested for the validity of the scale. For construct validity, two different structural tests were conducted, taking into account both the explained variance structure and the observed covariance structure of the scale. In these tests, the structures of three-dimensional hospital information system

quality and one-dimensional satisfaction scales were tested. Reliability analysis was performed using the Cronbach alpha method to determine the internal consistency of the scales. The results obtained are shown in Table 1. Another method used to evaluate the scales' reliability in this study is the "corrected item-total score correlations" analysis, one of the correlation-based item analysis methods. When the corrected item-total correlation coefficients of each item of the scales are above 0.30, it is seen that the relationship between the scales and the main structures to which the items belong is satisfactory (23). These results show the reliability of the scales.

Table 1. Results of the reliability analysis

Measures	Number of items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
System Quality	Item 1	9.52	9.103	.608	.737
	Item 2	10.19	7.135	.673	.672
	Item 3	9.40	9.227	.625	.722
Information Quality	Item 4	10.70	5.580	.689	.845
	Item 5	11.05	5.333	.783	.752
	Item 6	10.80	5.995	.731	.805
Service Quality	Item 7	15.14	15.356	.817	.810
	Item 8	15.11	15.588	.821	.810
	Item 9	15.8	15.619	.618	.899
	Item 10	14.96	17.169	.722	.849
Satisfaction	Item 11	20.7	22.297	.751	.896
	Item 12	20.46	22.585	.825	.878
	Item 13	20.91	21.664	.814	.881
	Item 14	20.39	24.421	.750	.894
	Item 15	20.33	25.767	.748	.897

Variance Structure Findings: The convergent and divergent validity of the scale was tested using the Smart PLS program. In the tests, the factor loadings of each item in the scale must be higher than 40%, the AVE (average variance explained) must be equal to or higher than 50% (AVE ≥0.50), and the CR (combined reliability) value must be equal to or higher than 70%. It should be high (CR ≥0.70), and the multicollinearity coefficient should be less than 5. In addition, rho_A should be a minimum of 0.70 (rho_A≥0.70) to evaluate the internal consistency reliability of the model. According to the reliability and convergent validity results of the scales in Table 2, Cronbach's alpha coefficients (α), rho_A, and CR (combined reliability) criteria above .70 indicate the scale's reliability. The AVE (average variance explained) shows the concurrent validity. Fornell and Larcker stated that to ensure internal consistency, the average variance explained (AVE) of the variables in the scale should be equal to or higher than 50% (AVE ≥0.50), while Henseler et al. (25) also reveal this situation and argue that in determining discriminant validity, cross-loadings should be checked and it should be examined whether there are overlapping items between the statements measuring the research variables (24, 25). After discriminant validity, the Heterotrait-Monotrait Ration (HTMT) test was performed. Table 3 shows the HTMT results. The reliability results of the scale, as seen in Table 1, showed that the total reliability value (Cronbach's Alpha value) and data consistency coefficient (rho-A) of the hospital information systems scale and satisfaction scale were .934. The internal consistency coefficient of the rho-A results of the three-factor hospital information system quality and satisfaction scales was found to be acceptable (27). According to the results obtained in Table 1, the hospital information system quality satisfaction scale is confirmed to have four sub-dimensions.

Table 2: Convergent Validity and Reliability Results

Constructs	Indicators	IL	CA	CR	AVE	rho_A
System Quality	1	0,815				
	2	0,845	.792	.877	.705	.801
	3	0,857				
Information Quality	1	0,831				
	2	0,916	.860	.914	.780	.881
	3	0,900				
Service Quality	1	0,815				
	2	0,845	.884	.920	.744	.898
	3	0,857				
	4	0,815				
Satisfaction	1	0,859				
	2	0,897	.913	.934	.740	.921
	3	0,881				
	4	0,833				
	5	0,831				
HISQ		.815-.916	.863	.898	.730	.934

Note: n = 299, IL: Indicator loadings, p: Statistical significance level, α: Cronbach's alpha, AVE: Average variance extracted, CR: Composite reliability.

Table 3: Discriminant Validity (Fornell-Larcker Criterion)				
Constructs	**1**	**2**	**3**	**4**
System Quality(1)	.839			
Information Quality(2)	.746	**.883**		
Service Quality(3)	.663	.655	**.863**	
Satisfaction(4)	.711	.669	.725	**.860**

As seen in Table 3, inter-factor correlations were compared with the square root of the AVE of each factor to check the validity of the distinction between factors (24). According to this comparison, the condition that the square roots of the AVE values are greater than the inter-factor correlation values was met. In other words, when the relationship between each sub-dimension of the job shaping scale and the other factors was analysed, it was seen that the square root of AVE was much higher than the other factor values and that it was well separated from the other factors. In the Fornell-Larcker Criterion evaluation, the fact that all values in the rows and columns are smaller than the bolded values and the Heterotrait-Monotrait Ratio values are between 0 and 1 (Table 2) indicates that the discriminant validity between the research dimensions is ensured (26). In their study, Henseler et al. (25), stated that discriminant validity between a certain pair of reflective constructs is realised when the HTMT value is below 0.90. It is seen in Table 4 that all HTMT values are below 0.90 and discriminant validity has been achieved.

Table 4: Discriminant Validity (Heterotrait-Monotrait Ratio Criterion)				
Constructs	**1**	**2**	**3**	**4**
System Quality(1)		.880		.820
Information Quality(2)	.880		.783	
Service Quality(3)	.783	.729		.797
Satisfaction(4)	.820		.797	

Covariance Structure Findings: The construct validity of the scale was conducted by confirmatory factor analysis with maximum likelihood calculation using the IBM AMOS program. According to Kline (18), the data were normally distributed and the covariance matrix was created according to the maximum likelihood method (28). From this point of view, the criteria which take into account as follows: the ratio of chi-square value to degrees of freedom (χ2/sd<3), root mean square of prediction error (SMRM ≤.08), comparative fit index (CFI>.90) and Turker Lewis index (TLI>.90) criteria were used for the goodness of fit of the tested models. The three-factor structure of the hospital information system quality scale (χ2= 122. 971, p.<000, sd= 32, χ2/sd= 3.843, SMRM=0.80, IFI= .946CFI= .931, TLI=. 914) and the single-factor structure of the satisfaction scale (χ2= 18. 037, p.<000, sd= 4, χ2/sd= 4.509, SMRM=0.61, CFI= .986, TLI=.966, IFI= .986).To test the relationship validity of the scale, the relationships between the scale and the satisfaction scale were analyzed. As a result of the correlation analysis, Table 5 shows that all of the scale's system, information, and service quality dimensions have the same directional and significant relationships with the satisfaction scale. Based on this, it provides evidence for the relationship-dependent validity of the scale.

Table 5: Relationship Validity				
Constructs	**1**	**2**	**3**	**4**
System Quality(1)	1			
Information Quality(2)	**0.712****	1		
Service Quality(3)	**0.651****	**0.627****	1	
Satisfaction(4)	**0.698****	**0.686****	**.720****	1

Discussion

This study was conducted to introduce the three-dimensional hospital information system quality scale developed by Kuo et al. (13) to the national literature based on the understanding of establishing a balance between hospital information system quality and the satisfaction perceptions of the users of these systems. However, in the translation of the scale questions, the closest equivalents of the theory and dimensions in the national culture were tried to be revealed in intercultural studies. Subsequently, two different construct validity and relationship validity of the scale were tested within the scope of the analysis, taking into account the variance structure and covariance relationships. In the light of the results obtained, sufficient evidence was provided for the validity of the scale. Two different internal consistency analyses were performed for the reliability of the scale and the results showed that the items were consistent at high levels. In the context of all these results, it was evaluated that the hospital information system quality scale can be used in future studies to be conducted in the national literature with the three-dimensional structure proposed in its original form.

In the health sector, studies can be carried out to increase the system quality for those who use hospital information systems, as well as to make the data more suitable for application areas with measurements to increase the quality of information. These studies can provide information from lower to upper levels about how information systems should be structured in the health sector by all users. Today, especially the important role of the health sector for sustainable innovation of information technologies will always remain important. In addition, if health sector organisations want to ensure patient satisfaction and patient loyalty in service delivery processes, regardless of private or public sector, they should take into account these factors obtained from the scale.

We believe that it is important to evaluate all the results obtained in the study with the constraints of single source and single time data collection. At the same time, the number of participants in this study is small and the findings do not reflect the opinions of all healthcare professionals in Turkey. It is expected that this scale will be guiding and supportive in future studies to increase patient satisfaction in health institutions that are aware of the importance of hospital information systems developed within the scope of the research.

Declaration

Funding

None

Conflict of interest/Conflict of interest

The author declares that he has no conflict of interest.

Ethical Approval

Tokat Gaziosmanpaşa Unıversıty Socıal And Bıberal Scıences Research Ethics Committee approved the study on June 17, 2023 with decision number 01-45.

Availability of data and material

The data file is available as an SPSS and Smart PLS document upon request.

Authors' contributions

Not applicable. I'm the only author (M.A).

References

1. Sullivan C, Staib A, Ayre S, et al. Pioneering digital disruption: australia's first integrated digital tertiary hospital. Medical Journal Of Australia. 2016;205(9):386-389. DOI: 10.5694/mja16.00476.
2. Grimes S.L. Ihe: Key to the future of the digital hospital. Journal Of Clinical Engineering. 2004;29(4):170-171.
3. Ak B. Sağlıkta yeni hedef: Dijital hastaneler. 2013; Antalya: XV. Akademik Bilişim Konferansı Bildirileri.
4. Farzandipur M, Azimi E. Factors affecting successful implementation of hospital information systems. Acta Informatica Medica. 2016;24(1),51. DOI: 10.5455/aim.2016;(24):51-55.
5. Fatameh M, Abbas, A. Classification of architectural styles based on the dimensions of the ıntegration of hospital ınformation systems. Journal Of Health And Bıomedıcal Informatıcs. 2022;8(4),347-358.
6. Işık O, Akbolat M. Hastanelerde bilgi sistemi ve bilgi teknolojileri kullanımı: tıbbi sekreterler üzerine bir araştırma. Ankara Sağlık Hizmetleri Dergisi. 2010;9(1):1-23.
7. Hayaineh YA, Hayajneh WA, Matalka II, et al. Extent of use, perceptions, and knowledge of a hospital information system by staff physicians. Evaluatio. 2006;(3):1- 4.
8. Aghazadeh S, Aliyev A, Pirnejad H. Study the effect of hospital information systems (hıs) on communication improvement and service quality among nursing staff. Life Science Journal. 2013;(10):307-310.
9. Shim M, Jo HS. What quality factors matter in enhancing the perceived benefits of online health information sites? application of the updated delone and mclean ınformation systems success model. International Journal Of Medical Informatics. 2020;(137):104093. DOI: 10.1016/j.ijmedinf.2020.104093.
10. Dizman H. Hastane yönetim bilgi sistemlerini kullanan sağlık kurumlarında hasta memnuniyetini etkileyen faktörlerin sem (pls) yöntemi ile değerlendirilmesi Kütahya örneği. Uşak Üniversitesi Sosyal Bilimler Dergisi, 11(C-Iasos Özel Sayısı). 2018;36-51. DOI: http://dx.doi.org/uujss.520.
11. Kuo KM, Liu CF, Talley PC, et al. Strategic improvement for quality and satisfaction of hospital information systems. Journal Of Healthcare Engineering. (2018). DOI: 10.1155/2018/3689618.
12. Sari N, Ervianingsih E, Zahran I. Pengaruh kualitas sistem, kualitas ınformasi dan kualitas layanan terhadap kepuasan pengguna sistem ınformasi manajemen rs "x" kota palopo: the ınfluence of system quality, ınformation quality and service quality on user satisfaction of the management ınformation system rs "X" palopo city. Jurnal Surya Medika (Jsm). 2023;9(2): 219-224. DOI:10.33084/jsm.v9i2.5698.
13. Zhai X, Wang X, Han A, et al. Identification and simulation of key influencing factors of online health information service quality from the perspective of information ecology. Library & Information Science Research. 2023;45(1):101218. DOI:10.1016/j.lisr.2022.101218
14. Najem FM. The ımpact of hospital information system quality on the health care quality (A case study on european gaza hospital). (Unpublished doctoral thesis):Research And Postgraduate Affairs, Faculty Of Commerce, Islamic University–Gaza;2016.
15. Comrey AL, Lee HB. A first course in factor analysis, New York, Psychology Press; 2013.
16. Kline RB. Principles and practice of structural equation modelling. London, The Guilford Press; 2011.
17. Tavşancıl E. Tutumların ölçülmesi ve Spss ile veri analizi. Ankara, Nobel Yayın Dağıtım; 2002.
18. Tabachnick BG, Fidell LS. Using Multivariate Statistics (5th Ed.). Boston, Ma: Allyn & Bacon/Pearson Education; 2007.

19. Develi A, Çavuş MF. Validity and reliability of Work Ability Index in Turkish context: Inter-level, direct, and indirect relations with job satisfaction and task performance. Experimental Aging Research. Advance online publication. 2023:1-20. DOI: 10.1080/0361073X.2023.2250226
20. Sarstedt M, Hair JF, Ringle CM, et al. Estimation ıssues with pls and cbsem: where the bias lies! Journal of Business Research. 2016;69(10):3998-4010. DOI: 10.1016/j.jbusres.2016.06.007.
21. Field A. Discovering statistics using SPSS: And sex and drugs and rock 'N' roll. Sage Publications, 2009.
22. Fornell C, Larcker DF. Evaluating Structural Equation Models With Unobservable Variables And Measurement Error. Journal Of Marketing Research. 1981;18(1): 39-50. DOI: 10.2307/3151312.
23. Henseler J, Ringle CM, Sarstedt M. A new criterion for assessing discriminant validity in varience-based structural equation modelling. Journal Of The Academy Of Marketing Science. 2015;843):115-135. DOI: 10.1007/S11747-014-0403-8.
24. Hair JF, Hult GTM, Ringle CM, et al. Primer On Partial Least Square Structural Equations Modeling (Pls-Sem), (2nd Ed.), Sage: Thousand Oaks, 2017.
25. Fraenkel JR, Wallen NE, Hyun HH. How to design and evaluate research in education. New York: Mcgraw-Hill, 2012.
26. Develi A, Pekkan NÜ, Çavuş MF. Social intelligence at work and its implication for organizational identification: A sectoral comparison. Independent Journal of Management & Production. 2022;13(1),364-383. DOI: 10.14807/ijmp.v13i1.1555