Interface between Organizational Citizenship Behavior and Job Satisfaction among a Slice of Health Professionals in an Egyptian Context

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ABSTRACT

Interface between Organizational Citizenship Behavior (OCB) and Job Satisfaction (JS) has been the focus of a horde of recent research. This relation could be found to be moderately positive, weakly positive, or non-demonstrable. However, the relation has never been reported to be a negative one. Valid and reliable measurement models of the two poles of the relationship were acquired from previous two observational cross-sectional studies concurrently conducted by the researcher on a slice of healthcare professionals conducting their graduate studies in High Institute of Public Health, Alexandria University, Egypt. Four consecutive samples (S1, S2, S3, & S4) were collected one month apart. Studying the postulated relationship progressed in three phases, the first phase probed a hypothesized non-directional correlation, the second phase investigated a hypothesized structural directional influence from OCB to JS and the third phase examined a hypothesized structural directional influence from JS to OCB. Study models were examined using structural equation modeling (SEM) using unweighted least squares estimators and suitable global and local fit indices. The three models displayed a positive weak significant relationship between OCB and JS. Multiple group analysis generally revealed weak invariance across time, and participants' personal characteristics. Recommendations, managerial implications, future research directions, and limitations have been underscored.

Keywords: Organizational Citizenship Behavior; Job Satisfaction; Structural Equation Modeling; Structural Regression Model; Measurement invariance; Healthcare professionals; Egypt

INTRODUCTION

Organizational Citizenship Behavior (OCB) is defined as voluntary, unprescribed, volitional, extra-role, employee effort surpassing formal job description that advances organizational performance (Abdel-Aziz, 2020a; Bateman & Organ, 1983; Organ, 1988, 1997). Job Satisfaction (JS) is defined as an employee's gratifying affect and positive attitude towards his/her job that ensues from an agreeable appraisal and contentedness with vocational experiences fulfilling one's needs, wants, and expectations. (Abdel-Aziz, 2020b; Fisher, 2003; Locke, 1976; Hazzi & Maldaon, 2012; Muller & McCloaskey, 1990; Spector, 1997).

OCB needs to be elucidated in a JS perspective, i.e. JS as an antecedent to OCB (Chahal & Mehta, 2010; Chou & Pearson, 2012). Correspondingly JS needs to be expounded in an OCB context, i.e., JS as a consequent of OCB (Chahal & Mehta, 2010; Podaskoff & Mackenzie, 1997). OCB-JS association (OJA) is one of the most often examined relationships in organizational behavior literature (Bateman & Organ; 1983; Murphy, Athanasou, & King, 2002). Analysis of OJA has spawned a considerable volume of research (e.g., Bateman & Organ, 1983; Hazzi & Maldaon, 2012; Jena & Goswami, 2014; George, 1991; Organ & Konovsky, 1989; Rioux & Penner, 2001; Puffer, 1987; Smith, Organ, & Near, 1983). Numerous empirical studies have documented the positive direct reciprocative structural nature of OJA (Bateman & Organ, 1983; Choudhary, Kumar, & Philip, 2013; Konovsky & Pugh, 1994; McFarlin & Sweeney, 1992; Moorman, 1991; Organ, 1988).

Several researches have demonstrated the significant positive moderate nature of OJA with correlation coefficients ranging between +0.40 to +0.67 (Bateman & Organ,1983; Foote & Tang, 2008; Kim, 2006; Murphy et al., 2002; Organ, 1988; Shokrkon & Naami, 2009; Yaghoubi, Salehi, & Moloudi, 2011). Some studies reported no OJA (e.g., Organ & Konovsky, 1989; Williams & Anderson, 1991). However; no study reported a negative OJA (Jena, & Goswami, 2014).

Two diacritic rationales have been proffered to explicate the positive reciprocal dyadic character of OJA (George, 1991). One explanation is that satisfied employees are more likely to exhibit OCB, i.e. OCB as a consequent of JS (Bateman & Organ, 1983; Brief & Motowidlo, 1986; Farh, Podsakoff, & Organ, 1990; Gautam, van Dick, Wagner, Upadhyay, & Davis, 2005; George, 1991; Hackman & Oldham, 1976; Karl & Sutton, 1998; Lowery, Beadles, & Krilowicz, 2002; Organ & Ryan, 1995; Podsakoff, Mackenzie, Paine, & Bachrach, 2000; Smith, et al., 1983; Williams & Anderson, 1991). The other rationale is that organizations with higher levels of OCB are more likely to manifest higher levels of JS, i.e. OCB as an antecedent of JS (Chang & Chang, 2010; Feather & Rauter, 2004; Organ & Konovsky, 1989; Organ & Ryan, 1995; Lee, Kim, & Kim, 2013; Williams & Anderson, 1991).

These rationalizations can be grounded on the “reciprocity rule” of the social exchange theory (SET) which has been employed to explicate the positive reciprocal essence of OJA (Deckop, Mangal, & Circa, 1999; Konovsky & Pugh, 1994). SET posits that people seek to reciprocate those who benefit them (Adams, 1965; Blau, 1964). Then a satisfied employee reciprocates OCB towards his/her organization (Bateman & Organ, 1983; Gonzalez & Garazo, 2006; Gregory, Osmonbekov, Gregory, Albritton, & Carr, 2013; Shapiro, Jacqueline, Kessler, & Purcell, 2004). Likewise, OCB gratifies various employees' psychological needs and generates higher levels of JS (Feather & Rauter, 2004; Lee, et al., 2013; Organ, Podsakoff, & MacKenzie, 2006; Testa, 2001; Weiss, 2002). In other words, OCB creates a work environment that better fulfills employees' needs through creating an improved correspondence and adjustment between the individual and the reinforcements received from his/her work environment, i.e., OCB brings about an improved person-environment fit (Hopkins, 1983; Rounds, Dawis, & Lofquist, 1987).

Both OCB and JS have a substantial impact on organizational effectiveness and efficiency (Fisher, 2003; Zhang, 2011). Interest in productivity, quality and organizational performance is a primary motif behind the quest for further researching OJA and bringing it to a sharper analytic

spotlight (Blau, 1999; Jan & Gul, 2016; Jena & Goswami, 2014; Hancer & George, 2004; Lievens & Anseel, 2004; Yaghoubi et al., 2011). A clearer comprehension of OJA can help healthcare organizations to attain superior levels of patient satisfaction, customer loyalty, corporate image and competitive advantage (Chahal & Mehta, 2010).

Then again, comparable studies in the non-Western contexts are very limited and developing countries go through a paucity of research in such direction (Farh, Zhong, & Organ, 2004; Jena & Goswami, 2014). The exigency to pursue analogous line of research in various cultural contexts cannot be overemphasized (Organ, Podsakoff, MacKenzie, 2006; Podsakoff, MacKenzie, Paine, & Bachrach, 2000). Therefore, the present study endeavors to investigate the extent, directionality, and degree of measurement invariance of OJA among a segment of healthcare professionals in an Egyptian context.

Methods

An observational analytical cross-sectional study based on data obtained from two previous studies conducted by Abdel-Aziz (2020a, 2020b). The study was performed among diploma and master health professionals carrying out their postgraduate studies at the High Institute of Public Health (HIPH), Alexandria University, Egypt. Permission was obtained from authorities and Ethics Committee of HIPH on 24/9/2019. Study data were collected in the period from 29/9/2019 till 16/1/2020. Participation was voluntary and informed verbal consent was obtained from study participants. Participants were informed about the purpose of the study and assured about the confidentiality and anonymity of the collected data. The researcher abided by the International Guidelines for Research Ethics and Academy of Management Code of Ethics. The present study utilized data collected through two questionnaires delivered in two previous studies (see Abdel-Aziz, 2020a; 2020b). The questionnaires were delivered in English. English proficiency is a prerequisite to enroll as a student in HIPH. Each of the questionnaires contained three sections.

The first section introduced the researcher to the participants, informed them of the purpose of the study and submitted instructions about how to complete the questionnaire. The second section encompassed items pertaining to selected personal characteristics of participants including age; gender; marital status; year of undergraduation; attained undergraduate merit (excellent, very good, good, and satisfactory); postgraduate study program (master or diploma);work sector [Ministry of Health (MOH); University, Private, and others];professional category (physician, pharmacist, dentist, nursing, nutritionist, others); tenure (years of experience);and the scholar identification number. In Abdel-Aziz (2020 a) the third questionnaire section encompassed the 24 items of Podsakoff, Mackenzie, Moorman, & Fetter (1990)'s questionnaire. Podsakoff et al. (1990)'s scale was used by Abdel-Aziz (2020a) as an initial item pool to develop an OCB measurement model with convenient reliability and validity. In Abdel-Aziz (2020b) the third questionnaire section encompassed the 20 items of Minnesota Satisfaction Questionnaire short form (MSQ-S) developed by Weiss, Dawis, England, & Lofquist (1967). Weiss et al. (1967)'s scale was used by Abdel-Aziz (2020b) as an initial item pool to develop a JS measurement model with expedient psychometric properties. For the corroboration of the psychometric properties of the two models measuring OCB and JS among participants in the study situation, refer respectively to Abdel-Aziz (2020a, 2020b).

As reported by Abdel-Aziz (2020a) the model measuring OCB was reflected by six items, namely, OCB9, OCB11, OCB12, OCB20, OCB21 & OCB24 of Podsakoff et al. (1990)'s scale. These six items correspond respectively to "I attend meetings that are not mandatory, but are considered important"; "I attend functions that are not required but help the organization image"; "I read and keep up with organization announcements, memos, and so on"; "I am mindful of how my behavior affects other people's jobs"; "I do not take extra breaks"; & "I am one of the most conscientious employees". Substantive and statistical rationales for retaining aforementioned six items of OCB questionnaire and excluding the remaining eighteen items are cited in Abdel-Aziz (2020a). These six items were measured on

a seven point Likert scale according to the following categories: *"Always", "Usually", "Commonly", "Sometimes", "Rarely", "Very rarely",* and *"Never".* Respectively, these categories were accorded a score from seven to one; where higher item score indicates a higher (i.e. better) level of OCB. Overall OCB scale was calculated as the sum of weighted scores of these six items. OCB score weights used in the present study are represented by item factor loadings shown in figure 1.

According to Abdel-Aziz (2020b) the model measuring JS was reflected by sixteen items namely, MSQ3, MSQ4, MSQ5, MSQ6, MSQ8, MSQ9, MSQ11, MSQ12, MSQ13, MSQ14, MSQ15, MSQ16, MSQ17, MSQ18, MSQ19 & MSQ20 of Weiss et al. (1967)'s scale. These items correspond respectively to " the chance to do different things occasionally " (i.e. variety) the opportunity to be “somebody” (i.e. social status); " way the boss handles employees"(i.e. supervision: human resources); "competence of supervisor" (i.e. supervision: technical); "steady employment of the job" (i.e. security); "the chance to do things for others" (i.e. social service); " the chance to use one’s abilities" (i.e. ability utilization); "satisfaction with company policies" (i.e. company); " pay for the work done" (i.e. compensation); " the opportunity to advance " (i.e. advancement); " freedom to use own judgment " (i.e. responsibility); " the chance to try own work methods " (i.e. creativity); " all facets of the work environment " (i.e. working conditions); " relationships with co-workers " (i.e. co-workers); "praise received from work done" (i.e. recognition); " feelings of accomplishment " (i.e. achievement). Substantive and statistical rationales for retaining aforementioned sixteen items of MSQ-S and excluding the remaining four items are cited in Abdel-Aziz (2020b). Twenty items reflecting JS were measured on a five-point Likert scale according to the following categories: "very satisfied", "satisfied", "neither satisfied nor dissatisfied", "dissatisfied", and "very dissatisfied". Respectively, these categories were accorded a score from five to one; where higher item score indicates a higher (i.e. better) level of JS. Overall

JS scale was calculated as the sum of weighted scores of these twenty items. JS score weights used in the present study are represented by item factor loadings shown in figure 1.

The present study included participants who responded to OCB and JS questionnaires simultaneously. Four samples were collected one month apart and were designated S1, S2, S3, and S4 respectively. Number of participants in initial sample (i.e. S1) was 234, comprising a response rate of 234/242 i.e., 96.69%. Number of participants in the second sample (i.e., S2) was 203 giving a response rate of 203/242, i.e. 83.88%. Number of participants in the third sample (i.e., S3) was 182 giving a response rate of 182/242, i.e. 75.21%. Then the number of participants in the fourth sample (i.e., S4) was 167 contributing a response rate of 167/242, i.e. 69.01%. Participation rate of 70% is considered remarkably acceptable (Galea & Tracy, 2007).

To investigate a hypothesized OJA the present study progressed in three phases. The first phase probed a hypothesized non-directional correlation between OCB & JS, and this model was dubbed M1 (see figure 1). The second phase investigated a hypothesized structural directional influence from OCB to JS (i.e. JS as a consequent of OCB) and this model was dubbed M2 (see figure 2). The third phase examined a hypothesized structural directional influence from JS to OCB (i.e. OCB as a consequent of JS) and this model was dubbed M3 (see figure 3).

S1 was used to verify the postulated three models, whereas S2, S3, & S4 were used to verify temporal invariance of the postulated three models in relation to S1. Three models' invariance across participants' personal characteristics (videlicet, postgraduate program, marital status, merit, age, work sector, tenure and profession) were tested through applying multiple group analysis (MGA) on S5 where S5 is an aggregate sample of S1, S2, and S3& S4. Model invariance was tested through four progressive levels, namely, configural [i.e. equivalent item-factor structures between groups], metric [i.e. equivalent factor loadings (λs) between groups], full residual [i.e.

equivalent error term variances between groups], and structural covariance [i.e. equivalent factor covariance]. These hierarchically nested models were compared using GFI where ΔGFI < .02 was considered statistically insignificant (*ns*).

Study models were examined using structural equation modeling (SEM) and the three models were identified by fixing regression weights of OCB9 & MSQ3 on their respective latent variable to one. Regression weights of error terms were also fixed to one. All other parameters were freely estimated. The models were estimated and a minimum was achieved. Unweighted Least Squares (ULS) was used an estimator. ULS was selected because of multivariate non-normality of the items used to measure the two latent variables (Blunch,2008). ULS may be asymptotically inefficient relative to Maximal Likelihood Estimator (MLE); nevertheless - compared to MLE - ULS does not compel the assumption of multivariate normality and ULS is more consistent and abler to recover a known factor structure with relatively weak factors using relatively small samples (Blunch, 2008; Briggs & MacCallum, 2003; la Du, 1989; Ximenez, 2006; Ximenez, 2009). For reviewing fulfillment of the assumptions of carrying out SEM procedures on the two datasets pertaining to OCB and JS items, refer in that order to Abdel-Aziz (2020a) and Abdel-Aziz (2020b).

Overall adequacy of a model fit was appraised using six fit indices, explicitly:- Minimum Discrepancy per Degree of Freedom (CMIN/df) < 5; Standardized Root Mean Square Residual (SRMR < .08); Goodness of Fit Index (GFI ≥ .90), Adjusted Goodness of Fit Index (AGFI ≥ .90); Normed Fit Index (NFI ≥ .90), Relative Fit Index (RFI > .90). Standardized covariance residuals (SCRs) < |4.0| denote an adequate local model fit [LMF] (Groenland & Stalpers, 2012). Merely two SCR >|4.0| does not detract from adequacy of LMF (Kline, 2011). Additionally, the normal Q-Q plot of the SCRs was carried out to assess adequacy of LMF (Groenland & Stalpers, 2012). In this study, MSCR, MASCR, XSCR & MiSCR refer respectively to "mean standardized covariance residual", "mean absolute

standardized covariance residual", "maximal standardized covariance residual", and "minimal standardized covariance residual". The significance of OJA was assessed through gauging Pearson's correlation and regression coefficients among overall scores of OCB and JS among S5 participants. Data analysis was conducted using Statistical Package of Social Sciences- Version 25 (SPSS.25), the Analysis of Moment Structures-Version 26(AMOS.26) and Excel 2010.

RESULTS

Personal characteristics of participants in four samples (S1, S2, S3, & S4) are shown in table 1. In all samples males composed about one-fourth, age category 22 to < 40 constituted more than nine-tenth; more than half were married; more than three-fifths subscribed to the diploma program; at least 47% had a merit of "Very good" at the undergraduate period; more 64% worked for MOH; at least half were physicians; more than two-thirds had tenure < ten years; more than three-fifths graduated in the period from 2010 to 2019. Chi-square test and t-test for independent sample means uncovered no statistically significant differences among four samples as regards participants' personal characteristics.

S1 was utilized to test M1, M2, and M3 through SEM and global fit indices were adequate and identical for the three models, videlicet, CMIN/df = 367.102/208 = 1.76; SRMR = .0672; GFI = .965; AGFI = .957; NFI = .943; RFI = .937. Standardized residual covariances matrices were also identical for the three models. There were no ‘gaps’ in the magnitude of standardized residuals and none of these residuals is a cause of concern. Normal Q-Q plot of the SCRs generated a roughly straight-line denoting residuals coming from a normal distribution with a mean approximating zero. MSCR = -.002, MASCR = |.707|, |XSCR| = 5.056, |MiSCR| = .000; SCR > |4| = 2. Only two SCR exceeded |4| one

with a value of 4.051 and the other with a value of: 5.056. Collaboratively, global and local fit indices contribute to the notion of well-fitting models. M1, M2, & M3 with their standardized estimates are displayed in figures 1, 2, & 3 respectively.

MGA of the three models exhibited configural invariance throughout four administrations and across all participants' personal characteristics. Concerning four administrations model invariance extended to structural covariance level only for M1& M3 but not M2. Across personal characteristics, invariance extended to structural covariance level as regards work sector and work profession only for M2 & M3 but not M1 (tables 2, 3 & 4).

SEM results flaunt a weak positive bidirectional reciprocal relation between OCB and JS, however, significance testing is not provided when using ULS as standards errors cannot be worked out when using this estimator (Schermelleh-Engel, Moosbrugger, & Müller, 2003). Bivariate correlation between OCB and JS overall scores disclosed a weak positive significant relationship (r= .075, p= .037, 2-tailed). Regression equation employing OCB as independent variable and JS as a dependent one generated a constant α of (27.787) with p = .000, 2-tailed and a standardized β coefficient of .075 with a p= .037, 2-tailed. The same parameter values transpired when JS was used as independent variable and OCB as a dependent one in the regression equation.

DISCUSSION

After latent variables (independent and dependent) are well measured, given a set of observed variables, then a SE model can be specified to indicate how these latent variables are related. A theme common to the specification and identification of structural regression (SR) models is that valid measurement models are needed before it makes sense to evaluate the structural relation between constructs (Raykov & Marcoulides, 2006). Once the constructs have been

assessed, typical confirmatory factor analysis can be used to assess their hypothesized correlational relationship in SR models to investigate explanatory relationships among latent variables. The current study relied on two measurement models of OCB and JS previously authenticated by Abdel-Aziz, 2021a, and Abdel-Aziz, 2021b. The corroboration of psychometric properties of OCB and JS multiple indicator measuring models is an imperative preliminary step to the specification of the postulated models of the present study scilicet, M1, M2, & M3. The specified SR models allow for certain directional relationships among the latent variables.

In the present study M1 hypothesized that OCB and JS are correlated. M2 hypothesized that OCB predicts JS; whereas M3 hypothesized that JS predicts OCB. The hypothesized models were specified and tested to determine the extent to which these a priori hypothesized relationships are supported by sample variance–covariance data; that is, can OCB predict JS? Or, reciprocally could JS predict OCB. M1 is specified as a CFA model since it does not contain a structural component i.e., it assumes no causal effects among latent variables, only an association. However, M2 & M3 are SR models since each of them is a synthesis of structural and measurement components. The measurement component represents observed variables as indicators of underlying factors. The structural component allows tests of hypotheses about direct effects between the two latent variables. The structural part of M2 represents the hypotheses that OCB has a direct effect on JS (i.e. OCB → JS); while the structural part of M3 represents the hypotheses that JS has a direct effect on OCB (i.e., JS →OCB).

The current study followed the two-step modeling approach of SR modeling espoused by Anderson and Gerbing (1988). This approach generally requires a fully latent SR model where every variable in the structural model is a factor measured by multiple indicators. In the first step, the theorized model is specified as a CFA measurement model, where the relationship between the two latent factors is that of an association with no specified directionality. The CFA model is then analyzed in order to determine whether it fits the data. If the fit of this CFA model is

adequate, then the researcher's hypotheses about measurement are plausible. The first step thus involves assuring an adequate measurement model. Given an acceptable measurement model, the structural coefficient can be specified. Since the current study is focused on analyzing the explanatory relationship between OCB and JS, it is easier to achieve latent scale fixing by simply setting the loading of the first indicator on each latent variable to 1. Using this approach ensures that the two latent variables are assessed in the same metric on the three postulated models (Raykov & Marcoulides, 2006). In this study M1 evidenced a weak significant positive correlation between OCB and JS. Furthermore, M2 & M3 revealed significant directional positive explanatory reciprocal, albeit, weak relationships between the latent variables. Notwithstanding the weak magnitude of the OJA, the present study concurs with the ensemble of previous research that OJA is not negative. For example, studies among American, Chinese, and Thai healthcare professionals documented that JS and OCB are positively correlated and that JS made them exhibit more OCB (Bolon, 1997; Han, Wei, Li, Zhang, & Li, 2018; Intaraprasong, Dityen, Krugkrunjit, & Subhadrabandhu, 2012). In the same vein, it has been expressed by Günay (2018) that OCB leads to JS and that these two concepts mutually affect each other.

The present study revealed that M1, M2, & M3 have identical global and local fit indices along with identical pattern coefficients, structural coefficients, and prediction errors. This result is not unanticipated for the three models are equivalent. It is acknowledged that it is possible to generate equivalent versions of a SR model using the Lee–Hershberger replacing rules for path models. Any rearrangement of the direct effects in a just-identified structural model that respects these rules while holding the measurement model constant will result in alternative SR models that will fit the same data equally well (Hershberger, 1994; Kline, 2011).

An important issue for robust validation of SEM pertains to measurements of relationships between latent variables through repeated administrations to explore their invariance over time. Ascertaining temporal invariance assures models' comparability across time. Imposing

the condition of temporal invariance deals with the requirement that the measured structural relationships remain the same (i.e., invariant) on all occasions (Raykov & Marcoulides, 2006). In the current study, measurement and structural models were tested for factorial invariance across four consecutive samples and their temporal stability was strongly established though four progressive levels of factorial invariance.

Invariance across personal characteristics progressed to higher levels of invariance (i.e. full residual and structural covariance) only for work sector and profession of participants. Nonetheless, invariance across other personal characteristics (that is age, gender, marital status, age, undergraduate merit, graduate program, and tenure) was limited to the configural (i.e. weak level). Weak invariance through these personal characteristics may be attributed to differential influence of these characteristics on the measurement components of the postulated models (Abdel-Aziz, 2020a,2020b).

This study delineates the import for human resource managers to augment concurrent organized efforts to foster both OCB and JS since the bidirectional positive relationship between them entails a positive feedback loop that can have a multiplier effect on their positive influences upon organizational performance.

A limitation of this study is that it represents just a slice of healthcare professionals in one scene in one country and cannot be generalized beyond that population segment given the limited number of such studies in non-western contexts. Similar upcoming studies need to be conducted in further settings and other cultural milieus in developing countries. Furthermore, future analogous studies may concentrate upon particular sections of healthcare professionals within specific age groups, marital statuses, workplace affiliations, tenure spans, undergraduate merits, genders g, graduate programs or health professions. The point of confining a study to a definite category of healthcare workers is to investigate

stronger degrees of invariance other than the configural plane among distinct moieties of healthcare employees. Sharp delineation of the reasons of invariance/noninvariance of OJA can help managers and researchers to pinpoint salient personal attributes behind accentuating OCB-JS reciprocal relationship. In other words, this study brought to light that OJA endures across various personal characteristics from a configural perspective however, quantitatively (i.e. from a metric standpoint) it could vary according to differential influence of various personal characteristics on the measuring constituent of the RS model.

Another limitation of the present study involves the use of cross-sectional data which does not guarantee the establishment of proper casual links between OCB and JS. Future research directions could endeavor towards embracing a deeper appreciation of the chronological dimension of OJA via executing longitudinal cohort studies with experimental or quasi-experimental interventional designs, preferably within assorted categories of healthcare providers.

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TABLES

Table 1. Personal characteristics of participants in four samples (S1= 234), (S2 = 203), (S3 = 182), and (S4 = 167)

	S1	%	S2	%	S3	%	S4	%
Gender								
Females	173	73.9	151	74.4	136	74.7	123	73.7
Males	61	26.1	52	25.6	46	25.3	44	26.3
Age (Years)								
22-	111	47.4	89	43.8	84	46.2	79	47.3
30-	104	44.4	96	47.3	83	45.6	74	44.3
40-	16	7.0	15	7.4	13	7.1	13	7.8
50-60	3	1.2	3	1.5	2	1.0	1	.6
Mean ± S.D.	30.953 ± 6.061		31.394 ± 6.127		31.159 ± 6.102		30.956 ± 5.879	
Marital Status								
Unmarried	102	43.6	84	41.4	76	41.8	78	46.7
Married	132	56.4	119	58.6	106	58.2	89	53.3
Program								
Diploma	146	62.4	127	62.6	114	62.6	106	63.5
Master	88	37.6	76	37.4	68	37.4	61	36.5
Undergraduate merit								
Excellent	29	12.4	23	11.3	25	13.7	21	12.6
Very Good	114	48.7	102	50.2	86	47.3	79	47.3
Good	69	29.5	61	30.0	55	30.2	55	32.9
Satisfactory	19	8.1	17	8.4	13	7.1	10	6.0
Not mentioned	3	1.3	0	0.0	3	1.6	2	1.2
Work Sector								
Ministry of Health	152	65.0	142	70.0	121	66.5	108	64.7
Private	40	17.1	35	17.2	34	18.7	34	20.4
University	34	14.5	20	9.9	20	11.0	21	12.6
Others	8	3.4	6	3.0	7	3.8	4	2.4
Profession								
Physician	134	57.3	115	56.7	96	52.7	84	50.3
Pharmacist	47	20.1	45	22.2	41	22.5	43	25.8
Dentist	11	4.7	10	4.9	10	5.5	9	5.4
Nursing	13	5.6	9	4.4	9	4.9	8	4.8
Nutritionist	11	4.7	10	4.9	11	6.0	9	5.4
Others	18	7.7	14	6.9	15	8.2	14	8.4
Tenure (Years)								
.33-	91	38.9	72	35.5	67	36.8	62	37.1
5-	73	31.2	67	33.0	60	33.0	55	32.9
10-	61	26.1	55	27.1	48	26.4	44	26.3
20-31	9	3.8	9	4.4	7	3.8	6	3.6
Mean ± S.D.	7.143 ± 5.873		7.534 ± 5.886		7.326 ± 5.784		7.142 ± 5.627	
Graduation Year								
1984-	4	1.6	4	2.0	3	1.5	2	1.2
1995-	74	32.0	70	34.5	60	33.0	55	32.9
2010-2019	156	66.7	129	63.5	119	65.4	110	65.9

Table 2. M1 invariance across four administrations and across participants' personal characteristics in an aggregate sample (S5)

Type of Invariance	CMIN/df	SRMR	GFI	ΔGFI	AGFI	NFI	RFI	Sig.
Administration								
Configural	941.615/832 = 1.1317	.0672	.972	-------	.967	.959	.955	----
Full metric	1213.843/852 = 1.4247	.0672	.965	.007	.958	.948	.943	(ns)
Full residual	1570.304/874 = 1.7967	.0672	.954	.011	.947	.932	.928	(ns)
Structural covariance	1570.304/874 = 1.7967	.0672	.954	.000	.947	.932	.928	(ns)
Graduate Program								
Configural	696.032/416 = 1.6732	.0495	.979	-------	.975	.969	.965	----
Full metric	1603.122/436 = 3.6769	.0918	.952	.027	.944	.928	.923	(S)

Marital Status								
Configural	681.240/416=1.6376	.0474	.980	-------	.975	.970	.966	-----
Full metric	1549.111/436 = 3.5530	.0977	.954	.026	.946	.931	.927	(S)
Undergraduate Merit								
Configural	562.873/416=1.3531	.0521	.978	-------	.973	.967	.964	-----
Full metric	1228.795/436 = 2.8183	.0957	.952	.026	.944	.928	.924	(S)
Age								
Configural	647.736/416= 1.5571	.0508	.981	-------	.977	.971	.968	-----
Full metric	1397.079/436= 3.2043	.0952	.959	.022	.952	.938	.934	(S)
Gender								
Configural	976.134/416= 2.346	.0465	.983	-------	.979	.974	.971	-----
Full metric	2090.512/436= 4.795	.0465	.963	.020	.957	.945	.941	(S)
Work Sector								
Configural	587.492/416= 1.4122	.0519	.977	-------	.972	.967	.963	-----
Full metric	1429.070/436= 3.2777	.1011	.945	.032	.936	.919	.914	(S)
Tenure								
Configural	1042.594/416= 2.5062	.0465	.984	------	.981	.977	.974	-----
Full metric	2492.398/436= 5.7165	.0932	.963	.021	.957	.944	.941	(S)
Profession								
Configural	689.584/416=1.6577	.0528	.980	-------	.975	.970	.966	-----
Full metric	1788.193/436= 4.1014	.1044	.947	.033	.939	.921	.916	(S)

Abbreviations: M1: Model depicting correlational relationship between Organizational Citizenship Behavior (OCB) and Job Satisfaction (JS); CMIN/df = Minimum Discrepancy per Degree of Freedom; SRMR= Standardized Root Mean Square Residual; GFI = Goodness of Fit Index; AGFI = Adjusted; NFI= Normed Fit Index; RFI = Relative Fit Index; Sig. = Significance; (S) = significant change at .001 probability level; (ns) = nonsignificant change at .001 probability level; S5 is an aggregate sample composed of combining four samples S1, S2, S3, and S4 that were taken one month apart over a period from 29/9/2019 till 16/1/2020.
N.B. There are four administrations (S1, S2, S3, & S4) separated one month apart.
N.B. Graduate program is either diploma or master.
N.B. Undergraduate merit is categorized into two groups one for "excellent" or "very good" and one for the remainder.
N.B. Age is categorized into two categories one for those below 30 and one for the remainder.
N.B. Work sector is categorized into two categories one for working in Ministry of Health and one for the remainder.
N.B. Tenure is categorized into two categories one for those with less than ten years and one for the remainder.
N.B. Profession is categorized into two groups one for physicians and the other for non-physicians.

Table 3. M2 invariance across four administrations and across participants' personal characteristics in an aggregate sample (S5)

Type of Invariance	CMIN/df	SRMR	GFI	ΔGFI	AGFI	NFI	RFI	Sig.
Administration								
Configural	941.615/832 = 1.1317	.0672	.972	-------	.967	.959	.955	----
Full metric	1781.462/852 = 2.0909	.1220	.948	.024	.938	.923	.916	(S)
Graduate Program								
Configural	696.032/416 = 1.6732	.0495	.979	-------	.975	.969	.972	----
Full metric	1363.348/436 = 3.1269	.0495	.959	.020	.952	.939	.935	(S)
Marital Status								
Configural	681.240/416=1.6376	.0474	.980	-------	.975	.970	.966	-----
Full metric	1325.314/436 = 3.0397	.0474	.960	.020	.954	.941	.937	(S)
Undergraduate Merit								
Configural	562.873/416= 1.3531	.0521	.978	-------	.973	.967	.964	-----
Full metric	1067.524/436= 2.4884	.0521	.958	.020	.951	.938	.934	(S)
Age								
Configural	647.736/416= 1.5571	.0508	.981	-------	.977	.971	.968	-----
Full metric	1466.951/436= 3.3646	.0508	.956	.025	.948	.935	.931	(S)
Gender								
Configural	976.134/416= 2.3465	.0465	.983	-------	.979	.974	.971	-----
Full metric	2090.512/436= 4.7948	.0465	.963	.020	.957	.945	.941	(S)
Work Sector								
Configural	587.492/416= 1.4122	.0519	.977	-------	.972	.967	.963	-----
Full metric	972.574/436= 2.2307	.0519	.963	.014	.957	.945	.941	(ns)
Full residual	1258.938/458= 2.4788	.0519	.952	.011	.946	.929	.928	(ns)
Structural covariance	1258.938/458= 2.4788	.0519	.952	.000	.946	.929	.928	(ns)
Tenure								
Configural	2085.179/438= 4.7607	.0465	.969	------	.964	.953	.950	-----
Full metric	3566.117/458= 7.7863	.0465	.947	.022	.941	.920	.919	(S)
Profession								
Configural	689.584/416= 1.6577	.0528	.980	-------	.975	.970	.966	-----
Full metric	1140.437/436= 2.6157	.0528	.966	.014	.961	.950	.947	(ns)
Full residual	1645.447/458= 3.5927	.0528	.951	.015	.946	.927	.927	(ns)
Structural covariance	1645.447/458= 3.5927	.0528	.951	.000	.946	.927	.927	(ns)

Abbreviations: M2: Model depicting Organizational Citizenship Behavior (OCB) as antecedent to Job Satisfaction (JS); CMIN/df = Minimum Discrepancy per Degree of Freedom; SRMR= Standardized Root Mean Square Residual; GFI = Goodness of Fit Index; AGFI = Adjusted; NFI= Normed Fit Index; RFI = Relative Fit Index; Sig. = Significance; (S) = significant change at .001 probability level; (ns) = nonsignificant change at .001 probability level; S5 is an aggregate sample composed of combining four samples S1, S2, S3, and S4 that were taken one month apart over a period from 29/9/2019 till 16/1/2020.

N.B. There are four administrations (S1, S2, S3, & S4) separated one month apart.

N.B. Graduate program is either diploma or master.

N.B. Undergraduate merit is categorized into two groups one for "excellent" or "very good" and one for the remainder.

N.B. Age is categorized into two categories one for those below 30 and one for the remainder.

N.B. Work sector is categorized into two categories one for working in Ministry of Health and one for the remainder.

N.B. Tenure is categorized into two categories one for those with less than ten years and one for the remainder.

N.B. Profession is categorized into two groups one for physicians and the other for non-physicians.

Table 4. M3 invariance across four administrations and across participants' personal characteristics in an aggregate sample (S5)

Type of Invariance	CMIN/df	SRMR	GFI	ΔGFI	AGFI	NFI	RFI	Sig.
Administration								
Configural	941.615/832 = 1.1317	.0672	.972	-------	.967	.959	.955	----
Full metric	1213.843/852 = 1.4247	.0672	.965	.007	.958	.948	.943	(ns)
Full residual	1570.304/874 = 1.7967	.0672	.954	.011	.947	.932	.928	(ns)
Structural covariance	1570.304/874 = 1.7967	.0672	.954	.000	.947	.932	.928	(ns)
Graduate Program								
Configural	696.032/416 = 1.6732	.0495	.979	-------	.975	.969	.965	----
Full metric	1363.348/436 = 3.1269	.0495	.959	.020	.952	.939	.935	(S)
Marital Status								
Configural	681.240/416=1.6376	.0474	.980	-------	.975	.970	.966	-----
Full metric	1325.314/436 = 0.0397	.0474	.960	.020	.954	.941	.937	(S)
Undergraduate Merit								
Configural	562.873/416= 1.3531	.0521	.978	-------	.973	.967	.964	-----
Full metric	1067.524/436= 2.4484	.0521	.958	.020	.951	.935	.934	(S)
Age								
Configural	647.736/416= 1.5571	.0508	.981	-------	.977	.971	.968	-----
Full metric	1466.951/436= 3.3646	.0508	.956	.025	.949	.935	.931	(S)
Gender								
Configural	976.134/416= 2.3465	.0465	.983	-------	.979	.974	.971	-----
Full metric	2090.512/436= 4.7948	.0465	.963	.020	.957	.945	.941	(S)
Work Sector								
Configural	587.492/416= 1.4122	.0519	.977	-------	.972	.967	.963	-----
Full metric	972.574/436= 2.2307	.0519	.963	.014	.931	.918	.916	(ns)
Full residual	1258.938/458= 2.7488	.0519	.952	.011	.946	.929	.928	(ns)
Structural covariance	1258.938/458= 2.7488	.0519	.952	.000	.946	.929	.928	(ns)
Tenure								
Configural	1042.594/416= 2.5062	.0465	.984	------	.981	.977	.974	-----
Full metric	2492.398/436= 5.7165	.0465	.963	.021	.957	.944	.941	(S)
Profession								
Configural	689.584/416= 1.6577	.0528	.980	-------	.975	.970	.966	-----
Full metric	1140.437/436= 2.6157	.0528	.966	.014	.961	.950	.947	(ns)
Full residual	1645.447/458= 3.5927	.0528	.951	.015	.946	.927	.927	(ns)
Structural covariance	1645.447/458= 3.5927	.0528	.951	.000	.946	.927	.927	(ns)

Abbreviations: M3: Model depicting Organizational Citizenship Behavior (OCB) as consequent of Job Satisfaction (JS); CMIN/df = Minimum Discrepancy per Degree of Freedom; SRMR= Standardized Root Mean Square Residual; GFI = Goodness of Fit Index; AGFI = Adjusted; NFI= Normed Fit Index; RFI = Relative Fit Index; Sig. = Significance; (S) = significant change at .001 probability level; (ns) = nonsignificant change at .001 probability level; S5 is an aggregate sample composed of combining four samples S1, S2, S3, and S4 that were taken one month apart over a period from 29/9/2019 till 16/1/2020.

N.B. There are four administrations (S1, S2, S3, & S4) separated one month apart.

N.B. Graduate program is either diploma or master.

N.B. Undergraduate merit is categorized into two groups one for "excellent" or "very good" and one for the remainder.

N.B. Age is categorized into two categories one for those below 30 and one for the remainder.

N.B. Work sector is categorized into two categories one for working in Ministry of Health and one for the remainder.

N.B. Tenure is categorized into two categories one for those with less than ten years and one for the remainder.

N.B. Profession is categorized into two groups one for physicians and the other for non-physicians.

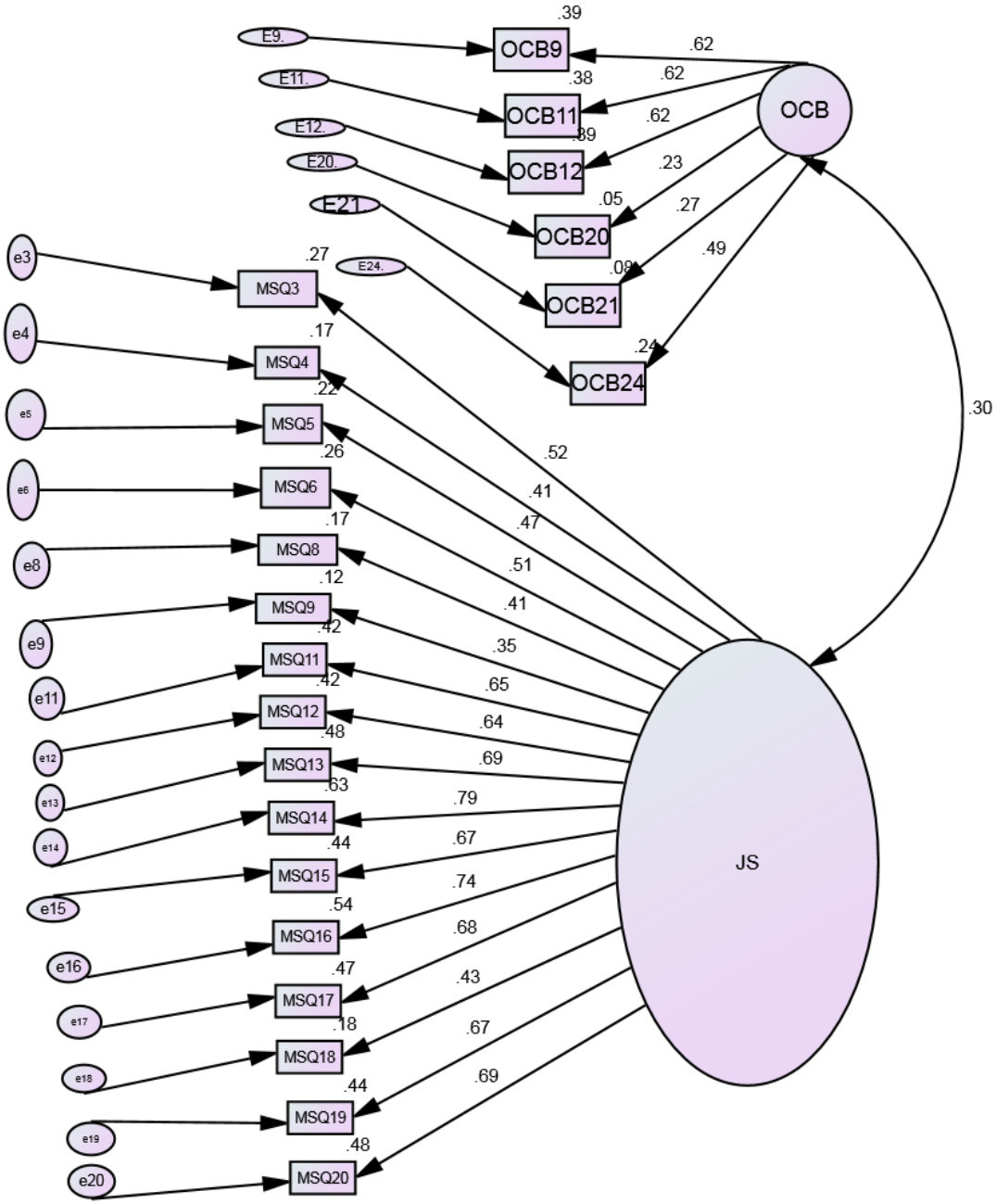

Figure 1 . Correlation between organizational citizenship behaviour and job satisfaction with standarised estimates.

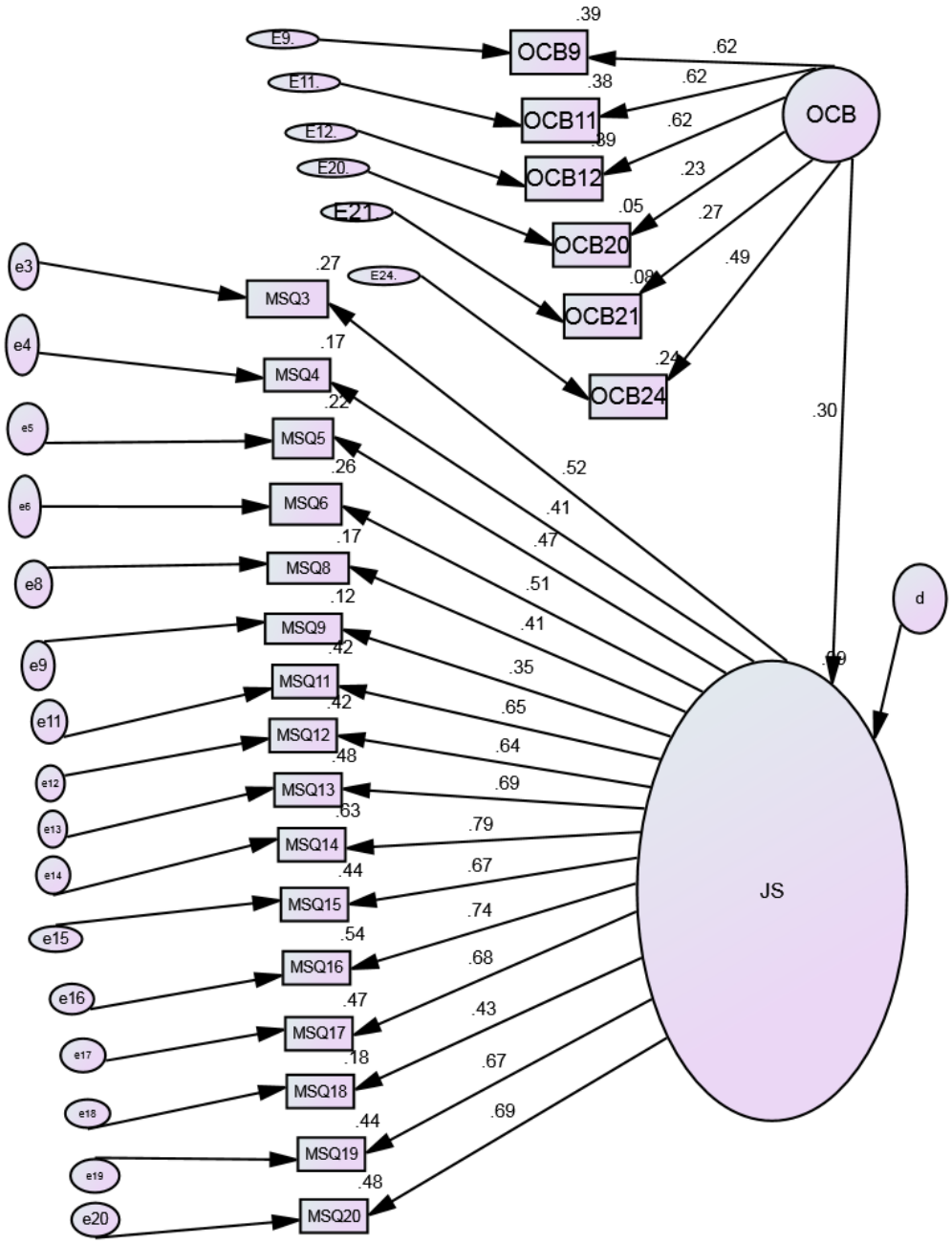

Figure 2 . Organizational citizenship behaviour as an antecedent to job satisfaction with standarised estimates.

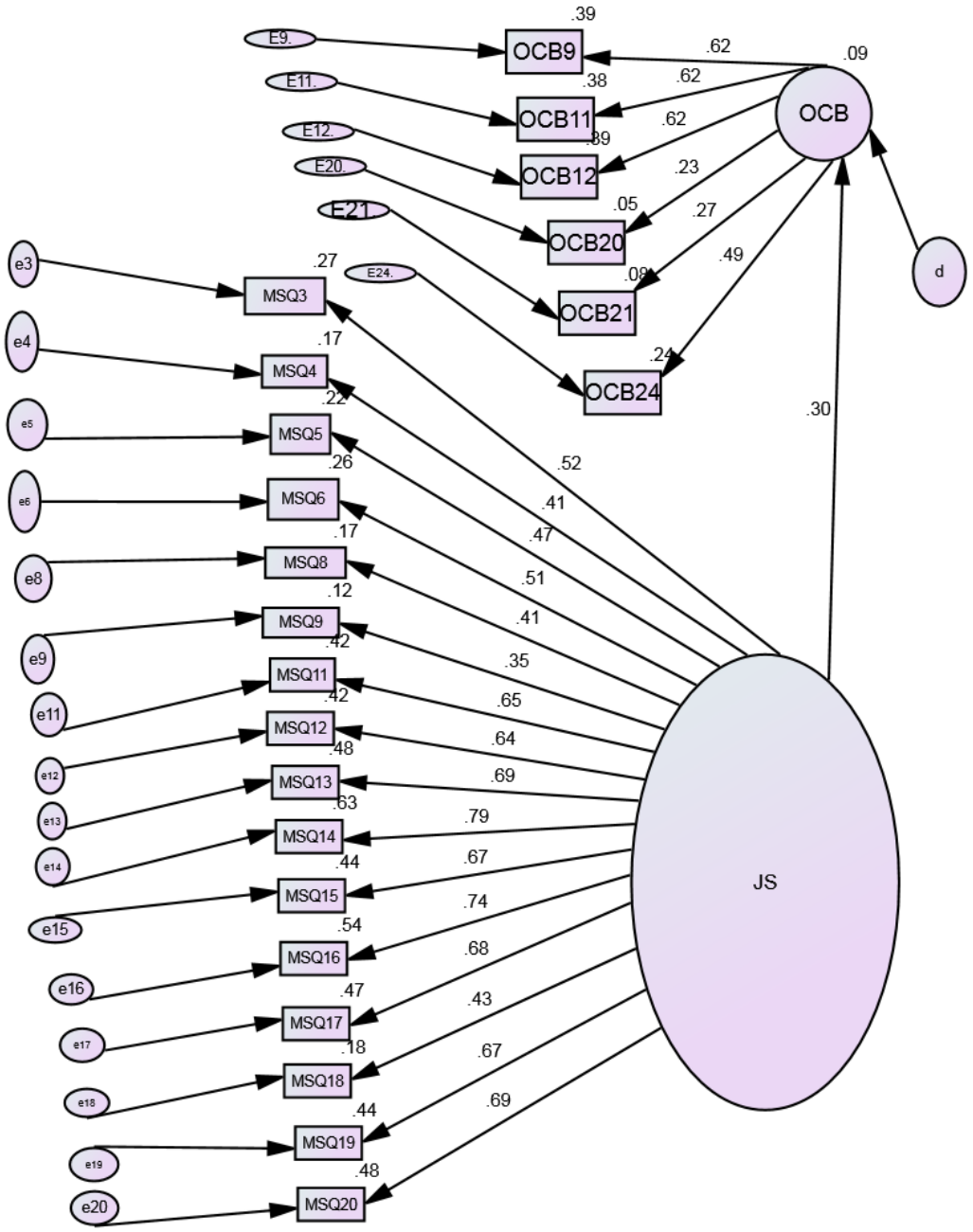

Figure 3 . Job satisfaction as an antecedent to organizational citizenship behaviour with standarised estimates.