VALIDATION OF A DECENT WORK SCALE IN MEXICO

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ABSTRACT

The purpose of this research was to analyze the validity of the Decent Work Scale (DWS) for employees of medium-sized companies in Mexico. Instrumental design study in a sample of 1,164 employees of medium-sized companies (54% women) between 15 and 77 years old. The confirmatory factor analysis supported the five-factor model, reporting adequate fit indices (p-value <.01, NFI= .97, IFI= .98, TLI= .97, CFI= .98, CMIN/DF= 2.27, SRMR = .027 and RMSEA= .033); The estimated factor loadings support the convergent validity of the scale. The reliability of the instrument is adequate (α=.773). The DWS has psychometric properties that indicate adequate content, convergent validity and reliability for measuring Decent Work in employees of medium-sized companies. This scale can be used in the diagnosis of actions related to decent work that companies implement, for the design and execution of action development programs focused on improving the quality of life of employees in support of compliance with that is proposed in the Sustainable Development Goal 8 (SDG08) of the 2030 Agenda.

KEYWORDS: Decent work; Instrument validation; Sustainable Development Goals; Job satisfaction; Life satisfaction.

INTRODUCTION

The International Labor Organization (OIT, 2016) supporting the achievement of better working conditions, has incorporated in the 2030 Agenda the concept of decent work (TD) in Sustainable Development Goal number 8; in essence, decent work refers to productive working conditions, with job security and social protection, the relevance of TD lies in its contribution to reducing social inequality, eradicating poverty and promoting gender equity.

The decent work transcends labor aspects, i.e. there is a humanist basis that seeks

freedom, justice, security and dignity from employment (Lanari, 2005); to this end, it seeks productive, lasting, adequately remunerated employment conditions with social security (Santillán et al., 2011). In this sense, the ILO has promoted the creation of public policies that favor the establishment of adequate working conditions for all workplaces. In this sense, emphasis has been placed on studying TD practices towards the inclusion of vulnerable sectors in the search for the social commitment of organizations to avoid discrimination based on skin color, religious creed, political ideology, origin or sexual preferences, as also indicated by labor laws (García & Montoya, 2023; González-Gómez, 2018; L.F.T., 2022).

Thus, TD can be understood as a response to labor practices characterized by the offer of inadequate income compared to the work performed and the worker's capabilities, possible unhealthy working conditions (Messina, 2016), the absence of tripartite representation (government-worker-employer) in the negotiation of labor rights (Organización Internacional del Trabajo, 2007, 2019), the absence of development opportunities and social protection at work (Grupo del Banco Mundial, 2019) and of the employability of people in conditions of vulnerability (Agredo & Montenegro, 2022).

Therefore, the concept of TD refers to a series of working conditions that guarantee the opportunity for productive employment with fair remuneration, job security, social protection for the worker and his family, with options for personal development and conditions that favor family and social integration (Souza-Mosqueda et al., 2023), beyond only considering working conditions, the aspiration of TD is in the meaning and its transcendence in the life of every human being (Blustein et al., 2023).

Previous studies have analyzed TD and its relationship with variables such as motivation (Ferraro et al., 2020; Khan et al., 2019), the employee's commitment to the company and psychological capital (Ferraro et al., 2018; Graça et al., 2021a) and even on the effects of working conditions on the physical health of the worker (R. Duffy et al., 2021), giving rise to the need for valid and reliable measurement instruments to study how these variables can positively affect organizational behavior, whose applicability helps to understand the situation that workplaces face from the demands of highly changing environments as in the case of companies in Mexico and the world before and after the pandemic by Covid-19 19 (Anam et al., 2021; Souza-Mosqueda et al., 2023).

The present study aims to analyze the metric properties of the Decent Work Scale of Duffy et al. (2017) in workers belonging to a sample of medium-sized companies located in the State of Mexico.

DEVELOPMENT

Measuring decent work

The ILO proposed four dimensions to ensure compliance with the assumptions of TD in each workplace: 1) international labor standards and fundamental principles and rights at work; 2) employment opportunities; 3) social protection; and 4) social dialogue (Organización Internacional del Trabajo, 2008, 2014). These dimensions coincide with the structure of the Psychology of Working Theory (PWT) of Duffy et al. (2016).

Since the elements of TD and PWT coincide, it is possible to measure TD. Duffy et al. (2017) operationalized the dimension of economic conditions for the design of the TD scale (DWS) considering the existence of the following items: a) safe physical and interpersonal conditions, b) access to health coverage, c) adequate and fair compensation, d) leisure time, and e) organizational values complementary to family and social values. The reliability analysis presented coefficients, not entirely adequate at the subscale level (R. Duffy et al., 2017). Confirmatory factor analysis (CFA) suggested a good fit to the data.

Since its publication, the DWS scale has been studied and applied in different contexts and types of subjects. Among the first applications, Tokar and Kaut (2018) used the DWS in a sample of 320 workers with chronic health conditions, diagnosed with Chiari malformation at the Conquer Chiari Research Center at the University of Akron, United States, the AFC showed a good fit of the version of the scale to the data and significant and adequate factor loadings; in this work they did not report results of the level of reliability of the scale and the clinically healthy population was excluded.

Subsequently, Di Fabio and Kenny (2019) proposed a version in Italian; they conducted an application on a sample of 436 workers from public and private organizations in the education, health and community services sectors. The AFC suggested a good fit of the version; however, in this study the perception of workers in the productive sector was left out of the analysis.

In the same year, Ferreira et al. (2019) performed the validation of the DWS in its Portuguese version, a sample of 354 workers. The results suggested a factorial structure consistent with theoretical expectations and adequate fit indices allowed confirming its applicability, which makes possible the continuity with studies motivated by the improvement of variables such as commitment in this context, such as the one by Graça et al. (2021b).

In Switzerland, Masdonati et al. (2019) used the DWS to analyze the involvement of support professionals in the implementation of TD actions, in particular when it comes to promoting equal opportunities in the labor market and fostering universal access to decent work. The results of the CFA showed adequate indices suggesting it as suitable in the Swiss-German language for TD measurement.

In Turkey, Buyukgoze-Kavas and Autin (2019) analyzed the validity of DWS. Overall, the findings revealed the existence of underlying items such as compensation, positive

organizational culture, reasonable working hours, prosocial commitment, safe/clean work environment, professional growth, personal satisfaction, social respect/acceptance, and ethics/human rights. The results of the AFC showed fit indices suggesting its appropriateness to Turkish population.

In France, Vignoli et al. (2020) reported the validation of the DWS on 300 workers. The analysis reported adequate correlations, internal consistency, and fit indices. The reliability analysis using the omega coefficient indicated that the version of this scale is reliable, so it was concluded that it is useful for the assessment of TD in workers with similar characteristics.

In Brazil, Ribeiro et al. (2019) analyzed the validity of the DWS in a sample of workers; the results showed adequate Cronbach's Alpha coefficients and fit indices. In the discussion, they point out the need to consider possible biases in relation to the general characteristics of the population of workers and of the online data collection. Among the motivations, in the Brazilian context, is the need to combat the precariousness of youth employment whose increase has been accentuated in recent years (Boschi, 2016).

In South Korea, Nam and Kim (2019) obtained adequate validation and calculated the omega Coefficient for reliability; however, the level was not acceptable. In this application, differences by gender of the participants were found, and possible incidences derived from cultural aspects of the subjects' origin were considered. The consideration of gender not only lies in the possibility of contrast between groups for classification purposes; but also in the understanding of the transformations of their social roles and the necessary changes at the labor level (Rai et al., 2019).

More recently, in China, Ma et al. (2023) performed the validation of the DWS in a sample of 390 workers. The results indicate convergent validity and predictive capacity of the instrument. At the end, caution was suggested in the analysis of possible differences by gender and labor sector, as well as high compliance with issues such as access to occupational safety, since this is due to the compulsory nature of the subjects studied in the country. In this context, measurements have been made in labor sectors with ample growth such as digital platforms without reporting metric characteristics such as the scale studied in this research (Xu & Liu, 2021).

Regarding the validity analysis in Spanish, Montenegro (2018) conducted the application of a version of the DWS in workers in Ecuador. The study presents two strong limitations, the first is a low or weak Reliability Coefficient and the generalization of the results due to the sample size -just 62 subjects aged 18 to 34 years which excludes older age groups, which does not allow inferring the characteristics of the sample to a larger population.

Unlike the preceding studies, the Spanish version does not report adequacy indices,

only Cronbach's alpha reliability coefficients for the dimensions: Safe, physical and emotional conditions (α=.723), Access to health coverage (α=.635), Adequate compensation (α=.422), Free time (α=.291) and Organizational values (α=.928), not all of these coefficients are acceptable and it is possible that they are due to the sample size.

Methodology

Research design and type of research

Instrumental study analyzing the metric characteristics of the scale for measuring decent work in Mexican workers. The design conforms to the ideal requirements according to Carretero-Dios and Pérez (2005).

Participants

The participants were voluntary workers from medium-sized companies as stipulated in the Acuerdo por el que se establece la estratificación de las micro, pequeñas y medianas empresas (2009) of Mexico.

The sampling was by convenience, following the criteria of Otzen and Manterola (2017), especially considering (1) the openness of the participants, (2) the permission of the leaders of the companies to participate and (3) that they are geographically located in the municipality of Ecatepec de Morelos, State of Mexico.

The sample was made up of workers from 19 companies, 10 of which are in the service sector and 9 in commerce. The seniority of the organizations ranged from four to 45 years in the market. The universe of employees studied was 1530, distributed among 53 to 99 subjects per company (Table 1), of which 1490 questionnaires were administered, and 1221 participations were obtained, of which 57 were eliminated because they did not provide sufficient data. Thus, the final sample was 1164 subjects, representing a response rate of 76%.

For the confirmatory factor analysis (CFA) Roco et al. (2021) proposed that for each item, at least a sample of ten subjects should be taken, a figure that is exceeded in this study.

Table 1

Distribution of employees by line of business

Workers / Services	Workers / Trade

Company	Population	Sample	Company	Population	Sample
1	53	29	2	82	79
3	65	42	5	74	65
4	55	36	7	60	52
6	85	67	8	80	64
10	80	73	9	81	70
12	91	51	11	98	92
13	98	85	14	99	96
16	93	51	15	92	89
18	86	44	17	58	44
19	73	35			
Subtotal	779	513	Subtotal	724	651
Total population		1530	Total sample		1164

Note: Own elaboration.

In terms of educational level, the highest percentages were occupied by collaborators with high school (46%) and secondary school (33.2%). The distribution by marital status indicates a predominance of single people (47.9%), followed by married people (28.3%) (Table 2).

Table 2

Level of education and marital status of the sample

	Frecuency	Percentage		Frecuency	Percentage
No education	10	.9	Single	558	47.9
Primary	69	5.9	Married	329	28.3
Secundary	387	33.2	Free union	180	15.5
Baccalaureate or technical degree	536	46.0	Divorced	78	6.7
Professional	162	13.9	Widowed	19	1.6
Total	1164	100.0	Total	1164	100.0

Note: Own elaboration.

The age of the subjects ranged from 15 to 77 years, with a mean ($\bar{x}$) of 31.4 years and a standard deviation (SD) of 11.7. The length of service ranged from 1 to 40 years, with a mean ($\bar{x}$) of 4.6 years and a standard deviation (SD) of 5.8.

Instrument

The WDS of Duffy et al. (2017), in the Spanish version proposed by Montenegro (2018), was used, whose subscales and items are applicable to similar populations, which in various studies have shown adequate levels of reliability, although not so in the reference study.

The DWS integrates 15 items divided into five dimensions: Safe physical and interpersonal conditions (CON); Access to health coverage (SAL), Adequate and fair compensation (COM), Leisure time (TL) and Organizational values complementary to family and social values (VO) (Table 3).

The type of response corresponds to a five-point Likert-type scale from "1=Strongly disagree" to "5=Strongly agree". Sociodemographic questions on biological sex, age, highest level of education, seniority and marital status were added to the instrument, as well as the company's turnover and number of permanent workers.

Table 3

Structure of the Decent Work Scale (WDS)

Dimension	Items
Safe physical and interpersonal conditions (CON)	1-3
Access to health coverage (SAL)	4-6
Adequate and fair compensation (COM)	7-9
Time off (TL)	10-12
values of the organization complementary to family and social values (VO)	13-15

Note: Own elaboration.

Procedure

The research was carried out in three stages, initially the adaptation of the instrument through a content analysis and revision of the scale; for this purpose, a review of the definitions of the construct, its dimensions, the wording of the original items, the use of terms considering the profile of the worker in Mexico was carried out.

The second stage consisted of a pilot test with 25 subjects with the profile of the worker under study and location in the locality. A section was included to ask them to indicate the items they found confusing, as well as suggestions to improve the wording with which the final version was corrected.

As a third stage, the sample application was carried out by agreeing a date with the company's management. It was applied in the workplace in April and May 2024, with the support of trained interviewers. At the beginning of each session, the subjects were given a letter of informed consent explaining the purpose of the study, the assurance of anonymity, confidentiality, and data protection.

Analysis of metric properties.

The CFA was performed using AMOS v. 20 and the SPSS 25.0 statistical package. The construct validity aims to determine the measurement compliance with the theoretical assumptions underlying the scale. Based on the theoretical foundations, a standardized parameter estimation model was designed, and the estimated factor loadings and descriptive statistics of central tendency were assessed.

Carretero-Dios and Pérez (2005).proposed for the instrumental design, using the CFA, the maximum likelihood estimation method and the fit indices: *Goodness of Fit Index* (GFI), *Adjusted Goodness of Fit Index* (AGFI), *Non-Normed Fit Index* (NNFI or TLI), *Root Mean Square Error of Approximation* (RMSEA), *Standardized Residual Mean Root* (SRMR) and *Comparative Fit Index (*CFI). These indices have been used in the development of valid and reliable measurement instruments where the indices have been found to be unaffected by degrees of freedom or sample size (Bagozzi & Yi, 2012; Brown, 2006; Byrne, 2016; Henseler et al., 2014; Hu & Bentler, 1999; Jackson et al., 2009; Marsh et al., 2010; Mvududu & Sink, 2013; Yuan, 2005).

Conde (2018) proposed the re-specification of models when it is considered that the results of standardized regression weights, modification indices and fit indices, do not fully comply with the ideal behaviors of both items and factors or dimensions.

Convergent validity

The convergent validity or degree of certainty in which the items measure the perception of TD was obtained through the *Average Variance Extracted* (AVE). The criteria of Fornell and Larcker (1981) and Moral de la Rubia (2019) were applied, which indicate performing the calculation based on the standardized measurement weights of each indicator or observable variable, which together make it possible to determine the existence of a latent variable by means of a structural equation modeling method. The criterion was that the latent factor, regardless of the number of indicators, should explain more than 50% of the variance (AVE= .5), which suggests acceptable convergent validity, although ideally it should explain more than 70%.

To these criteria Hair et al. (2010) and Cheung et al. (2023) add that the AVE should not be significantly less than .50 and that the standardized measurement weights should be at least .5 on all indicators, in addition to obtaining a composite reliability of .7 or higher.

Construct reliability

The composite reliability coefficient or Omega coefficient (ω) and Cronbach's Alpha coefficient (α) were applied to assess internal consistency reliability.

The Omega coefficient (ω) complements the scope of Cronbach's Alpha coefficient. The coefficient ω, suggests an acceptable level when it has values between .70 and .79, that is, it explains at least 70% of the variance of the measurements; when the value is .80 and .90 they are good and when they are higher than .90 they are considered excellent (Viladrich et al., 2017). In Cronbach's Alpha Coefficient (α) values > .70 are considered acceptable and good when > .80.

Results

Confirmatory factor analysis

The CFA was performed on the initial model and this was re-specified considering the behavior of some indices (Table 4). The fit indices resulting from the initial model, or model 1, were not adequate, particularly the values of the error of approximation (RMSEA) -superior to .050- and the value of the minimum discrepancy between degrees of freedom (CMIN/DF) -superior to 3.

The initial model (model 2) was re-specified, eliminating two items because they did not have adequate estimated loadings. The factors safe physical and interpersonal conditions (CON= 3 items); access to health coverage (SAL= 3 items), adequate and fair compensation (COM= 2 items), free time (TL= 2 items) and organizational values complementary to family and social values (VO= 3 items) were confirmed. From these factors or dimensions, standardized regression weights or loadings greater than .5 were obtained for the final 13 items, modification indices and model fit indices.

Model 2 or re-structured shows values in the fit indices NFI of .97, IFI of .98, TLI of .97, CFI of .98, CMIN/DF 2.27 and a p-value <.01, most of which, being above .90 and close to 1 allow us to consider a very good fit; the SRMR values of .027 and the RMSEA was .0 33, which are good being below .08 and .05 respectively, especially when considered with the reported CFI level. The AIC index value of the restructured model was lower than that of the initial model representing a better fit.

Table 4

Goodness-of-fit index models initial model or one and model two or respecified model

Goodness-of-fit index	Expected value	Model 1	Model 2	Value
Normalized fit index (NFI)	> 0.9	0.94	0.97	Acceptable
Incremental Fit Index (IFI)	> 0.9	0.95	0.98	Acceptable
Tucker-Lewis Index (TLI)	> 0.9	0.93	0.97	Acceptable
Comparative goodness of fit index (CFI)	> 0.9	0.95	0.98	Acceptable
Residual root mean square approximation (RMSEA)	<0.05	0.051	0.033	Acceptable
Standardized root mean square residual (SRMR)	<0.08	0.05	0.027	Acceptable
Akaike information criteria index (AIC)		405.07	222.2	Suitable
CMIN/DF	<3	3.9	2.27	Acceptable
p-value	<0.01	.000	.000	Acceptable

Note: Own elaboration.

Table 5 presents estimated factor loadings and descriptive statistics for the items of the thirteen factors. The highest factor loadings, on average, were for the subscale of secure physical and interpersonal conditions (CON), which ranged from 0.72 to 0.78. The highest item means were for the items corresponding to the subscale of secure physical

and interpersonal conditions (CON), which ranged from = 4.01 (SD=1.23) to = 4.12 (SD=1.09) (Table 5).

Table 5

Factorial and descriptive loadings per item

Item		DIM		Estimated Load	$\bar{x}$	DE	AVE
CON3	<--	WITH	I feel physically safe interacting with other people in my job.	.794	4.12	1.09	0.575
CON2	<--	WITH	In my job, I feel safe, and I do not suffer verbal or physical abuse of any kind.	.761	4.01	1.21	
CON1	<--	WITH	I feel emotionally secure when interacting with people in my job.	.718	4.03	1.23	
SAL3	<--	SAL	My employer offers acceptable options for my health care	.738	3.40	1.28	0.568
SAL2	<--	SAL	I have a good health plan at work	.802	3.15	1.36	
SAL1	<--	SAL	I have additional health benefits provided by my employer.	.718	3.09	1.36	
COM2	<--	COM	I feel that I am not being paid according to my experience and qualifications	.642	3.19	1.32	0.535
COM1	<--	COM	I am not paid well for the work I do	.811	3.34	1.32	
TL2	<--	TL	I don't have time to rest during the work week	.696	3.20	1.33	0.502
TL1	<--	TL	I do not have enough time for non-work activities	.692	3.04	1.32	
VO3	<--	VO	The values in this workplace match those of my community.	.541	3.54	1.16	0.377
VO2	<--	VO	The values of my job are not the same, but they are aligned with those of my family.	.592	3.48	1.18	
VO1	<--	VO	The values of my workplace match those of my family.	.699	3.58	1.26	

Note: Own elaboration

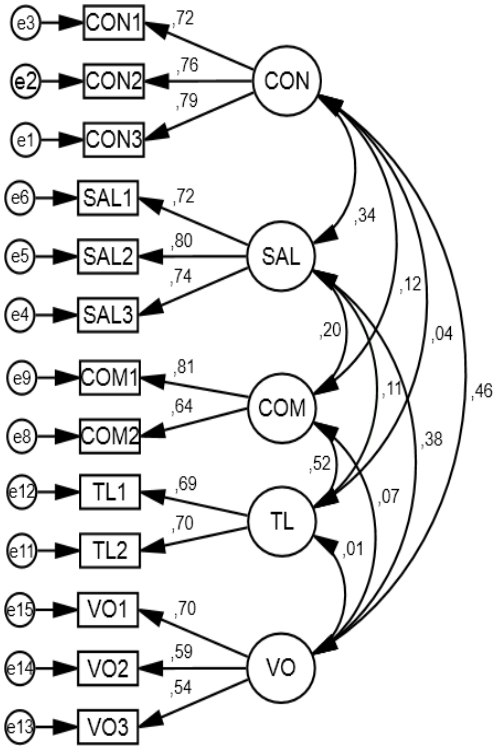
Note: DIM= Dimension = Mean SD= Standard Deviation AVE= Average Extracted Variance

ω = composite Reliability

The distribution of the factor loadings that make up the final integration of the DTS is presented in the diagram of the model with the standardized parameter estimation in Figure 1.

Figure 1

Diagram of the model with standardized parameter estimation



Note: Own elaboration.

Convergent validity

The results of the convergent validity through the Average Variance Extracted (AVE) show that four of the five dimensions are higher than 0.5, but not the organizational values (VO) factor; the AVE of the total scale was .507 which indicates that it explains more than 50% of the variance (Table 6).

Construct reliability

The Cronbach's Alpha coefficient value (α= .773) meets an acceptable level (> .7), while the Omega composite reliability coefficient (ω= .930) is good (> .9) (Table 6).

Table 6

Cronbach's alpha (α), Composite reliability (ω), AVE and ω of the total scale.

Variable	Cronbach's alpha (α)	Composite reliability (ω)	Information	AVE	ω
Decent work	0.773	0.930	Reliable	.507	.930

Note: Own elaboration.

CONCLUSIONS

The purpose of this study was to analyze the metric properties for the Decent Work Scale of Duffy et al. (2017) in workers belonging to a sample of medium-sized companies located in the State of Mexico through a CFA.

In this research the subjects studied were workers in the productive sector similar to those analyzed by Ferreira et al. (2019), Vignoli et al. (2020) and Nam and Kim (2019), unlike the work Di Fabio and Kenny (2019) who focused on education, health and social assistance sectors or Tokar and Kaut (2018) with workers with health problems; however, despite this difference in the inclusion criteria of the subjects, there were no differences that draw attention regarding reliability levels. The re-specified model in this research presents significant and adequate estimated factor loadings, the CFI and TLI fit indices were acceptable, as in the studies noted above, and only the RMSEA was slightly better.

The purpose of this research was limited to the analysis of the metric characteristics of the scale, which did not allow us to identify contrasts by gender or the affectation by cultural factors as in the works of Nam and Kim (2019) in Korea, Ribeiro et al. (2019) in Brazil or Ma et al. (2023) in China. Nor was it possible to determine the effect of other organizational behavior variables as in the work of Masdonati et al. (2019) in Switzerland or Buyukgoze-Kavas and Autin (2019) in Turkey.

The evidence suggests an acceptable reliability of the scale both by the level obtained in the Cronbach's Alpha coefficient, as well as in the composite reliability; the model presents a good fit to the data, which in the work of Montenegro (2018) was not evidenced

The analysis indicates the need to revise items 9 (third item of the adequate compensation dimension) and 12 (third item of the leisure time dimension), whose behavior did not show adequate factor loadings, which affected the model's fit indices and made it necessary to eliminate them in order to obtain a more robust model.

In conclusion, it is proposed that the WDS of Duffy et al., in its Spanish adjusted version, is a reliable scale, although it is necessary to consider that the convergent validity of the organizational values dimension will require revision of both the content of the items and the theoretical structure.

Limitations and future studies

This is a perception and self-reporting scale, which may represent biases derived from labor-related factors unrelated to the subject matter. The study was carried out in a single geographic area, in medium-sized companies and with a cross-section.

It is suggested that a multisample CFA be carried out for future studies, using representative samples from different areas of the country, as well as from different lines of business, economic sectors, types of organizations and hierarchical levels to which the

subjects belong. A revision of items 9, 12, 13, 14 and 15 of the scale is suggested to evaluate their content and psychometric properties in order to make the necessary adjustments or even redesign them. Another option would be to conduct a longitudinal study with intermediate interventions in the dimensions to verify pretest and posttest effects.

Practical implications

The practical usefulness of this scale makes it possible to diagnose the actions related to TD that companies implement, from the employees' perspective, for the implementation of programs to develop actions focused on improving the quality of life at work.

The impact of the diagnosis and implementation of TD improvement strategies will benefit workers by encouraging companies to support the fulfillment of Sustainable Development Goal 8 (SDG08) of the 2030 Agenda.

REFERENCES

Please refer to the articles in Spanish Bibliography.

BIBLIOGRAPHICAL ABSTRACT

Please refer to articles Spanish Biographical abstract.