

# Validation of the Kazakh version of the Brief Index of Affective Job Satisfaction in medical universities faculty staff sample

Assem Uristemova<sup>1</sup>, Ayan Myssayev<sup>2</sup>, Serik Meirmanov<sup>3</sup>, Lyudmila Migina<sup>1</sup>, Laura Pak<sup>4</sup>, Assel Baibussinova<sup>5</sup>

<sup>1</sup>Department of Public Health, Semey Medical University, Semey, Kazakhstan

<sup>2</sup>Department of Science and Human Resources, Ministry of Health of the Republic of Kazakhstan, Astana, Kazakhstan

<sup>3</sup>College of Asia Pacific Studies, Ritsumeikan Asia Pacific University, Beppu, Japan

<sup>4</sup>Department of Clinical Oncology and Nuclear Medicine, Semey Medical University, Semey, Kazakhstan

<sup>5</sup>Department of Epidemiology and Biostatistics, Semey Medical University, Semey, Kazakhstan

Received: 2022-09-24.

Accepted: 2023-01-09



This work is licensed under a Creative Commons Attribution 4.0 International License

J Clin Med Kaz 2023; 20(1):44-49

Corresponding author:

Assem Uristemova.

Email: [assem.uristemova@gmail.com](mailto:assem.uristemova@gmail.com);

ORCID: 0000-0001-7212-5054

## Abstract

**Aim:** The present study aimed to perform validation and assessment of psychometric properties of the Kazakh version of the Brief Index of Affective Job Satisfaction on the academic faculty staff.

**Material and methods:** The translation of the Brief Index of Affective Job Satisfaction was performed following the World Health Organization Guidelines on the translation and adaptation of research instruments. 715 medical educators of Kazakhstani medical universities represented the study population. Preliminary statistical analysis included Cronbach's alpha calculation. The psychometric properties of the instrument were examined using exploratory and confirmatory factor analysis.

**Results:** Cronbach's alpha obtained 0.88, outlining good internal consistency of the scale. The Kaiser-Meyer-Olkin index reached 0.830, which indicated meritorious sample adequacy. CFA identified good factorial validity of the scale: all model fit indices exceeded the threshold values. The inter-item correlation index varied between  $r=0.616$  and  $r=0.716$ , designating an acceptable correlation between variables. The total job satisfaction level was moderate ( $3.15\pm 0.78$ ).

**Conclusion:** Our findings provide support to the psychometric properties of the Kazakh version of the BIAJS as an instrument for the assessment of job satisfaction. The major advantages of the BIAJS are that it is optimally brief, highly affective, and has good internal validity.

**Key words:** job satisfaction, medical faculty, psychometrics, validation study

## Introduction

Enhancing the healthcare system is one of the priority directions of the state policy of Kazakhstan. Modernization of human resources policy in healthcare entails advancing the competitiveness of graduates, which implies expansive updating educational programs at all levels of education, aimed at mastering core competencies and the ability to apply them in real life [1]. As international experience shows, medical education reform intensifies the competition between universities, which predetermines a higher responsibility of faculty members towards the educational process and research activities [2]. However, numerous studies enlighten that high workload and bureaucratic

paperwork may lead to faculty discontent and job stress with the further intention to leave academia [3–8]. The American Association of Medical Colleges (AAMC) [9] reported that 53% of all faculty remained in their medical schools, 10% switched to another institution, and 38% left academic medicine within 10 years. Moreover, clinical faculty with Ph.D. were more likely to leave or switch medical schools.

At the moment, comprehensive work on the transition to a six-year medical education is being implemented in Kazakhstan. The new program is developed to succeed the current 5+2 (baccalaureate+internship) program and requires six years of continuing education. Given the increased

burden on teachers who, along with their daily pedagogical, educative, or clinical activities, are obliged to develop new curricula and revise learning outcomes, the organizational commitment is rapidly diminishing.

Many authors express concerns that low job satisfaction may jeopardize the qualified training of future healthcare providers. However, the adverse effects of faculty discontent do not end with this. Medical schools struggle with serious financial losses as a result of faculty turnover [4,10], aside from the deterioration of the institutional image both inside and outside academia [11,12]. In this regard, investigating faculty job satisfaction is of paramount importance, since medical educators are the cornerstone of the academic success of institutions on the national and global stage [13,14].

One of the earliest references for job satisfaction dates back to Hoppok (1938) [15], who defined it as a combination of psychological, physiological, and environmental circumstances that makes a person satisfied with his or her job. Locke (1969) [16] classically conceptualized JS as "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences". These early interpretations emphasize the affective side of JS, based on feelings related to their experience at the job.

Research on academic faculty job satisfaction is quite rich, as well as the variety of instruments aimed to measure it. The instruments are constructed in a diverse manner and may be applied subject to different aims of the study. Some scales are dedicated to measuring overall satisfaction, such as the Job in General Scale (JIG), which comprised 18 items [17], or Andrew and Withey Job Satisfaction Questionnaire with 5 items [18]. But the vast majority of instruments evaluate specific job facets, impacting satisfaction, such as Job Descriptive Index (JDI), which contains 72 items and covers 5 dimensions: general job satisfaction, supervision, salary, relations with colleagues, and promotion opportunities [19], or the Minnesota Satisfaction Questionnaire (MSQ) short form [20], which has 20 statements and is aimed to assess intrinsic and extrinsic aspects, recognition, and authority/social utility. The Measure of Job Satisfaction (MJS) consists of 38 questions and evaluates personal satisfaction, workload, support, education, salary, and prospects [21]. Other multidimensional instrument is the 36-item Job Satisfaction Survey (JSS), which is developed for the social service sector and consists of 9 subscales: salary, promotion, supervision, fringe benefits, rewards, operating policies and required rules, coworkers, nature of work, and communication [22].

There are several problematic areas in measuring job satisfaction. First, a huge variety of tools allows researchers to prefer the one that best suits the purpose of the study. However, some tools are designed for specific samples (JSS, MJS) and may not be applied to other sectors. There are also some scales developed on general samples, that may not be applicable to specific professions [23].

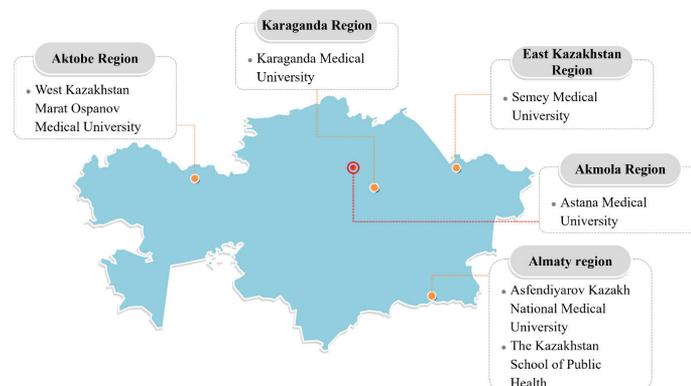
Another focus that demands scrutiny is the structure of job satisfaction. Some authors argue that it comprises several cognitive facets. In this regard, difficulties arise in determining which facets should be included in the evaluation of JS and what specific weight they would have in overall satisfaction [24]. Many authors criticize that JS is more than the aggregated outcome of several aspects of a job, but appears to be an emotional construct, and therefore must be evaluated in an affective aspect. A growing number of studies contemplate the affective facets of JS, rather than cognitive, related to the rational perception of job conditions (such as pay, career promotion, rewards, etc.) [25–28]. In that context, affective instruments, such as the Brief

Index of Affective Job Satisfaction (BIAJS), have gained wide adoption in the last decade. The unidimensional scale proved its temporal stability in test-retest study ( $r = 0.57$ ), and had good internal consistency (Cronbach's alpha obtained 0.83 in the initial study). To date, the BIAJS is considered a unique measure that is both specifically affective and applicable for testing an exhaustive range of psychometric properties vital to ensuring research integrity. Moreover, the tool demonstrated its cross-national and cross-population equivalence in different ethnic and social groups (corrected item-total correlations ranged from 0.51 to 0.74) [29]. The scale has already been translated into other languages and validated in Spain [24], Argentina [30], Russia [31], and China [26]. Therefore, our study aimed to perform validation and assessment of psychometric indicators of the Kazakh version of the BIAJS on the academic faculty staff.

## Material and methods

### Study sample

The present study was conducted between October and December 2021 and involved the academic faculty of Kazakhstani medical universities. The selection process was performed using the non-probability convenience method. The EpiInfo version 7.0 software was used for sample size calculation, with a risk of loss of 20% and a confidence interval of 95%. Six institutions were purposively selected to represent institutions of republican (Astana Medical University, Asfendiyarov Kazakh National Medical University, the Kazakhstan School of Public Health) and regional status (Semey Medical University, Karaganda Medical University, West Kazakhstan Marat Ospanov Medical University) (Figure 1). 715 faculty members from different departments were recruited for the survey. Eligibility criteria included educators who willed to participate in the survey, worked in selected universities, and were social media users. Faculty members who refused to participate or were on leave at the moment of the study were withdrawn from the study. An online self-administered survey was distributed among faculty via WhatsApp messenger.



**Figure 1** - The geographical spread of medical universities recruited for the study

### Ethical statement

The study was approved by Semey Medical University Ethics Committee (No 2, 28-10-2020). All participants were sent a statement informing about (1) the goals and rationale of the study, (2) the rights of the participants, (3) the ability to withdraw at any moment of the study (4) the contact number of the principal researcher in case of the difficulties in completing the form. An informed consent form was sent to responders before data collection. No incentives or compensations were offered to encourage teachers to participate in the study.

## Study instrument

The BIAJS is a unidimensional scale for measuring affective job satisfaction. The BIAJS was developed and initially validated in Australia and Hong Kong [29]. The tool is composed of four items: “I find real enjoyment in my job”, “I like my job better than the average person”, “Most days I am enthusiastic about my job”, and “I feel fairly well satisfied with my job”. Furthermore, the scale includes three distracter items: “My job is unusual”, “My job needs me to be fit”, and “My job is time consuming”, which help reduce method variance.

The responses were rated on a 5-point Likert scale (1 – Strongly disagree, 2 – Disagree, 3 – Neutral, 4 – Agree, 5 – Strongly agree).

## Procedures

Primarily, we contacted the principal author of the BIAJS scale Edmund R. Thompson via e-mail. Permission was obtained aiming to develop the Kazakh version of the scale.

The BIAJS translation procedure was carried out following the World Health Organization (WHO) Guidelines on the translation and adaptation of research instruments [32].

In the first stage, two translators familiar with the terminology independently translated the original English version of the BIAJS into Kazakh. The specialists provided translations with a detailed report on the difficulties and uncertainties that arose in the process. Afterward, the provided documents were compared and discussed by translators for the appropriateness of translation, which made it possible to agree on a single version of the questionnaire (V1). Questions with controversial wording were revised and corrected.

For the second stage, the expert panel including a healthcare specialist, a Kazakh language philologist, and translators reviewed the V1. The purpose of the discussion was to minimize translation errors and misinterpretations.

In the third stage, another bilingual translator who was not aware of the content of the original BIAJS was invited for the back translation. The back translation of the unified version of the questionnaire into English was the necessary measure to ensure the content was not impacted during the translation. The final version of the questionnaire (V2) was grammatically and semantically comparable to the original English-language questionnaire.

## Pilot study

30 volunteer teachers from Semey Medical University were recruited for the pilot study to (1) verify the cultural appropriateness of the Kazakh version of the BIAJS and (2) to check the initial psychometric properties of the scale. Eligibility criteria included being the faculty staff, fluency in Kazakh, and absence of mental disorders. The participants were asked about the clarity and certainty of the questions and options, as well as any difficulties in understanding the expressions or selecting the option.

## Data analysis

The statistical analysis was performed with SPSS 23.0 (IBM Corp.) and AMOS 26.0 (IBM Corp.).

A preliminary analysis was performed to examine the internal reliability of the BIAJS scale. Exploratory factor analysis EFA was performed using principal component analysis. In exploratory factor analysis (EFA), we considered the Kaiser-Meyer-Olkin (KMO) index and the Bartlett test of

sphericity. The following cutoff values were used: KMO > 0.60, the Bartlett test of sphericity  $p < 0.05$ . Determination of the number of factors considered eigenvalues higher than 1.0. Inter-item correlation test was run to explore the internal consistency of the scale items.

In confirmatory factor analysis (CFA) with maximum likelihood estimation (MLE), the indices of overall fit were tested. The chi-square test ( $\chi^2$ ) was used for assessing the difference between observed and expected covariance matrices. The goodness of fit (GFI) and adjusted goodness of fit (AGFI) were applied to evaluate the fit between the model and the observed covariance matrix with the cutoff value >0.95 and >0.90, respectively. The normed fit index (NFI) and the Tucker-Lewis index (TLI) analyzed the difference between the proposed model chi-square value and the null model chi-square value with the cutoff value >0.90 and >0.95, respectively. The relative fit index (RFI) and the incremental fit index (IFI) were used to compare the chi-square for the proposed and null models with the cutoff value >0.90. The comparative fit index (CFI) was performed to compare the hypothesized model fit to the null model fit with the cutoff value >0.90. The root mean square error of approximation (RMSEA) was applied to determine model efficiency to fit population covariance matrix with optimal chosen parameters with the cutoff value <0.08. The root mean square residual (RMR) was used as a measure of the discrepancy between the sample covariance matrix and the model covariance matrix with the cutoff value <0.08.

The means and standard deviations (SD) were calculated for continuous variables. Categorical variables were presented in frequencies and percentages. Pearson's correlation coefficient was used to reveal the connection between continuous variables. An independent t-test and one-way ANOVA were applied to examine the distribution of job satisfaction scores among demographic variables.

## Results

### Pilot study

30 faculty teachers agreed to participate in the pilot testing of the Kazakh version of the BIAJS. 73.33% of all participants (n=22) were females. The mean age±SD was 38.17±9.0. In the pilot study, the internal consistency of the BIAJS, as measured by Cronbach's alpha, was 0.83 (crude Cronbach's alpha before the exclusion of distracter items was 0.77). KMO was 0.727, which indicated average sample adequacy, the Bartlett test of sphericity obtained  $\chi^2=57.196$ ,  $df=6$ ,  $p<0.001$ . The scree plot analysis revealed 1 factor with an eigenvalue of 2.77 explaining 69.21% of all variance.

All responders (100%) agreed with the content clarity and cultural appropriateness.

### Sample

Overall, 715 faculty members provided complete data for job satisfaction survey. The mean age±SD was 40.75±11.39 for females and 41.30±11.08 for males. Slightly over half of the participants (54.3%) were theoretical and basic faculty staff, whilst 45.7% worked in clinical departments. The vast majority of participants comprised full-time faculty (77.9%). Three-quarters of the sample hold different academic degrees (Master – 36.4%, Ph.D. – 13.0%, Professor or Candidate – 26.3%). The mean job satisfaction±SD was 3.15±0.78 (3.13±0.81 for females, 3.20±0.72 for males). Complete socio-demographic data of the participants are displayed in Table 1.

Table 1

Socio-demographic characteristics of the sample (N = 715)

Variable	N (%)	
	Satisfied	Dissatisfied
<b>Gender</b>		
Male	99 (42.3)	135 (57.7)
Female	195 (40.5)	286 (59.5)
<b>Work experience</b>		
Less than 1 year	7 (29.2)	17 (70.8)
1-5 years	31 (19.1)	131 (80.9)
5-10 years	39 (22.8)	132 (77.2)
Over 10 years	217 (60.6)	141 (39.4)
<b>Department focus</b>		
Theoretical/basic	161 (41.5)	227 (58.5)
Clinical	133 (40.7)	194 (59.3)
<b>Employment status</b>		
Full-time	260 (46.7)	297 (53.3)
Part-time	34 (21.5)	124 (78.5)
<b>Academic qualification</b>		
No	65 (37.4)	109 (62.6)
Master	72 (27.7)	188 (72.3)
Ph.D.	25 (26.9)	68 (73.1)
Professor/Candidate	132 (70.2)	56 (29.8)

## Reliability and exploratory factor analysis of the BIAJS

Cronbach's alpha of 0.88 denoted good internal consistency of the scale (crude Cronbach's alpha before the exclusion of distracter items was 0.83). Table 2 demonstrates preliminary descriptive statistics for responses.

Table 2

Preliminary descriptive statistics for the BIAJS scale (N = 715)

Item	M	SD	SEM	$\alpha$ if the item is deleted
BIAJS_1	3.16	0.87	0.032	0.853
BIAJS_2	3.30	0.90	0.034	0.863
BIAJS_3	2.93	0.95	0.035	0.852
BIAJS_4	3.22	0.92	0.032	0.830

M: Mean, SD: Standard deviation, SEM: Standard error of the mean

KMO was 0.830, which indicated meritorious sample adequacy, the Bartlett test of sphericity obtained  $\chi^2=1530.917$ ,  $df=6$ ,  $p<0.001$ . The scree plot analysis revealed 1 factor with an eigenvalue of 2.96 explaining 74.06% of all variance.

Inter-item correlation test displayed an acceptable correlation between scale variables (Table 3).

Table 3

Inter-item correlation matrix for the BIAJS scale

	BIAJS_1	BIAJS_2	BIAJS_3	BIAJS_4
BIAJS_1	-	0.628*	0.619*	0.699*
BIAJS_2	0.628*	-	0.616*	0.645*
BIAJS_3	0.619*	0.616*	-	0.716*
BIAJS_4	0.699*	0.645*	0.716*	-

\*All correlations were significant at  $p < 0.01$

## Confirmatory factor analysis

The theoretical model for assessing affective job satisfaction was examined using maximum likelihood estimation (MLE) and demonstrated a good fit. The fit statistics were as follows:  $\chi^2=9.186$  ( $df=2$ ,  $p<0.010$ ), GFI/AGFI=0.994/0.969, NFI=0.994, RFI=0.982, IFI=0.995, TLI=0.986, CFI=0.995, RMSEA=0.071, RMR=0.010 (Figure 2).

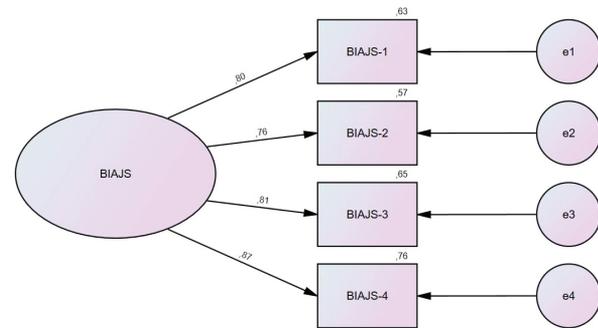


Figure 2 - Graphical representation of the Kazakh version of the BIAJS model

## Discussion

The BIAJS is a valid tool used worldwide for measuring affective job satisfaction. The present study aimed to perform translation, validation, and adaptation of the Kazakh version of the BIAJS in the academic faculty staff.

The Kazakh version was developed using the WHO Guidelines on translation. Primary testing of semantic appropriateness was performed on the pilot group of 30 medical educators in Semey city. The Cronbach's alpha was 0.83 and showed good reliability.

We used standard methods to evaluate the psychometric properties of the scale. Cronbach's alpha of 0.88 demonstrated good internal reliability, which is somewhat higher than in the original scale ( $\alpha$  between 0.81 and 0.83) [29], the Argentinian ( $\alpha=0.83$ ) [33], and the Chinese sample ( $\alpha=0.87$ ) [26]. However, the score was lower than in the American ( $\alpha=0.89$ ) [34] and Spanish ( $\alpha=0.92$ ) samples [35]. This displayed that the BIAJS has similar indices of reliability in different populations. According to Taber (2018) [36], the reliability of the scale with an alpha less than 0.70 is found to be questionable or unsatisfactory.

EFA revealed one factor with an eigenvalue above 1.0, which confirmed the one-dimensional structure of the BIAJS. To assess the internal consistency of the scale, an inter-item correlation test was applied. The test revealed an acceptable correlation between variables, which varied between  $r=0.616$  and  $r=0.716$ . CFA identified good factorial validity of the scale: all model fit indices exceeded the threshold values. This is consistent with prior studies intended to validate the tool [24,26,30]. Therefore, these findings verified the reliability of the internal and structural consistency of the Kazakh version of the BIAJS.

Our findings have several implications. First, to date, none of the valid instruments that have international recognition were adapted specifically for the Kazakh population. Second, since the major changes in the healthcare and education sectors imply the faculty demands to be considered, the use of the BIAJS may help conceptualize effective retention policies in medical institutions.

## Conclusion

Overall, the present study provides support to the psychometric properties of the Kazakh version of the BIAJS as an instrument for the assessment of job satisfaction. The findings of our study demonstrated that the factor structure of the Kazakh scale is very close to that of the original instrument. The scale was approved as a valid one-dimensional tool, which may assist the administration of medical universities to identify faculty satisfaction levels. The major advantages of the BIAJS are that

it is optimally brief, highly affective, and has good internal validity. Furthermore, our study shed light on the need to correct the faculty retention policies in the era of medical education reforms and curricular changes.

**Disclosures:** There is no conflict of interest for all authors.

**Acknowledgements:** None.

**Funding:** None.

## References

1. Official information Source of the Prime Minister of the Republic of Kazakhstan. Strategic Plan 2025 [in Russian]. Published 2018. Accessed September 19, 2022. <https://primeminister.kz/ru/documents/gosprograms/stratplan-2025>
2. Shen X, Yang YL, Wang Y, Liu L, Wang S, Wang L. The association between occupational stress and depressive symptoms and the mediating role of psychological capital among Chinese university teachers: A cross-sectional study. *BMC Psychiatry*. 2014;14(1):1-8. <https://doi.org/10.1186/s12888-014-0329-1>
3. Mustapha N, Yu Ghee W. Examining Faculty Workload as Antecedent of Job Satisfaction among Academic Staff of Higher Public Education in Kelantan, Malaysia. *Business and Management Horizons*. 2013;1(1):10-16. <https://doi.org/10.5296/bmh.v1i1.3205>
4. Bucklin BA, Valley M, Welch C, Tran ZV, Lowenstein SR. Predictors of early faculty attrition at one Academic Medical Center. *BMC Med Educ*. 2014;14(1):27. <https://doi.org/10.1186/1472-6920-14-27>
5. Soomro TR, Ahmad R. Faculty retention in higher education. *Int J Higher Educ*. 2013;2(2):147-150. <https://doi.org/10.5430/ijhe.v2n2p147>
6. Aalto AM, Heponiemi T, Josefsson K, Arffman M, Elovainio M. Social relationships in physicians' work moderate relationship between workload and wellbeing—9-year follow-up study. *Eur J Public Health*. 2018;28(5):798-804. <https://doi.org/10.1093/EURPUB/CKX232>
7. Shaterjalali M, Gholampoor Y, Jeihooni AK, et al. Faculty retention in regional medical schools in Iran: a qualitative content analysis. *BMC Med Educ*. 2021;21(1):1-8. <https://doi.org/10.1186/S12909-020-02473-Y/TABLES/1>
8. Pololi LH, Krupat E, Civian JT, Ash AS, Brennan RT. Why are a quarter of faculty considering leaving academic medicine? A study of their perceptions of institutional culture and intentions to leave at 26 representative U.S. medical schools. *Academic Medicine*. 2012;87(7):859-869. <https://doi.org/10.1097/ACM.0b013e3182582b18>
9. The American Association of Medical Colleges (AAMC). The Long-term Retention and Attrition of U.S. *Medical School Faculty*. 2008. [www.aamc.org/data/aib](http://www.aamc.org/data/aib)
10. Zimmermann EM, Mramba LK, Gregoire H, Dandar V, Limacher MC, Good ML. Characteristics of Faculty at Risk of Leaving Their Medical Schools: An Analysis of the StandPoint™ Faculty Engagement Survey. *J Healthc Leadersh*. 2020;12:1. <https://doi.org/10.2147/JHL.S225291>
11. Hana U, Lucie L. Staff Turnover as a Possible Threat to Knowledge Loss. *Journal of Competitiveness | Issue*. 2011;(3):84-98.
12. Caruth GD, Caruth DL. Adjunct Faculty: Who are these Unsung Heroes of Academe? *Current Issues in Education*. 2013;16(3):1-11. <https://doi.org/10.2304/pfie.2013.11.5.490>
13. Ries A, Wingard D, Gamst A, Larsen C, Farrell E, Reznik V. Measuring faculty retention and success in academic medicine. *Acad Med*. 2012;87(8):1046-1051. <https://doi.org/10.1097/acm.0b013e31825d0d31>
14. Bunton SA, Corrice AM, Pollart SM, et al. Predictors of workplace satisfaction for U.S. medical school faculty in an era of change and challenge. *Academic Medicine*. 2012;87(5):574-581. <https://doi.org/10.1097/ACM.0b013e31824d2b37>
15. Hoppok R, Spiegler S. Job Satisfaction. *The Vocational Guidance Journal*. 1938. <https://doi.org/10.1002/j.2164-5892.1938.tb00348.x>
16. Locke EA. What is Job Satisfaction? *Organ Behav Hum Perform*. 1969;4:309-336.
17. Harper E, Castrucci BC, Bharthapudi K, Sellers K. Job Satisfaction: A Critical, Understudied Facet of Workforce Development in Public Health. *Journal of Public Health Management and Practice*. 2015;21(6):S46. <https://doi.org/10.1097/PHH.0000000000000296>
18. Olashore AA, Akanni OO, Ogundipe RM. Physical violence against health staff by mentally ill patients at a psychiatric hospital in Botswana. *BMC Health Serv Res*. 2018;18(1):1-7. <https://doi.org/10.1186/S12913-018-3187-6/TABLES/4>
19. Rostami F, Babaei-Pouya A, Teimori-Boghsani G, Jahangirimehr A, Mehri Z, Feiz-Arefi M. Mental Workload and Job Satisfaction in Healthcare Workers: The Moderating Role of Job Control. *Front Public Health*. 2021;9:1178. <https://doi.org/10.3389/FPUH.2021.683388/BIBTEX>
20. Jiang F, Zhou H, Hu L, et al. Psychiatry residents in China: Socio-demographic characteristics, career satisfaction, and related factors. *Front Psychiatry*. 2019;10:177. <https://doi.org/10.3389/FPSYT.2019.00177/BIBTEX>
21. Ioannou P, Katsikavali V, Galanis P, Velonakis E, Papadatou D, Sourtzi P. Impact of Job Satisfaction on Greek Nurses' Health-Related Quality of Life. *Saf Health Work*. 2015;6(4):324-328. <https://doi.org/10.1016/J.SHAW.2015.07.010>
22. Tsounis A, Sarafis P. Validity and reliability of the Greek translation of the Job Satisfaction Survey (JSS). *BMC Psychol*. 2018;6(1):1-6. <https://doi.org/10.1186/S40359-018-0241-4/TABLES/5>
23. Astrauskaite M, Vaitkevicius R, Perminas A. Job Satisfaction Survey: A Confirmatory Factor Analysis Based on Secondary School Teachers' Sample. *International Journal of Business and Management*. 2011;6(5):41-50. <https://doi.org/10.5539/ijbm.v6n5p41>
24. Fernández-Muñoz JJ, Topa G. Older workers and affective job satisfaction: Gender invariance in Spain. *Frontiers in Psychology*. 2018;9:1-7. <https://doi.org/10.3389/fpsyg.2018.00930>
25. Sorondo BM. Associations between affect, personality, and job satisfaction among library employees: Efficient and ethical assessment of library staff. *Advances in Library Administration and Organization*. 2017;37:35-56. <https://doi.org/10.1108/S0732-067120170000037003>
26. Gong Y, Wu Y, Huang P, Yan X, Luo Z. Psychological Empowerment and Work Engagement as Mediating Roles Between Trait Emotional Intelligence and Job Satisfaction. *Front Psychol*. 2020;11:232. <https://doi.org/10.3389/FPSYG.2020.00232/BIBTEX>
27. Huang S, Chen Z, Liu H, Zhou L. Job satisfaction and turnover intention in China: The moderating effects of job alternatives and policy support. *Chinese Management Studies*. 2017;11(4):689-706. <https://doi.org/10.1108/CMS-12-2016-0263>
28. Figueredo JM, García-Ael C, Gragnano A, Topa G. The mediating role of work-health balance in the relationship between perceived work ability and affective job satisfaction. *Psihologijske Teme*. 2021;30(3):547-572. <https://doi.org/10.31820/pt.30.3.8>

29. Thompson ER, Phua FTT. A Brief Index of Affective Job Satisfaction. *Group Organ Manag.* 2012;37(3):275-307. <https://doi.org/10.1177/1059601111434201>
30. Pujol-Cols L, Dabos GE. Dispositional and situational factors at work: A validation of scales and examination of effects on job satisfaction. *Academia Revista Latinoamericana de Administración.* Published online 2019:1-86. <https://doi.org/10.1108/arla-12-2017-0355>
31. Lovakov A. Antecedents and Consequences of Organizational Commitment Among Russian University Teachers. *Psychology.* 2014. <https://doi.org/10.2139/ssrn.2552437>
32. World Health Organization. WHO Guidelines on Translation. *Process of Translation and Adaptation of Instruments.*; 2016. [http://www.who.int/substance\\_abuse/research\\_tools/translation/en/](http://www.who.int/substance_abuse/research_tools/translation/en/)
33. Pujol-Cols L, Lazzaro-Salazar M. Psychosocial Risks and Job Satisfaction in Argentinian Scholars: Exploring the Moderating Role of Work Engagement. *Journal of Work and Organizational Psychology.* 2018;34(3):145-156. <https://doi.org/10.5093/jwop2018a17>
34. Kurian G, Muzumdar P. Antecedents to Job Satisfaction in the Airline Industry. *NMIMS Management Review.* 2017;34(2):29-40.
35. Llorente-Alonso M, Topa G, Salgado JF, et al. Individual Crafting, Collaborative Crafting, and Job Satisfaction: The Mediator Role of Engagement. *Journal of Work and Organizational Psychology.* 2019;35(3):217-226. <https://doi.org/10.5093/jwop2019a23>
36. Taber KS. The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education. *Res Sci Educ.* 2018;48(6):1273-1296. <https://doi.org/10.1007/S11165-016-9602-2/TABLES/1>