Developing a framework for assessing the influence of public service motivation on core work evaluation and counterproductive work behaviour

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Abstract

The outcomes of low levels of public service motivation are low job satisfaction, organisational commitment, engagement and high levels of counterproductive work behaviour. This study's primary aim was to develop a framework to assess the influence of public service motivation on core work evaluation (job satisfaction, organisational commitment, work engagement) and counterproductive work behaviour among employees at 11 North West provincial government departments

The study was conducted within the quantitative research paradigm using a cross-sectional correlational survey design. The population included 61 954 public-service employees. The study used a stratified random sampling method consisting of four subgroups: senior management, middle management, junior management, and elementary employees.

The results revealed a positive correlation between PSM and JS, while OC positively correlated with PSM. Work engagement, PSM, OC and JS are positively related, while CWB negatively affects PSM, JS and WE. The measuring instruments were reliable and valid in the North-West provincial government departments.

This study provides a theoretical and conceptual framework that public-sector managers can use to assess the impact of public service motivation on core work evaluation and counterproductive work behaviour.

1. Introduction

This research aimed to construct a framework to evaluate the impact of public service motivation (PSM) on core work evaluation (job satisfaction, organisational commitment, work engagement) and counterproductive work behaviour (CWB). Extensive research has investigated the influence of public service motivation on behavioural and work attitudes such as job satisfaction (Stefurak *et a*l., 2020; Homberg *et al.*, 2015; Crucke *et al.*, 2021; Bright, 2021; Palma, 2016; Kim *et al.,* 2013; Prysmakova & Vandenabeele, 2020; Boyd, Nowell, Yang & Hano, 2018), organisational commitment (Potipiroon & Ford, 2017; Pratama & Nurhidayah, 2019; Boyd & Nowell, 2020), work engagement (Vinarski Peretz, 2020; Mussagulova, 2021; De Simone *et al*., 2016; Cooke, 2019), and counterproductive work behaviour (Vogel *et al.*, 2016; Koumenta, 2015). However, the literature is inconclusive about the influence of PMS on JS, OC, WE and CWB.

No previous research has investigated the influence of PSM (independent variable) on CWE such as JS, OC, WE and CWB (dependent variables) within the South African public-service context. These dependent

variables can also be regarded as outcomes of PSM. Therefore, this study filled the gap by developing a framework to assess the influence of PSM on core work evaluation (JS, OC, WE) and CWB of employees in all 11 North West provincial government departments.

This study developed a theoretical and conceptual framework for evaluating the impact of PSM on CWE (JS, OC, WE) and CWB. This research contributes to the theory and application of behavioural dimensions such as PSM, JS, OC, WE and CWB. Additionally, the measuring instruments were validated within the South African public service context. The study's results confirmed PSM's potential positive outcomes or consequences. For example, high levels of PSM led to high levels of JS, OC, WE and low levels of CWB. Therefore, motivated public service employees will have high JS, OC and WE, and these positive work behaviours will help prevent counterproductive behaviour (including corruption), which is necessary for effective corporate governance, service delivery, policy formation and implementation.

The following sections focus on the problem investigated, research objectives, hypotheses, literature review, methodology, results, discussion of results, managerial implications and conclusion.

2. Problem investigated

Public-service employees' low degree of PSM, JS, OC and WE and a high degree of CWB have been significant concerns (Perry & Vandenabeele, 2015). *The problem that was investigated is that the low levels of PSM led to decreased CWE (JS, OC, WE) and increased CWB.*

3. Research objectives

The study's objectives are to:

- Establish whether public service motivation, job satisfaction, organisational commitment, work engagement and counterproductive work behaviour scales are reliable and valid within the South African public-sector context.
- Investigate the relationship between public service motivation, job satisfaction, organisational commitment, work engagement and counterproductive work behaviour.

4. Hypotheses

The following hypotheses were developed in line with the research objectives:

- $H1_0$: The PSM, JS, OC, WE, and CWB scales will not be reliable and valid within the South African public-sector context.
- $H1_A$: The PSM, JS, OC, WE, and CWB scales will be reliable and valid within the South African public-sector context.
- $H2_0$: There is no positive relationship between PSM, JS, OC and WE and no negative relationship between PSM and CWB.
- $H2_A$: There is a positive relationship between PSM, JS, OC and WE and a negative relationship between PSM and CWB.

5. Literature review

The literature review focuses on the five constructs used in this study. The independent variable is PSM, while the dependent variables are JS, OC, WE and CWB. The literature review is aligned with the research objectives and hypotheses. Therefore, the literature review focuses on public service motivation, core work evaluation (job satisfaction, organisational commitment, work engagement) and counterproductive work behaviour. After that, the reliability and validity of the measuring instruments and the relationship between the constructs are discussed.

5.1 Public service motivation

Andersen *et al.* (2020) assert that PSM is an individual's attitude toward providing services to others to benefit society. Public service motivation is a broad term for "an individual's commitment to providing services to others to do good for individuals and society" (Caillier, 2014). According to Van Loon *et al.* (2018), PSM can be viewed as an individual's drive toward presenting public offerings that stem from rational (desiring to participate in and embellish public offerings), normative (dedication to the public hobby and a sense of duty), and affective (compassion and identification with others) motives. According to Kim (2018), PSM is a multidimensional term comprising (1) self-sacrifice (SS); (2) compassion (COM); (3) attraction to public service (APS); and (4) commitment to public values (CPV). This study used Kim *et al.'s* (2013) International Public Service Motivation Scale to measure PSM. The scale consists of 16 items and four factors: attraction to public service – 4 items; commitment to public values – 4 items; compassion – 4 items and self-sacrifice – 4 items.

5.2 Core work evaluation

Core work evaluation (CWE) is a summary psychological assessment of an individual's work environment that focuses on the job, organisation and work activities (Webster *et al.*, 2014). The three sub-constructs comprising the core work evaluation are job satisfaction, work engagement and organisational commitment.

5.2.1 Job satisfaction

Job satisfaction is a happy or positive emotional state that results from an evaluation of one's job or experiences, or, more simply, "the degree to which individuals like (satisfaction) or loathe (dissatisfaction) their employment" (Top *et al.,* 2015). Job satisfaction consists of various dimensions and factors. In this study, the Facet Satisfaction Scale developed by Bowling *et al.* (2018) was used the measure JS. There are five factors and 25 items on the JS facet scale: work itself – 5 items; supervision – 5 items; co-workers – 5 items; pay – 5 items; and promotion – 5 items.

5.2.2 Organisational commitment

Organisational commitment refers to an employee's psychological relationship with their employer (Potipiroon & Ford, 2017), while Albdour and Altarawneh (2014) define OC as "the degree to which an individual identifies with and participates in a particular organisation." Meyer and Allen contributed to the literature on OC by proposing a three-component model of OC, including normative, emotional and perseverance (Thabane *et al.*, 2017). Regarding OC, Buda and Ling (2017) called these three key elements: affective (AC), continuance (CC) and normative (NC).

A worker's emotions are intimately tied to AC, which refers to the employee's emotional attachment to the organisation. It mainly entails forming an emotional bond with the organisation, identifying with it, and wanting to remain loyal to it. Continuance commitment refers to an employee's awareness of the costs associated with leaving or remaining with the organisation (Buda & Ling, 2017; Thabane *et al.*, 2017). If people believe that remaining with the organisation is greater than the cost of leaving, they will prefer to remain. Unlike AC, CC refers to a psychological attachment that encompasses the effort, time and growth invested in staying with the same organisation for many years. Finally, NC displays a worker's feeling of organisational duty. It has to do with the employee's strong level of obligation to continue working (Buda & Ling, 2017; Koc, 2018).

The organisational commitment was measured using Allen and Meyer's OC scale (1996), as validated by Maqsood *et al.* (2012). The questionnaire consists of three factors and 22 items: AC – 8 items, CC – 6 items and NC – 8 items.

5.2.3 Work engagement

Work engagement is defined as a positive, satisfying and work-related state of mind with three components: physical, emotional and cognitive (Wang *et al.*, 2017), while Pandita and Singhal (2017) defined work engagement as an attitude or behaviour characterised by being drawn to, committed to, busy with, involved in, and retained in the work or organisation. The three components of WE are vigour, commitment and immersion (Wang *et al.*, 2017). According to Junça-Silva, Caetano and Lopes (2017), there is a need to

extend research on job engagement and examine it as a process due to its potential to improve workplace outcomes. Costa *et al.* (2016) presented a three-dimensional structure of WE, characterised by vigour (high levels of energy when working), dedication (strong involvement in one's job, experiencing a sense of enthusiasm), and absorption (complete concentration on one's work).

The Work Engagement Scale (WES), developed by Schaufeli and Bakker (2004), was utilised to measure WE. The questionnaire has 17 questions and three factors: vigour – 6 items, dedication – 5 items and absorption – 6 items.

5.3 Counterproductive work behaviour

Counterproductive work behaviour is defined as "a set of volitional acts as opposed to accidental or mandated that harm or intend to harm organisations and their stakeholders" (Spector *et al*., 2006). In addition, counterproductive work behaviour is defined as any purposeful act by a member of an organisation that is deemed to go against the organisation's legitimate interests (Whelpley & McDaniel, 2016). Workplace counterproductive behaviour encompasses a range of actions, including unproductive work behaviour, workplace misbehaviour, workplace deviance and workplace bullying (Fatima, 2016). According to DeShong *et al.* (2015), CWBs result in some undesirable consequences, including financial losses (e.g. paying or accepting bribes, fraud) and damage to the corporation's reputation (e.g. discriminating against co-workers). In addition, counterproductive work behaviour can negatively impact the performance and well-being of the individual engaged in CWB, the individuals interacting with the one engaging in CWB, and the organisations where CWB occurs (Whelpley & McDaniel, 2016).

This study focuses on two dimensions of CWB: counterproductive workplace behaviour – organisation; and counterproductive workplace behaviour – person. Therefore, the CWB checklist developed by Spector *et al.* (2006) was utilised to assess CWB. The questionnaire includes 45 items and two factors. However, Spector *et al.* (2006) excluded items 12 and 45 in their analysis. Therefore, these two items were also excluded from this study.

5.4 Reliability and validity of the measuring instruments

The measuring instruments were validated and found to be reliable by the developers of the scales. Cronbach's alpha internal consistency coefficient was used to determine each scale's reliability. A Cronbach's alpha value of 0.7 or greater is widely considered acceptable, whereas a value between 0.5 and 0.7 indicates moderate sample adequacy (Taber, 2018; Bell *et al.*, 2018). However, a scale with a value less than 0.5 is considered inconsistent (Walsh, 2003). Table 1 shows Cronbach's alphas for the factors and scales.

Table 1: Reliability analysis

Scale and sub-scales	Authors	Cronbach's alpha	Number of items
APS	Kim *et al.* (2013)	0.70	4
CPV		0.54	4
Compassion		0.69	4
SS		0.78	4
PSM Scale		0.74	16
Work itself	Bowling *et al*. (2018)	0.72	5
Supervision		0.83	5
Co-workers		0.77	5
Pay		0.83	5
Promotion		0.82	5
Facets JS Scale			25
AC	Allen and Meyer (1996), as validated by Maqsood *et al.* (2012)	0.83	8
CC		0.61	6
NC		0.64	8
OC Scale		0.84	22

Vigour	Schaufeli and Bakker (2004)	0.83	6
Dedication		0.92	5
Absorption		0.82	6
WE Scale			17
CWB-Organisation	Spector *et al.* (2006)	0.84	21
CWB-Person		0.85	22
CWB Scale		0.81	43

CFA is often used for studies developing and adapting scales with specific reference to (i) psychometrically evaluating measurements, (ii) validation of the structure, and (iii) testing the effect of the model (Koğar & Koğar, 2015).The International PSM instrument was validated by Kim *et al*. (2013), and the confirmatory factor analysis (CFA) revealed 16 items and four factors and found that the model fit is quite strong (SB_x^2 [df- 98] = 564.1, p <.05; CFI = 0.989; root mean square error of approximation (RMSEA) = 0.041 [.038,.044]; SRMR = 0.042). Therefore, the results support convergent validity, while the composite reliability of the set of reflective indicators for each dimension of PSM ranged from .716 to .824, indicating adequate internal consistency. The factor structure showed a four-factor structure with all items loading significantly onto their *a priori* dimension (p <.05), and the SFLs ranged from .556 to .812. The results support discriminant validity as the correlation estimates between the four factors ranged from .482 to .851.

The CFA of the facets JS scale measuring JS indicated that the FFM produced marginally good fit ($\chi 2$ = 537.78, df = 265; RMSEA = 0.08; CFI = 0.91; TLI = 0.90; SRMR = 0.06) (Bowling *et al.*, 2018). Bowling *et al.* (2018) also found that each "subscale produced high levels of internal consistency reliability, test-retest reliability and construct validity." Maqsood *et al.* (2012) validated Allen and Meyer's (1996) OC scale by conducting a CFA to test how well data supported the factor structure of the measures on individual item scores. Goodness-of-fit statistics of the three-factor model of the OCQ were "X^2= 636.76*; df = 206; RMR =.10; RMSEA = 07; GFI =.87; AGFI =.84; IFI =.89; NFI =.85; CFI =.89; AlC = 783.97and CAIC = 1021.53." In addition, the correlation matrix of factors revealed that AC relates with NC (r =.50, p =.01) and with subscale of CC (r =.29, p =.01); and CC relates to NC (r =.33, p =.01).

A CFA of the UWES 17-item questionnaire to determine the factor structure and inter-correlations revealed "N = 1,242; X^2 = 1859.93; df = 232; GFI=.82; AGFI =.77; RMSEA =.08; NFI =.86; NNFI=.85 and CFI =.87." (Schaufeli & Bakker, 2004). The correlations between factors of UWES were very high (Vigour - Dedication.89; Dedication - Absorption.90 and Vigour - Absorption.90) (Schaufeli & Bakker, 2004).

Barbaranelli *et al.* (2013) conducted a CFA to validate the two-factor CWB scale. The two factors indicated "a significant and high correlation of.80". Goodness-of-fit indices indicated an ambiguous solution: X^2(859, N = 856) = 1,897, p <.001, RMSEA =.038 [90% confidence interval: LL =.035, UL =.040, *p* (RMSEA.05) = 1], comparative fit index (CFI) =.88, TLI =.87, and weighted root mean square residual (WRMR) = 1.55. The RMSEA indicated an excellent fit to the data, while the other fit indices converged, evidencing an inadequate fit,

5.5 Relationship between public service motivation, job satisfaction, organisational commitment, work engagement and counterproductive work behaviour

Public service motivation affects CWE such as JS, OC, work engagement (WE) and CWB, either positively or negatively. A meta-analysis done by Homberg *et al.* (2015) revealed a "positive relationship between public service motivation (PSM) and job satisfaction (JS)" and considered PSM as a predictor of job satisfaction. Crucke *et al.* (2021) also found that PSM is a predictor of JS. Furthermore, studies by Bright (2021), Palma (2016) and Kim *et al.* (2013) revealed that PSM positively related to JS significantly. This positive relationship was confirmed in a study by Prysmakova and Vandenabeele (2020) among police officers in Poland and Belgium, which showed "that officers with higher levels of public service motivation also have higher levels of job satisfaction." Furthermore, Breaugh *et al.* (2018) found that "APS and CPV were significantly related to JS, while SS and COM were not." However, a study by Boyd, Nowell, Yang and Hano (2018) showed that PSM was not significantly correlated to JS.

Wu, Ming and Huang (2019) found a negative relationship between JS and unethical behaviour. This negative relationship was confirmed by Wang *et al*. (2020), who found that JS and OC are negatively related to workplace deviance. However, Czarnota-Bojarska (2015) found a weak correlation between counterproductive work behaviour and work satisfaction.

Castaing's (2006) findings revealed a positive association between PSM, affective, normative and continuance commitment, while Potipiroon and Ford (2017) also found that PSM had a significant positive effect on OC. The study results of Nikkah-Farkhani *et al*. (2017) showed that OC "had a negative and significant effect on counterproductive work behaviour." Baysal *et al.* (2020) found a negative relationship between abuse, withdrawal, affective and NC. In addition, there was a negative correlation between abuse, theft, withdrawal and continuance commitment.

Ugaddan and Park's (2017) study revealed a positive relationship between PSM and WE. On the other hand, Ariani (2013) found "a negative relationship between work engagement and counterproductive work behaviour", while Filipkowski and Derbis (2020) confirmed "a negative correlation between work engagement and counterproductive work behaviour."

The results of a study done by Vogel *et al.* (2016) showed a negative association between PSM and deviant behaviour (CWB), while Koumenta (2015) also found a negative and significant relationship between PSM and CWB. Vandenabeele (2009) found "that two of the four dimensions of PSM, namely politics and self-sacrifice, are entirely mediated by job satisfaction and normative and affective commitment, respectively."

Based on the literature, the results revealed that high levels of PSM positively affect JS, OC and WE, and negatively affect CWB.

6. Methodology

6.1 Research method and design

This study was conducted within the quantitative paradigm. Therefore, a cross-sectional correlational design was deemed the most appropriate design to attain the research objectives.

6.2 Population

The study's target population comprises employees between post levels 1 and 16 at 11 North West provincial government departments. These include the Department of Education and Sports Development, Department of Public Works and Roads, Department of Community Safety and Transport Management, Department of Social Development, Department of Rural, Environment and Agricultural Development, Premiers Office, Department of Health, Department of Local Government and Human Settlement, Department of Tourism, Department of Economy and Enterprise Development, and Department of Culture, Arts and Traditional Affairs.

6.3 Sampling method

The study used a stratified simple random sampling method consisting of four subgroups (strata), namely senior management (SMS salary levels 13-16); middle management (MMS salary levels 11-12), junior middle management (JMM salary levels 8-10) and elementary employees (salary levels 1-7). A total sample size of 1 546, in line with the recommendation of Krejcie and Morgan (1970), was selected from the study population in the 11 provincial government departments to represent the strata: senior management, middle management, junior management and elementary staff. The sample of 1 546 representing the four subgroups (strata) per department is depicted in Table 2.

Table 2: Sample size per strata and department

Department	Senior management	Middle management	Junior management	Professionals/ Elementary
Department of Education and Sport Development	14	33	29	77

Department	Senior management	Middle management	Junior management	Professionals/ Elementary
Department of Public Works and Roads	12	27	39	92
Department of Community Safety and Transport Management	19	41	36	190
Department of Social Development	16	21	32	62
Department of Rural, Environment and Agricultural Development	9	18	14	67
Premiers Office	18	36	45	138
Department of Health	5	12	9	68
Department of Local Government and Human Settlement	8	15	12	55
Department of Tourism	8	19	13	61
Department of Economic and Enterprise Development	11	8	19	76
Department of Culture, Arts and Traditional Affairs	4	12	8	38
Total	**124**	**242**	**256**	**924**

Out of 1 546 questionnaires distributed, 1 031 were completed and returned. The response rate was 66. 68%.

6.4 Measuring instruments

The questionnaire was divided into six sections. Section A comprises the respondents' demographic characteristics, including gender, age group, post-salary level, years of service, provincial government department and qualification; Section B comprises the questions relating to PSM; Section C measured JS; Section D OC; Section E WE, and Section F CWB.

The International PSM Scale, developed by Kim *et al.* (2013), was used to measure PSM. The Facet Satisfaction Scale of Bowling *et al.* (2018) measured job satisfaction. Allen and Meyer's (1996) scale, as validated by Maqsood *et al.* (2012), was used to measure OC. The shortened WES of Schaufeli and Bakker (2004) was used to measure WE, while the Counterproductive Work Behaviour Checklist, developed by Spector *et al.* (2006), was used to measure CWB.

6.5 Data analyses

The data was analysed using the following statistical techniques to attain the study's research objectives:

- **Descriptive statistics**

Tables, graphs, means and standard deviations were used to present descriptive data. A frequency table was created to summarise the respondents' demographic information, including gender, age group, post-salary level, years of service, department and qualification.

- **Reliability and validity of the measuring instruments**

Cronbach's alphas were calculated to determine the reliability of the factors and scales measuring PSM, JS, OC, WE and CWB. The validity of the measuring tools was determined using exploratory and confirmatory factor analyses. Exploratory and confirmatory factor analyses were done to determine the validity of the measuring instruments within the South African public service context.

- **Pearson's product-moment correlation**

Pearson's product-moment correlation (r) was used to measure the relationship between PSM, JS, OC, WE and CWB.

7. Results

According to Table 3, the sample was almost evenly distributed by gender, with 50.2 % of respondents (n = 518) identifying as male and 49.8 % (n = 513) as female. The majority of respondents (n = 370; 35.9 %) fell into the 40 to 49 age bracket, followed by respondents in the 50 to 59 age bracket (n = 242). Additionally, 22.4 % (n = 231) of the sample fell into the 30 to 39 age bracket, while 10.1 % (n = 104) fell into the 20 to 29 age bracket. The smallest group of respondents were aged 60 and over (n = 84; 8.1 %). The 16 post-salary levels were divided into four subpopulations, namely senior management (SMS – salary levels 13-16), middle managers (MMS salary levels 11-12), junior middle managers (JM salary levels 8-10) and elementary staff (professionals salary levels 1-7). Most respondents (n = 431; 41.7 %) had worked for the North West provincial administration (departments) for six to ten years, while the fewest respondents, 1.2 % (n = 12), had at least 21 years of work experience. The Department of Community Safety and Transportation Management employed 18.5 % (n = 191) of the respondents, followed by the Premier's Office (n = 158; 15.3 %), while the Department of Culture, Arts and Traditional Affairs (CATA) employed only 4% (n = 41) of the sample. This was expected, as CATA is one of the province's smallest departments. Finally, most respondents (36.7 %) presented a diploma as their highest qualification, followed by 22.8 % (n = 235) with a master's degree, and only 4.1 % (n = 42) with a doctoral degree (PhD).

Table 3: Demographic characteristics of the sample

Variable	Level of the variable	N	%	Cumulative %
Gender	Male	518	50.2	50.2
	Female	513	49.8	100.0
Age	20-29	104	10.1	10.1
	30-39	231	22.4	32.5
	40-49	370	35.9	68.4
	50-59	242	23.5	91.9
	60 and older	84	8.1	100.0
Salary level	Salary level 1	54	5.2	5.2
	Salary level 2	55	5.3	10.6
	Salary level 3	47	4.6	15.1
	Salary level 4	59	5.7	20.9
	Salary level 5	65	6.3	27.2
	Salary level 6	98	9.5	36.7
	Salary level 7	69	6.7	43.4
	Salary level 8	68	6.6	50.0
	Salary level 9	98	9.5	59.5
	Salary level 10	102	9.9	69.4
	Salary level 11	64	6.2	75.6
	Salary level 12	109	10.6	86.1
	Salary level 13	83	8.1	94.2
	Salary level 14	38	3.7	97.9

Variable	Level of the variable	N	%	Cumulative %
	Salary level 15	18	1.7	99.6
	Salary level 16	4	0.4	100.0
Years' service	0-5 years	252	24.4	24.4
	6-10 years	431	41.8	66.2
	11-15 years	244	23.7	89.9
	16-20 years	92	8.9	98.8
	21-25 years	3	0.3	99.1
	26-30 years	2	0.2	99.3
	31-35 years	1	0.1	99.4
	36-40 years	3	0.3	99.7
	41 and more years	3	0.3	100.0
Department	Education and Sport Development	102	9.9	9.9
	Public Works and Roads	113	11.0	20.9
	Department of Community Safety and Transport Management	191	18.5	39.4
	Social Development	88	8.5	47.9
	Rural, Environment and Agricultural Development	72	7.0	54.9
	Premiers Office	158	15.3	70.2
	Health	63	6.1	76.3
	Local Government and Human Settlement	60	5.8	82.2
	Tourism	67	6.5	88.7
	Economy and Enterprise Development	76	7.4	96.0
	Culture, Arts and Traditional Affairs	41	4.0	100.0
Qualification	National Certificate (Matric)	42	4.1	4.1
	Higher Certificate	11	1.1	5.1
	Advanced Certificate	26	2.5	7.7
	National Diploma	150	14.5	22.2
	Diploma	72	7.0	29.2
	Post-Graduate	157	15.2	44.4

Variable	Level of the variable	N	%	Cumulative %
	Diploma			
	Degree	158	15.3	59.7
	Honours degree	138	13.4	73.1
	Master's degree	235	22.8	95.9
	Doctoral	42	4.1	100.0

Source: Own compilation

The study's first objective was to determine the reliability and validity of scales measuring PSM, JS, OC, WE and CWB within the South African public-sector context. The Cronbach's alpha coefficient for the JS scale was 0.888, considered acceptable and consistent. Therefore, given the sample characteristics, the scale will revert to the same results after several iterations. Similarly, JS sub-scales ranged from 0.715 to 0.845. Cronbach's alpha values for AC, CC, NC, and OC were between 0.5 and 0.7, indicating moderate sample reliability for the specified scales (see Table 4). The Cronbach's alpha coefficient for the WES was 0.947, considered excellent, with sub-scales ranging from 0.849 to 0.876. Similarly, the PSM scale was 0.833, reliable, with sub-scales ranging from 0.553 (i.e. commitment to the public service) to 0.806 (i.e. commitment to the public service) (i.e. self-sacrifice). Simultaneously, the reliability coefficient for CWB was 0.968, with the two sub-scales reverting to 0.893 for organisational CWB and 0.970 for individual CWB.

Table 4: Results of the reliability test

Factor and scales	Items	Cronbach's alphas	Mean	Std. dev.
Work itself	5	0.715	19.41	5.420
Supervision	5	0.834	18.26	8.046
Co-workers	5	0.793	24.34	5.647
Remuneration	5	0.845	19.80	7.265
Promotion	5	0.820	13.35	6.891
JS Scale	25	0.888	95.16	22.979
AC	8	0.642	27.93	7.162
CC	6	0.600	21.78	5.801
NC	8	0.524	27.01	6.032
OC Scale	22	0.664	76.72	12.697
Vigour	6	0.849	30.68	7.105
Dedication	5	0.876	25.19	7.636
Absorption	6	0.851	30.87	7.397
WE Scale	17	0.947	86.75	21.048
APS	4	0.726	18.80	1.480
CPS	4	0.553	18.52	1.749
Compassion	4	0.743	18.539	1.601
SS	4	0.806	15.81	3.031
PSM Scale	16	0.833	71.688	5.599
CWB-Organisation	20	0.893	28.70	8.018
CWB-Individual	22	0.970	26.67	8.898
CWB Scale	43	0.968	56.46	16.211

Source: Own compilation

Exploratory and confirmatory factor analyses were used to determine the validity of the measuring instruments. On scales of PSM, CWE constructs (JS, WE, and OC), and CWB, the Kaiser-Meyer-Olkin (KMO) sampling adequacy measure and Bartlett's test of sphericity were computed first. After the EFA, CFA was performed to retain the number of factors and determine the validity of each scale.

Results in Table 5 present the factor loadings based on a principal component extraction with Oblimin and Kaiser normalisation rotation for PSM. According to the results, six items loaded onto Factor 1 measuring APS. This factor was labelled *attraction to public service*. All six items loaded positively onto the first factor. Four items loaded onto Factor 2, measuring CPV. This factor was labelled *commitment to public values*. All four items loaded positively onto the second factor. Two items loaded onto Factor 3 measuring compassion. This factor was labelled *compassion*. One item loaded positively, and the other loaded negatively onto the third factor. Finally, four items loaded onto Factor 4, measuring self-sacrifice. This factor was labelled *self-sacrifice*. All four items loaded negatively onto the fourth factor.

Table 5: Factor loadings based on a principal component extraction with Oblimin with Kaiser normalisation rotation for PSM

Statements	Factors			
	1	2	3	4
It is fundamental that the interests of future generations are taken into account when developing public policies.	0.897			
To act ethically is essential for public servants.	0.800			
I empathise with other people who face difficulties.	0.789			
I feel sympathetic to the plight of the underprivileged.	0.619			
It is important to contribute to activities that tackle social problems.	0.513			
It is important that citizens can rely on the continuous provision of public services.	0.415			
I would agree to a good plan to make a better life for the poor, even if it costs me.		0.901		
I am willing to risk personal loss to help society.		0.814		
I believe in putting civic duty before self.		0.778		
I am prepared to make sacrifices for the good of society.		0.614		
I think equal opportunities for citizens are very important.			-0.860	
I admire people who initiate or are involved in activities to aid my community.			0.531	
Meaningful public service is very important to me.				-0.864
It is important for me to contribute to the common good.				-0.827
I get very upset when I see other people being treated unfairly.				-0.738
Considering the welfare of others is very important.				-0.598

Source: Own compilation

A parallel analysis was conducted to confirm the existence of the JS scale's factor count. As determined by the analysis, five factors had eigenvalues greater than the corresponding criterion value for a similarly-sized randomly generated data matrix. A confirmatory analysis was conducted using a forced five-factor rotation, as shown in Table 6. The forced five-factor loading based on a principal component extraction with Oblimin and Kaiser normalisation rotation for JS is depicted in Table 6. Four items were loaded onto Factor 1, measuring supervision according to the results. Therefore, this factor was labelled *supervision*. Of the four items, all four items loaded positively onto the component with factor loadings ranging between 0.918 and 0.793; for example, "All in all, I am very satisfied with this person as my manager" with a high factor loading of 0.918. Seven items loaded onto Factor 2 measuring promotion. This factor was labelled *promotion*. Five items loaded positively onto the second factor, and one item loaded negatively; for example, "I would be more content with my job if my promotion opportunities were not so poor", with a factor loading of 0.551; also, "All in all, I would rather have more opportunities for promotion" with a factor loading of 0.545. Three items loaded onto Factor 3 measuring pay. This factor was labelled *pay*. All three factors loaded positively onto the third factor, with factor loadings ranging between 0.894 and 0.882.

Five items loaded onto Factor 4 measuring co-workers. Therefore, this factor was labelled *co-workers*. Of the five items, all the items loaded positively, with factor loadings ranging between 0.941 and 0.415. Four items loaded onto Factor 5 measuring work itself. This factor was labelled *work itself*. All four items loaded positively onto Factor 5; for example, "All in all, I would rather have some other kind of duties in my work" with a factor loading of 0.837; also, "I would be more content with my job if I were doing tasks that are different from the ones I do now", with a factor loading of 0.818.

Table 6: Forced five-factor loading based on a principal component extraction with Oblimin and Kaiser normalisation rotation for JS

Statements	**Factors**				
	1	2	3	4	5
All in all, I am very satisfied with this person as my manager	0.918				
Overall, I am very pleased with the way my manager supervises me	0.872				
I am more satisfied with my manager than with almost anyone I have ever worked for	0.866				
All and all, I would rather work for some other manager	0.793				
I am more satisfied with my opportunities for promotion now than with almost any other promotion opportunities I have ever had	0.480				
All in all, I am very satisfied with my chances for promotion		-0.332			
I would be more content with my job if my pay were not so low		0.844			
I would be more content with my job if my manager did not work here		0.789			
I would be more content with my job if my co-workers did not work here		0.648			
All in all, I would rather have better pay		0.591			
I would be more content with my job if my promotion opportunities were not so poor		0.551			
All in all, I would rather have more opportunities for promotion		0.545			
I am more satisfied with my pay now than I have almost ever been			0.894		
Overall, I am very pleased with how much money I earn			0.887		
All in all, I am very satisfied with my pay			0.882		
All in all, I would rather work with some other kind of co-workers				0.496	
All in all, I am very satisfied with my co-workers				0.941	
Overall, I am very pleased to work with my co-workers				0.732	
I am more satisfied with my co-workers than with almost anyone I have ever worked with before				0.692	
I am more satisfied with the types of work I currently do that with almost any other work I have ever done				0.342	

Statements	Factors				
	1	2	3	4	5
All in all, I would rather have some other kind of duties in my work					0.837
I would be more content with my job if I were doing tasks that are different from the ones I do now					0.818
All in all, I am very satisfied with the things I do at work					0.628
Overall, I am very pleased with the types of activities that I do on my job					0.318

Source: Own compilation

Table 7 presents the factor loadings based on a principal component extraction with Oblimin and Kaiser normalisation rotation for the WES. According to the results, eight items are loaded onto Factor 1, measuring employee dedication. This factor was labelled *dedication*. All eight items loaded positively onto the first factor. Next, six items loaded onto Factor 2, measuring employee absorption. This factor was labelled *absorption*. All six items loaded positively onto the second factor. Finally, three items loaded onto Factor 3, measuring employee vigour. This factor was labelled *vigour*. All three items loaded positively onto the third factor.

Table 7: Factor loadings based on a principal component extraction with Oblimin with Kaiser normalisation rotation for WE

Statements	Factors		
	1	**2**	**3**
When I get up in the morning, I feel like going to work.	0.917		
At my job, I feel strong and vigorous.	0.915		
My job inspires me.	0.910		
I find the work that I do full of meaning and purpose.	0.858		
I am enthusiastic about my job.	0.832		
At my work, I feel bursting with energy.	0.828		
When I am working, I forget everything else around me.	0.749		
I feel happy when I am working intensely.	0.562		
To me, my job is challenging.		0.892	
I get carried away when I am working.		0.877	
It is difficult to detach myself from my job.		0.792	
At my job, I am very resilient, mentally.		0.603	
I can continue working for very long periods at a time.		0.588	
I am immersed in my work.		0.486	
I am proud of the work that I do.			0.732
At my work, I always persevere, even when things do not go well.			0.724
Time flies when I am working.			0.697

Source: Own compilation

A confirmatory analysis was conducted using a forced three-factor rotation; the results are shown in Table 8. Table 8 presents the factor loadings based on a principal component extraction with Oblimin and Kaiser normalisation rotation for OC. According to the results, eight items loaded onto Factor 1 measuring CC. All the eight items loaded positively onto the mentioned factor with factor loadings ranging between 0.804 and 0.368. Six items loaded onto Factor 2 measuring AC. Therefore, this factor was labelled *affective commitment*. Five of the six items loaded negatively, with one loading positively onto the second factor. Seven items loaded onto Factor 3 measuring NC.Consequently, this factor was labelled *normative commitment*. All three items loaded positively onto the third factor. Of the seven items, five loaded positively onto the third factor, and two loaded negatively. For example, “I do not believe that a person must always be loyal to his or her organisation” with a factor loading of 0.532. Similarly, “I do not think

that wanting to be a “company man” or “company woman” is sensible anymore”, with a factor loading of 0.690.

Table 8: Forced three-factor principal component extraction with Oblimin and Kaiser normalisation rotation for OC

Statements	Factors		
	1	2	3
Too much in my life would be disrupted if I decided I wanted to leave my organisation now	0.804		
Things were better in the days when people stayed with one organisation for most of their careers	0.693		
It would be very hard for me to leave my organisation right now, even if I wanted to	0.682		
Right now, staying with my organisation is a matter of necessity as much as desire	0.647		
If I got another offer for a better job elsewhere I would not feel it was right to leave my organisation	0.581		
One of the major reasons I continue to work for this organisation is that I believe that loyalty is important and therefore feel a sense of moral obligation to remain	0.501		
I am not afraid of what might happen if I quit my job without having another one lined up	0.486		
I feel that I have too few options to consider leaving this organisation	0.368		
I enjoy discussing my organisation with people outside it		-0.375	
I would be very happy to spend the rest of my career with this organisation		-0.478	
I do not feel a strong sense of belonging to my organisation		-0.851	
I do not feel like ‘part of the family’ at my organisation		-0.840	
This organisation has a great deal of personal meaning for me		-0.737	
I think that I could easily become as attached to another organisation as I am to this one		0.517	
Jumping from organisation to organisation does not seem at all unethical to me			0.353
I do not think that wanting to be a company man or company woman is sensible anymore			0.690
I think that people these days move from company to company too often			-0.534
I do not believe that a person must always be loyal to his or her organisation			0.532
I really feel as if this organisation’s problems are my own			0.491
I was taught to believe in the value of remaining loyal to one organisation			-0.469
It would not be too costly for me to leave my organisation now			0.342

Source: Own compilation

A confirmatory analysis was conducted using a forced two-factor rotation; the results are shown in Table 9. The results in Table 9 present the factor loadings based on a principal component extraction with Oblimin and Kaiser normalisation rotation for CWB. Results revealed that 27 items loaded onto Factor 1 measuring CWB aimed at an individual. Therefore, this factor was labelled *CWB–individual*. All the aforementioned

items loaded positively onto the factor with factor loadings ranging from 0.960 to 0.406. Moreover, 14 items loaded onto Factor 2, measuring CWB towards the organisation. Therefore, this factor was labelled *CWB–organisation*. All the mentioned items loaded positively with factor loadings ranging from 0.795 to 0.363.

Table 9: Forced two-factor loading principal component matrix with Oblimin and Kaiser normalisation rotation for counterproductive

Statements	**Factors**	
	1	2
Took money from your employer without permission	0.960	
Threatened someone at work with violence	0.953	
Played a mean prank to embarrass someone at work	0.941	
Hit or pushed someone at work	0.925	
Made an obscene gesture (the finger) to someone at work	0.913	
Stole something belonging to someone at work	0.913	
Purposely dirtied or littered your place of work	0.907	
Destroyed property belonging to someone at work	0.901	
Started or continued a damaging or harmful rumour at work	0.888	
Verbally abused someone at work	0.880	
Did something to make someone at work look bad	0.870	
Put in to be paid for more hours than you worked	0.843	
Withheld needed information from someone at work	0.787	
Looked at someone at work's private mail/property without permission	0.745	
Threatened someone at work, but not physically	0.729	
Hid something so someone at work couldn't find it	0.728	
Said something obscene to someone at work to make them feel bad	0.722	
Made fun of someone's personal life	0.708	
Stolen something belonging to your employer	0.684	
Blamed someone at work for error you made	0.663	
Refused to help someone at work	0.657	
Insulted or made fun of someone at work	0.639	
Took supplies or tools home without permission	0.634	
Refused to take on an assignment when asked	0.582	
Purposely did your work incorrectly	0.557	
Ignored someone at work	0.502	
Started an argument with someone at work	0.406	
Left work earlier than you were allowed to		0.795
Daydreamed rather than did your work		0.731

Statements	Factors	
	1	2
Told people outside the job what a lousy place you work for		0.717
Purposely wasted your employer's materials/supplies		0.653
Tried to look busy while doing nothing		0.636
Purposely failed to follow instructions		0.617
Purposely came late to an appointment or meeting		0.572
Stayed home from work and said you were sick when you were not		0.562
Purposely worked slowly when things needed to get done		0.532
Purposely interfered with someone at work doing his/her job		0.517
Failed to report a problem so it would get worse		0.505
Insulted someone about their job performance		0.439
Came to work late without permission		0.428
Taken a longer break than you were allowed to take		0.363

Source: Own compilation

The fourth objective was to investigate the relationships between PSM, JS, OC, WE and CWB. A Pearson product-moment correlation was conducted to determine the strength of the relationship among the variables, with results displayed in Table 10 below.

Table 10: Results of the correlation test

Variable		PSM	JS	OC	WE	CWB
PSM	R	1				
	P					
JS	R	0.106	1			
	P	0.001**				
OC	R	0.137	0.430	1		
	P	0.000**	0.000**			
WE	R	0.417	0.675	0.368	1	
	P	0.000**	0.000**	0.000**		
CWB	R	-0.289	-0.127	0.085	-0.223	1
	P	0.000**	0.000**	0.006**	0.000**	

Note: $p \leq 0.05$, $p \leq 0.01$**; small effect r = 0.10 to r = 0.29; medium effect r = 0.3 to r = 0.49; large effect r = 0.5 to r = 1.0

As can be seen from the Pearson product-moment correlation results, JS had a statistically significant small correlation with PSM as seen from the r-value of 0.106 howbeit significant on the 99th percentile. The correlation was positive; therefore, as one increases, there would be a concomitant increase in the other. OC similarly had a small statistically significant correlation with PSM (r = 0.137; p = 0.000**) and a medium statistically significant correlation with JS (r = 0.430; p = 0.000**). The relationship was positive. Work engagement had medium associations with both PSM (r = 0.417; p = 0.000**) and OC (r = 0.368; p = 0.000**), while the same had a large statistically significant correlation with JS (r = 0.675; p = 0.000**). Lastly, CWB reverted negative small correlations with PSM (r = -0.289; p = 0.000), JS (r = -0.127; p = 0.000**) and WE (r = -0.223; p = 0.000**). Therefore, CWB would decrease with an increase in JS, PSM and WE. However, CWB had a small statistically significant positive relationship with OC (r = 0.085; 0.006**).

8. Discussion of results

The study's first objective was to determine the reliability and validity of scales measuring PSM, JS, OC, WE and CWB within the South African public sector context. Cronbach's alpha is the most frequently used test to determine the internal consistency of an instrument. The average of all correlations across all split-half combinations is computed using this test. A reliability score of 0.7 or greater is considered satisfactory (Bell *et al.*, 2018). Taber (2018) states that "a value between 0.5 and 0.7 indicates moderate sample adequacy."

The Cronbach alpha coefficient for the JS scale was 0.888, which is considered acceptable and consistent. Additionally, JS sub-scales ranged between 0.715 and 0.845. Cronbach's alpha values for OC were 0.664 with sub-scales, *inter alia*, AC, CC and NC ranging between 0.524 and 0.642, indicating moderate sample reliability for the specified scales. The Cronbach alpha coefficient for the WE scale was 0.947, considered excellent, with sub-scales ranging from 0.849 to 0.876. Similarly, the reliability coefficient for the PSM scale was 0.833, with sub-scales ranging from 0.553 (i.e. CPS) to 0.806 (i.e. CPS or SS). Simultaneously, the reliability coefficient for CWB was 0.968, with the two sub-scales reverting a reliability coefficient of 0.893 for organisational CWB and 0.970 for individual CWB.

Table 11: Comparison of Cronbach's alpha coefficients of this study with previous studies

Scale and sub-scales	Authors	Cronbach's alphas	Cronbach's alphas for this study	Number of items
APS	Kim *et al.* (2013)	0.70	0.73	4
CPV		0.54	0.55	4
Compassion		0.69	0.74	4
SS		0.78	0.81	4
PSM Scale		0.74	0.83	16
Work itself	Bowling *et al.* (2018)	0.72	0.72	5
Supervision		0.83	0.83	5
Co-workers		0.77	0.79	5
Pay		0.83	0.85	5
Promotion		0.82	0.82	5
JS Scale			0.89	25
AC	Allen and Meyer (1996) validated by Maqsood *et al.* (2012)	0.83	0.64	8
CC		0.61	0.60	6
NC		0.64	0.52	8
OC Scale		0.84	0.66	22
Vigour	Schaufeli and Bakker (2004)	0.83	0.85	6
Dedication		0.92	0.88	5
Absorption		0.82	0.85	6
WE Scale			0.95	17
CWB-Organisation	Spector *et al.* (2006)	0.84	0.89	21
CWB-Person		0.85	0.97	22
CWB Scale		0.81	0.97	43

Source: Own compilation

Exploratory and confirmatory factor analyses were done to determine the validity of the measuring instruments within the South African public service context.

- **Validity for public service motivation**

The factor loadings based on a principal component extraction with Oblimin and Kaiser Normalisation rotation for PSM revealed that six items loaded onto Factor 1 measuring APS and four loaded onto Factor 2 measuring CPV. In addition, two items loaded onto Factor 3, measuring compassion, and four loaded onto Factor 4, measuring SS. Although these factors are similar to the scale developed by Kim *et al.* (2013),

the items loaded differently onto the identified facets. Table 12 compares the factors and item loading of the scale developed by Kim *et al.* (2013) with results obtained by the research under discussion.

Table 12: Comparison of PSM factors and item loadings

Kim *et al.* (2013)	This study
Factor 1: Attraction to public service	**Factor 1: Attraction to public service**
I admire people who initiate or are involved in activities to aid my community	It is fundamental that the interests of future generations are taken into account when developing public policies.
It is important to contribute to activities that tackle social problems	To act ethically is essential for public servants.
Meaningful public service is very important to me	I empathise with other people who face difficulties.
It is important for me to contribute to the common good	I feel sympathetic to the plight of the underprivileged.
Factor 2: Commitment to public values	It is important to contribute to activities that tackle social problems.
I think equal opportunities for citizens are very important	It is important that citizens can rely on the continuous provision of public services.
It is important that citizens can rely on the continuous provision of public services	**Factor 2: Commitment to public values**
It is fundamental that the interests of future generations are taken into account when developing public policies	I would agree to a good plan to make a better life for the poor, even if it costs me.
To act ethically is essential for public servants	I am willing to risk personal loss to help society.
Factor 3: Compassion	I believe in putting civic duty before self.
I feel sympathetic to the plight of the underprivileged	I am prepared to make sacrifices for the good of society.
I empathise with other people who face difficulties	**Factor 3: Compassion**
I get very upset when I see other people being treated unfairly	I think equal opportunities for citizens are very important.
Considering the welfare of others is very important	I admire people who initiate or are involved in activities to aid my community.
Factor 4: Self-sacrifice	**Factor 4: Self-sacrifice**
I am prepared to make sacrifices for the good of society	Meaningful public service is very important to me.
I believe in putting civic duty before self	It is important for me to contribute to the common good.
I am willing to risk personal loss to help society	I get very upset when I see other people being treated unfairly.
I would agree to a good plan to make a better life for the poor, even if it costs me	Considering the welfare of others is very important.

Source: Own compilation

- **Validity for JS**

The forced five-factor loading based on a principal component extraction with Oblimin and Kaiser normalisation rotation for JS revealed that four items were loaded onto Factor 1 measuring supervision. There are seven items that loaded onto Factor 2 measuring promotion; three items that loaded onto Factor 3 measuring pay; five items loaded onto Factor 4 measuring co-workers; and four items loaded onto Factor 5 measuring work itself. Although the factor loadings are the same, the items of this study are differently loaded compared with the study of Bowling *et al.* (2018)

Table 13: Comparison of JS factors and item loadings

Bowling *et al.* (2018)	This study
Factor 1: Work itself	**Factor 1: Work itself**
Overall, I am very pleased with the types of activities that I do on my job	All in all, I would rather have some other kind of duties in my work
I would be more content with my job if I were doing tasks that are different from the ones I do now	I would be more content with my job if I were doing tasks that are different from the ones I do now
I am more satisfied with the types of work I currently do that with almost any other work I have ever done	All in all, I am very satisfied with the things I do at work
All in all, I am very satisfied with the things I do at work	Overall, I am very pleased with the types of activities that I do on my job
All in all, I would rather have some other kind of duties in my work)	
Factor 2: Supervision	**Factor 2: Supervision**
Overall, I am very pleased with the way my manager supervises me	All in all, I am very satisfied with this person as my manager
I would be more content with my job if my manager did not work here	Overall, I am very pleased with the way my manager supervises me
I am more satisfied with my manager than with almost anyone I have ever worked for	I am more satisfied with my manager than with almost anyone I have ever worked for
All in all, I am very satisfied with this person as my manager	All and all, I would rather work for some other manager
All in all, I would rather work for some other manager	I am more satisfied with my opportunities for promotion now than with almost any other promotion opportunities I have ever had
Factor 3: Co-workers	**Factor 3: Co-workers**
Overall, I am very pleased to work with my co-workers	All in all, I would rather work with some other kind of co-workers
I would be more content with my job if my co-workers did not work here	All in all, I am very satisfied with my co-workers
I am more satisfied with my co-workers than with almost anyone I have ever worked with before	Overall, I am very pleased to work with my co-workers
All in all, I am very satisfied with my co-workers	I am more satisfied with my co-workers than with almost anyone I have ever worked with before
All in all, I would rather work with some other kind of co-workers	I am more satisfied with the types of work I currently do that with almost any other work I have ever done
Factor 4: Pay	**Factor 4: Pay**
Overall, I am very pleased with how much money I earn	I am more satisfied with my pay now than I have almost ever been
I would be more content with my job if my pay were not so low	Overall, I am very pleased with how much money I earn
I am more satisfied with my pay now than I have almost ever been	All in all, I am very satisfied with my pay
All in all, I am very satisfied with my pay	
All in all, I would rather have better pay	
Factor 5: Promotion	**Factor 5: Promotion**
Overall, I am very pleased with my opportunities for promotion	All in all, I am very satisfied with my chances for promotion
I would be more content with my job if my promotion opportunities were not so poor (	I would be more content with my job if my pay were not so low
I am more satisfied with my opportunities for	I would be more content with my job if my

Bowling *et al.* (2018)	This study
promotion now than with almost any other promotion opportunities I have ever had	manager did not work here
All in all, I am very satisfied with my chances for promotion	I would be more content with my job if my co-workers did not work here
All in all, I would rather have more opportunities for promotion)	All in all, I would rather have better pay
	I would be more content with my job if my promotion opportunities were not so poor
	All in all, I would rather have more opportunities for promotion

- **Validation for work engagement**

The results of the factor loadings are based on a principal component extraction with Oblimin and Kaiser normalisation rotation for the WES showed eight items loaded onto Factor 1, measuring employee dedication; six items loaded onto Factor 2, measuring employee absorption; and three items loaded onto Factor 3, measuring employee vigour. Compared to the WE scale developed by Schaufeli and Bakker (2004), the factor loadings and the research reported on are similar in structure; however, the item loadings differ. A comparison of the two scales is depicted in Table 14.

Table 14: Comparison of WE factors and item loadings

WE scale (Schaufeli & Bakker, 2004)	This study
Vigour	**Vigour**
At my work, I feel bursting with energy	I am proud of the work that I do.
At my job, I feel strong and vigorous	At my work, I always persevere, even when things do not go well.
When I get up in the morning, I feel like going to work	Time flies when I am working.
I can continue working for very long periods at a time	
At my job, I am very resilient, mentally	
At my work, I always persevere, even when things do not go well	
Dedication	**Dedication**
I find the work that I do full of meaning and purpose	When I get up in the morning, I feel like going to work.
I am enthusiastic about my job	At my job, I feel strong and vigorous.
My job inspires me	My job inspires me.
I am proud of the work that I do	I find the work that I do full of meaning and purpose.
To me, my job is challenging	I am enthusiastic about my job.
	At my work, I feel bursting with energy.
	When I am working, I forget everything else around me.
	I feel happy when I am working intensely.
Absorption	**Absorption**
Time flies when I am working	To me, my job is challenging.
When I am working, I forget everything else around me	I get carried away when I am working.
I feel happy when I am working intensely	It is difficult to detach myself from my job.
I am immersed in my work	At my job, I am very resilient, mentally.

WE scale (Schaufeli & Bakker, 2004)	This study
I get carried away when I am working	I can continue working for very long periods at a time.
It is difficult to detach myself from my job	I am immersed in my work.

Source: Own compilation

- **Validation for OC**

Regarding OC, the scale factor loadings based on a principal component extraction with Oblimin and Kaiser normalisation rotation showed that eight items loaded onto Factor 1 measuring CC, six items loaded onto Factor 2 measuring AC, and seven items loaded onto Factor 3 measuring NC. The factor structure was compared to Allen and Meyer's OC scale developed in 1996 and validated by Maqsood *et al.* (2012), and the results reported on are similar, howbeit the item loadings differ. A comparison of the two scales is depicted in Table 15.

Table 15: Comparison of OC factors and item loadings

Allen and Meyer's original OC scale (1996), as validated by Maqsood *et al.* (2012)	This study
AC	**AC**
I would be very happy to spend the rest of my career with this organisation.	I enjoy discussing my organisation with people outside it
I enjoy discussing my organisation with people outside it.	I would be very happy to spend the rest of my career with this organisation
I really feel as if this organisation's problems are my own.	I do not feel a strong sense of belonging to my organisation
I think that I could easily become as attached to another organisation as I am to this one.	I do not feel like 'part of the family at my organisation
I do not feel like 'part of the family' at my organisation.	This organisation has a great deal of personal meaning for me
I do not feel 'emotionally attached' to this organisation.	I think that I could easily become as attached to another organisation as I am to this one
This organisation has a great deal of personal meaning for me.	
I do not feel a strong sense of belonging to my organisation.	
CC	**CC**
I am not afraid of what might happen if I quit my job without having another one lined up.	Too much in my life would be disrupted if I decided I wanted to leave my organisation now
It would be very hard for me to leave my organisation right now, even if I wanted to.	Things were better in the days when people stayed with one organisation for most of their careers
Too much in my life would be disrupted if I decided I wanted to leave my organisation now.	It would be very hard for me to leave my organisation right now, even if I wanted to
It wouldn't be too costly for me to leave my organisation now.	Right now, staying with my organisation is a matter of necessity as much as desire
Right now, staying with my organisation is a matter of necessity as much as desire.	If I got another offer for a better job elsewhere I would not feel it was right to leave my organisation
I feel that I have too few options to consider leaving this organisation.	One of the major reasons I continue to work for this organisation is that I believe that loyalty is important and therefore feel a sense of moral obligation to remain
	I am not afraid of what might happen if I quit my job without having another one lined up
	I feel that I have too few options to consider

Allen and Meyer's original OC scale (1996), as validated by Maqsood *et al.* (2012)	This study
	leaving this organisation
NC	**NC**
I think that people these days move from company to company too often.	Jumping from organisation to organisation does not seem at all unethical to me
I do not believe that a person must always be loyal to his or her organisation.	I do not think that wanting to be a company man or company woman is sensible anymore
Jumping from organisation to organisation does not seem at all unethical to me.	I think that people these days move from company to company too often
One of the major reasons I continue to work for this organisation is that I believe that loyalty is important and therefore feel a sense of moral obligation to remain.	I do not believe that a person must always be loyal to his or her organisation
If I got another offer for a better job elsewhere I would not feel it was right to leave my organisation.	I really feel as if this organisation's problems are my own
I was taught to believe in the value of remaining loyal to one organisation.	I was taught to believe in the value of remaining loyal to one organisation
Things were better in the days when people stayed with one organisation for most of their careers.	It wouldn't be too costly for me to leave my organisation now
I do not think that wanting to be a company man or company woman is sensible anymore.	

Source: Own compilation

- **Validation of CWB**

The factor loadings based on a principal component extraction with Oblimin and Kaiser normalisation rotation for CWB revealed that 27 items loaded onto Factor 1 measuring CWB aimed at an individual, while 14 items loaded onto Factor 2 measuring CWB towards the organisation. Both scales consist of two factors, but the item loadings differ (see Table 16).

Table 16: Comparison of CWB factors and item loadings

CWB scale Spector *et al.* (2006)	This study
Factor 1: CWB – individual	**Factor 1: CWB – individual**
Started or continued a damaging or harmful rumour at work	Took money from your employer without permission
Insulted someone about their job performance	Threatened someone at work with violence
Made fun of someone's personal life	Played a mean prank to embarrass someone at work
Ignored someone at work	Hit or pushed someone at work
Refused to help someone at work	Made an obscene gesture (the finger) to someone at work
Withheld needed information from someone at work	Stole something belonging to someone at work
Purposely interfered with someone at work doing his/her job	Purposely dirtied or littered your place of work
Blamed someone at work for error you made	Destroyed property belonging to someone at work
Started an argument with someone at work	Started or continued a damaging or harmful rumour at work
Stole something belonging to someone at work	Verbally abused someone at work
Verbally abused someone at work	Did something to make someone at work look

CWB scale Spector *et al.* (2006)	This study
	bad
Made an obscene gesture (the finger) to someone at work	Put in to be paid for more hours than you worked
Threatened someone at work with violence	Withheld needed information from someone at work
Threatened someone at work, but not physically	Looked at someone at work's private mail/property without permission
Said something obscene to someone at work to make them feel bad	Threatened someone at work, but not physically
Hid something so someone at work couldn't find it	Hid something so someone at work couldn't find it
Did something to make someone at work look bad	Said something obscene to someone at work to make them feel bad
Played a mean prank to embarrass someone at work	Made fun of someone's personal life
Destroyed property belonging to someone at work	Stolen something belonging to your employer
Looked at someone at work's private mail/property without permission	Blamed someone at work for error you made
Hit or pushed someone at work	Refused to help someone at work
Factor 2: CWB – organisation	Insulted or made fun of someone at work
Purposely wasted your employer's materials/supplies	Took supplies or tools home without permission
Daydreamed rather than did your work	Refused to take on an assignment when asked
Complained about insignificant things at work	Purposely did your work incorrectly
Told people outside the job what a lousy place you work for	Ignored someone at work
Purposely did your work incorrectly	Started an argument with someone at work
Came to work late without permission	**Factor 2: CWB – organisation**
Stayed home from work and said you were sick when you were not	Left work earlier than you were allowed to
Purposely damaged a piece of equipment or property	Daydreamed rather than did your work
Purposely dirtied or littered your place of work	Told people outside the job what a lousy place you work for
Stolen something belonging to your employer	Purposely wasted your employer's materials/supplies
Purposely worked slowly when things needed to get done	Tried to look busy while doing nothing
Refused to take on an assignment when asked	Purposely failed to follow instructions
Purposely came late to an appointment or meeting	Purposely came late to an appointment or meeting
Failed to report a problem so it would get worse	Stayed home from work and said you were sick when you were not
Taken a longer break than you were allowed to take	Purposely worked slowly when things needed to get done
Purposely failed to follow instructions	Purposely interfered with someone at work doing his/her job
Left work earlier than you were allowed to	Failed to report a problem so it would get worse
Took supplies or tools home without permission	Insulted someone about their job performance
Tried to look busy while doing nothing	Came to work late without permission
Put in to be paid for more hours than you worked	Taken a longer break than you were allowed to take
Took money from your employer without	

CWB scale Spector *et al.* (2006)	This study
permission	

Source: Own compilation

Based on the results, the alternative hypothesis $H1_A$ that the PSM, JS, OC, WE, and CWB scales will be reliable and valid within the South African public-sector context fails to be rejected.

The second objective was to investigate the relationships between PSM, JS, OC, WE and CWB. A Pearson product-moment correlation was used to determine the strength of the relationship among the variables. The results revealed that JS had a statistically significant small correlation with PSM, as seen from the r-value of 0.106 in the 99th percentile. Moreover, the correlation was positive; therefore, there would be a concomitant increase in the other as one increased. Bright (2021) investigated how perceptions of organisational prestige (POP) affect the link between PSM and public employee JS and intention to leave. Similarly, Bright (2021) also discovered beneficial associations between PSM and various work attitudes. Although PSM was a significant factor in POP perspectives and JS, POP somewhat moderated its effects and was the most significant predictor of JS. In addition, persons with high levels of PSM were more likely to hold positive POP perspectives, which increased their JS and decreased their intention to leave the organisation (Bright, 2021). Furthermore, Bright (2021) postulates that PSM maintains a direct and indirect association with JS. In other words, respondents with high levels of PSM were much more content with their occupations than those with lower levels of PSM, regardless of their perceptions of how residents evaluated their employer.

Regarding JS, a recent meta-analysis by Boyd and Nowell (2020) revealed a moderately significant relationship between PSM and JS and evidence that job factors may modify the relationship. Most studies have proven that the relationship between PSM and JS is contingent on SIP via job and organisational type. Boyd and Nowell (2020) emphasise that other researchers discovered a substantial positive correlation between PSM and JS in a sample of Chinese MPA students with full-time public-sector employment. The findings correlate with the findings of Boyd and Nowell (2020), Stefurak *et al.* (2020), Homberg *et al.* (2015), Crucke *et al.* (2021), Palma (2016), Kim *et al.* (2013), Prysmakova and Vandenabeele (2020), and Breaugh *et al.* (2018), who all found a positive relationship between PSM and JS.

Organisational commitment similarly had a weak statistically significant correlation with PSM (r = 0.137; p = 0.000**) and a medium statistically significant correlation with JS (r = 0.430; p = 0.000**). The relationship was positive. According to Boyd and Nowell (2020), OC and identification and PSM predict employee engagement and well-being indicators. The researcher investigates whether PSM is a direct or indirect predictor of employee metrics. Regarding organisational citizenship behaviours in the Korean setting, the researcher observed PSM, work satisfaction and OC to explain organisational citizenship. The researcher discovered a significant direct relationship between PSM and OC and organisational citizenship. Similarly, a study of people in the UK prison system revealed a significant positive association between PSM and OCB after controlling for perceived organisational support and fairness (Boyd & Nowell, 2020).

Moreover, given the interest in the immediate work surroundings surrounding high-PSM individuals, the researchers propose that the relationship between PSM and OC would depend on the characteristics of their leaders (Potipiroon & Ford, 2017). The relationship between PSM and OC is more nuanced than commonly believed. The strength of this relationship depends on how much one enjoys and finds interest in their profession. Potipiroon and Ford (2017) found that the link between PSM and OC was significantly favourable when intrinsic motivation was strong. The positive effects of PSM on OC were greatest when intrinsic motivation and ethical leadership were high. Without intrinsic motivation and/or ethical leadership, the PSM–OC connection tended to be negative but non-significant (Potipiroon & Ford, 2017). This positive relationship between PSM and OC was confirmed in studies by Boyd and Nowell (2020), Castaing (2006) and Potipiroon and Ford (2017).

Work engagement had medium associations with both PSM (r = 0.417; p = 0.000**) and OC (r = 0.368; p = 0.000**), while the same had a large statistically significant correlation with JS (r = 0.675; p = 0.000**). In line with the study's findings, Mussagulova (2021) found that PSM increases the positive relationship between job resources, and WE has garnered the most attention and relevance. Moreover, the published study on the relationship between WE and PSM within the context of JDR uses both job demands and

resources and focuses initially on the moderating effect of PSM by conceptualisation (Mussagulova, 2021). However, Mussagulova (2021) emphasises that the theorisation of PSM's role in mitigating the link between job resources and WE gives public employees an incentive to organise their job resources to remain engaged, leading to improved performance. The study by Mussagulova (2021) found that public servants with a low level of PSM experience the negative association between red tape and WE more strongly, possibly because their level of PSM is not high enough to absorb the shocks of procedural constraints (Mussagulova, 2021). Mussagulova (2021) described the relationship between PSM and WE and the role of PSM in enhancing the positive effect of job resources and mitigating the negative effect of job demands on the desired individual and organisational work outcomes. However, the association between PSM and WE are poorly supported. Ugaddan and Park (2017) and Mussagulova (2021) also found a positive relationship between PSM and WE.

CWB reverted negative small correlations with PSM (r = -0.289; p = 0.000), JS (r = -0.127; p = 0.000**) and WE (r = -0.223; p = 0.000**). Therefore, CWB would decrease with increased JS, PSM and WE. However, CWB had a small statistically significant positive relationship with OC (r = 0.085; 0.006**). Numerous researchers have attempted to link counterproductive behaviour with negative emotions, namely rage and violence, caused by stress and unpleasant work settings. It involves breaching both rules and laws and social conventions. The link between JS and CWB should therefore be negative. In line with the current study, numerous studies have shown a negative correlation between this behaviour and work satisfaction, speculating that the absence of work satisfaction – and the subsequent urge to "get even" with the employer – are the seeds of workplace deviance (Czarnota-Bojarska, 2015). Additionally, Czarnota-Bojarska (2015) found a negative association between JS and CWB. Despite relatively high levels of JS, the study indicates a propensity for CWB. The study further revealed relatively low JS levels and elevated CWB levels. According to Baysal *et al.* (2020), the relationship between CWB and OC is one of the most common challenges businesses encounter. The relationship between AC, NC and CC, as characteristics of OC, and abuse, production deviation, sabotage, theft and disengagement from CWB was investigated. In addition, Baysal *et al.* (2020) found that AC and NC have a negative direction and significant link with the dimensions of withdrawal and abuse. Vogel *et al.* (2016) and Koumenta (2015) also found a negative association between PSM and CWB. Czarnota-Bojarska (2015) found a negative association between JS and CWB. Baysal *et al.* (2020) found that AC and NC have a negative direction and significant link with the dimensions of withdrawal and abuse, and negative direction and strong correlations exist between the dimensions of commitment, withdrawal, abuse and theft.

The results confirmed the alternative hypothesis $H2_A$ that there is a positive relationship between PSM, JS, OC and WE, and a negative relationship between PSM and CWB cannot be rejected.

9. Managerial implications

This research developed a framework to evaluate the impact of PSM on core work evaluation (JS, OC, WE) and CWB. The link between PSM, JS, OC, WE and CWB was also investigated. This study provides a theoretical and conceptual framework that public-sector managers can use to assess the impact of PSM on CWE and CWB. Furthermore, public-sector managers could use validated instruments to assess these critical behavioural outcomes within the public service context. Public managers should understand how PSM influences CWE and CWB. The results revealed a positive correlation between PSM and JS, which is also confirmed by similar studies. In addition, OC had a positive relationship with PSM. Furthermore, work engagement, PSM, OC and JS are positively related.

The study's results confirmed public service motivation's potential positive outcomes or consequences. For example, high levels of public service motivation led to high levels of job satisfaction, organisational commitment, work engagement and low levels of counterproductive work behaviour. Therefore, motivated public service employees will have high job satisfaction, organisational commitment, and work engagement, and these positive work behaviours will help prevent counterproductive behaviour (including corruption), which is necessary for effective corporate governance, service delivery, policy formation, and implementation.

10. Conclusion

Low levels of PSM led to decreased core work evaluations (JS, OC, WE) and increased CWB. This study's primary aim was to develop a framework to assess the influence of PSM on CWE (JS, OC, WE) and CWB. No previous research has investigated the influence of PSM (independent variable) on core work evaluations such as JS, OC, WE and CWB (dependent variables) within the South African public service context. Therefore, this study filled the gap by developing a framework to assess the influence of PSM on CWE (JS, OC, WE) and CWB of employees in the North West provincial government departments.

The study was conducted within the quantitative research paradigm using a cross-sectional correlational survey design. The sample comprised 2 250 public service employees representing all categories of professionals within the 11 provincial government departments. The study used a stratified random sampling method consisting of four subgroups. A total of 1 546 questionnaires were distributed, and 1 031 were completed and returned.

The measuring instruments were reliable and valid within the South African public service context. The results revealed a positive correlation between PSM and JS, while OC positively correlated with PSM. Work engagement, PSM, OC and JS are positively related, while CWB negatively affects PSM, JS and WE. Work engagement and JS significantly predict PSM. The primary managerial implication is that this study provides a theoretical and conceptual framework that public-sector managers can use to assess the impact of PSM on CWE and CWB. Ultimately, this research contributes to the theory, conceptualisation and relationships between organisational behavioural dimensions such as PSM, JS, OC, WE and CWB.

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