

ORIGINAL RESEARCH

# Mediation Role of Perceived Organizational Support on Nurses' Work Engagement and Leadership Styles



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## Abstract

**Background:** Nurses' work engagement is essential both for the quality of the service provided and occupational health. However, there is a lack of adequate information about nurses' engagement in healthcare organizations that are affected by various factors in the context of Health Psychology.

**Purpose:** This study was aimed at investigating the association between leadership styles of supervisors and work engagement, and elucidating the role of organizational support in this relationship.

**Methods:** A cross-sectional study was conducted on 85 nurses from the health organizations in Catalonia, Spain, recruited via a snowball procedure. Leadership styles and Three Outcome Scales (TOS) were evaluated through the Multifactorial Leadership Questionnaire (MLQ) as independent variables. POS as an Organizational Support Test assessed a mediating variable (POS), and work engagement as a dependent variable was evaluated by the Utrecht Job Involvement Scale (UWES).

**Results:** The results displayed differences in work engagement depending on job positions. Besides, the results revealed a positive association between leadership styles and TOS with work engagement, other than laissez-faire. Additionally, POS illustrated a positive association with work engagement ( $r=0.447$ ,  $p<0.01$ ). Leadership styles except for laissez-faire and TOS positively affect POS; also, TOS significantly predicted work engagement ( $\beta=0.581$ ,  $t(78)=2.196$ ,  $p<0.05$ ). Furthermore, results confirmed that POS mediates the relationship between leadership styles and TOS with work engagement ( $z=-3.490$ ;  $z=3.117$ ;  $z=3.521$ ;  $z=3.791$ ,  $p=0.000$ ).

**Conclusion:** Transformational and transactional leadership are two main styles significantly affecting nurses' engagement with their work, while laissez-faire decreases nurses' work engagement; therefore, supervisors and leaders of healthcare organizations should consider it. Consequently, nurses with a high POS show superior engagement levels at work. The research sheds new light on health psychology and the clinical area, particularly in nurses' work engagement.

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## 1. Introduction

Most organizations try to change their structure and enhance themselves based on new movements in the current global business world. Corresponding to this strategy, these organizations must distinguish human improvement factors and efficiently apply them. There are several factors, such as employees' job satisfaction, which is assumed to be a combination of physiological and psychological items that employees feel satisfied with (Mehrad & Fallahi, 2014). Kind of work, co-workers, supervisors or subordinates, payment, incentives, and organizational communication have an intense role on organizational outcomes and increase its level remarkably, which should be recognized (Eslami & Gharakhani, 2012).

In recent years, one of the primary and critical organizational factors that have been considered more is employee work engagement, which has increasingly expanded its status as a legitimate construct among academic scholars (Strom et al., 2014). Work engagement is probably the oldest and most common concept of workplace well-being (Wang et al., 2016). By

knowing the critical role of work engagement, Engelbrecht et al. (2017) explained that engaged employees are more creative, enjoy their work, and are more well-organized. In contrast, Manning (2016) reported that employees who are not engaged and empowered in their work are more likely to become unsatisfied with their work and show a high turnover. To display the imperative role of work engagement, Lu et al. (2018) clarified that work engagement is assumed as a stable work condition that can move between employees at the workplace. The researchers also explained that it likewise as an influential factor has a positive relation with individual task performance, appropriate presentation, observed behaviour, personal work-family facilitation, job satisfaction, and subjective well-being (Lu et al., 2018). Therefore, it is essential to realize the influential factors that impact work engagement.

Firstly, it is necessary to emphasize that nurses are a key and essential resource that must be considered in any health systems (Martínez-Zaragoza et al., 2017). They make up the largest group of healthcare specialists (Sekse et., 2018) that Baker and Alshehri (2020) correspondingly explained and emphasized this important fact at the hospital. Work engagement among nurses was wide-ranging in different hospital wards. Low levels of work engagement were linked to poor workers, such as increasing burnout, reduced intention to remain and career satisfaction, and patient outcomes, such as low patient outcomes and increased adverse events. So, the health care organization needs to provide adequate support for nurses that can lead to work engagement and a high-performance level (Havens et al., 2018). Furthermore, the predictors of work engagement among nurses were mainly comprised of demographic data (such as sex, age, and occupational tenure), job-related variables (such as job stress, role ambiguity, and organizational support), workplace-related (practical and dynamic environment) (Wan et al., 2018), and personal factors (such as personality, self-efficacy, and coping style) (Cao & Chen, 2019). Considering the importance of nurses' work engagement at health care organizations, distinguishing influential factors on it can be valuable. In this regard, focusing on the impact and role of managers' leadership styles as independent variables and POS, two main organizational factors significantly contribute to nurses' work engagement in this study; in the systematic review of this research by Mehrad et al. (2020), this point was clear.

Leadership is a process through which an individual influences people to attain common goals (Saleem, 2015). Also, leadership style is assumed as one of the human-resource-related outcomes and perhaps one of the most studied management and organizational psychology topics (Fiaz et al., 2017), which has a direct relationship with employees' responses and organizational behaviour in the workplace (Mehrad et al., 2020). Laissez-faire, transactional, and transformational as three basic leadership styles (dependent variables) in the present study will examine their relationship with POS (mediator of the study) and nurses' work engagement (dependent variable). Transactional leadership style refers to the exchange association between leader and employee, in which each party is involved to meet their respective self-interests. Each party's interests are met by clarifying employee responsibilities, leader's expectations, and compliance benefits (Strom et al., 2014). Transactional leadership is a dynamic exchange between leaders and subordinates (Keskes, 2014). Besides, the transformational leadership style concentrates on leaders' ability to interact, understand, and support employees beyond the standard employment exchange. Depending on situational conditions, these leaders may take on roles such as facilitator, mentor, and innovator, which may arise due to personal disposition. Generally, the transformational leadership style includes behaviours that encourage employees to take various views on their work and challenge them to endeavour new approaches (Henker et al., 2015). The study of Lapeña et al. (2017) also demonstrated that transformational and transactional leadership styles significantly contribute to nurses' satisfaction and high level of performance.

Likewise, TOS, which includes extra effort (EEF), the effectiveness of a leader's behaviour (EFF), and satisfaction (SAT) with their respective leader, play an influential role in appearing work engagement. Conversely, the laissez-faire style has been focused on leaders who choose not to guide performance. Employees are given the freedom to operate without a leader's influence when the situation would usually demand that they do so. The leader is, in most cases, left with only the communication role for facilitation. This leadership behaviour is the most ineffective and inactive and is strongly associated with employee dissatisfaction, conflict, and ineffectiveness (Al-Sayah, 2011). Considering the role of leadership styles among nurses,

Specchia et al. (2021) explained that nurses will satisfy and engage in work by applying transformational leadership in contrast with Laissez-faire.

Another organizational factor that has an outstanding contribution to work engagement is POS. It is defined as general beliefs regarding how employees perceive that their organization pays attention to their well-being and values their contributions. When employees have confidence that the organization helps and supports them, they will produce high POS. Overall, employees with higher POS are believed to have a positive work attitude and behaviour (Ayuningtias et al., 2019). POS can help nurses exhibit a positive attitude, make ethical decisions, increase their commitments, influence turnover intention, and decrease job stress. In general, POS meaningfully predicted task performance, optional performance, and particular future career aspirations of employees in the work environment (Duyar & Aydin, 2012).

According to the earlier investigations towards leadership styles, work engagement, and POS; also, their relationship together, findings showed that still there is a lack of adequate information about nurses' work engagement at healthcare organizations. The previous investigations focused individually on the role of leadership styles and POS on work engagement. In contrast, in this research, essential styles and support of organizations are assumed as the primary point and aim that elaborate and increase the level of nurses in the health system and endeavour to focus. This study specifically focused on the mediation role of POS between transformational, transactional, laissez-faire, and work engagement. Generally, the research attempted to focus intensely on the role of nurses' work engagement influenced by organizational factors such as leadership styles, perceived organizational support (POS), and three outcome scales (TOS). Accordingly, the researcher focused on this area to fill this gap in the context of Health Psychology and find the principal and positive factors that can increase nurses' engagement and level of well-being. Overall, this study aimed to investigate the association between leadership styles of work engagement and POS among nurses.

## **2. Methods**

### *2.1 Research design*

The present study's research design is based on a cross-sectional design, and all the data are collected simultaneously. The data from a different group of nurses who worked concurrently in the Catalunya area's various health systems had been collected.

### *2.2 Setting and samples*

A sample is determined as a subdivision of a population adapted to the study. In truth, examining all members of a particular population is impossible. Furthermore, selecting a sample based on a specific population is wise. Knowing the total population is imperative, and the study's exact sample can be determined based on the entire population (Mehrad, 2015). According to this knowledge, the research participants were 85 nurses (male and female) who worked in healthcare organizations in Catalonia, Spain, collected via a snowball sampling technique. This number of participants in the snowball technique was evaluated, and there was no precalculated list of target population details which is the nature of the snowball technique. This method is assumed to be a recruitment technique in which study participants can help researchers identify other potential subjects (Ballo & Alphonsine, 2018). The present research's sample size originated from population nurses working at healthcare organizations in Catalonia, Spain. The Spanish version of the questionnaires was sent to the participants as an online questionnaire; then, the nurses filled the questionnaires optionally. In this research, Snowball has worked from nurse to nurse, providing confidence in the source of invitation to participate. Since the invitation to participate did not come from the organization where they worked, the bias of seeking approval from supervisors has been removed, and total anonymity has been facilitated sincerity.

### *2.3 Measurements and data collection*

The research comprised antecedent, independent, dependent, and mediator variables measured by instruments explained in detail in the following sections. The first section of the instruments is socio-demographic information on respondents' backgrounds. They included age, gender, marital status, work experience in years, place of residence (province), and work position (hospital care, primary and community care, socio-healthcare, and teaching &

research). The second section is designed to investigate leadership styles and three outcome scales by MLQ; the third section considers examining the work engagement by UWES. Finally, the fourth section measured POS by the POS questionnaire. All research questionnaires were in Spanish and adapted for the Spanish population.

### *2.3.1. Work engagement (UWES)*

This research measured work engagement as a dependent variable and used the Utrecht Work Engagement Scale (UWES) developed by Schaufeli and Bakker (2003). This tool has 17 items and has a seven-point scale ranging (Never=0, Almost Never=1 (A few times a year or less), Rarely=2 (Once a month or less), Sometimes=3 (A few times a month), Often=4 (Once a week), Very often=5 (A few times a week), Always=6 (Every day)) (Schaufeli & Bakker, 2004). This questionnaire asks about employee feelings at work. Schaufeli et al. (2006) reported that vigour has six items, dedication has five items, and absorption has six items. The reliability of UWES according to Cronbach's alpha of this study was 0.759, which was acceptable. Additionally, according to the original version, Cronbach's alpha of 0.84 in the vigour dimension, 0.89 in dedication, and 0.81 in absorption. The instrument has been validated in various countries such as Greece (Xanthopoulou et al., 2012) and Spain (Garcia-Sierra et al., 2016). The translation of instrument to Spanish was accomplished separately by two bilingual researchers in the field. Subsequently, the validity of both instruments was evaluated by inviting three experts in the field. Although, the Content Validity Index (CVI) of both translations were adjacent to each other, we selected the translated instrument which has better CVI which is 0.65 (Yusoff, 2019).

### *2.3.2. Leadership Styles & TOS (MLQ)*

For measuring leadership styles and TOS as independent variables in the present research, the MLQ proposed by Bass and Avolio (1995) has been used, translated to Spanish by expert researchers, and reliability and validity have been considered. This questionnaire included 45 items that scored between 0-4 (0=never to 4=usually) and measured transformational, transactional, laissez-faire styles, and TOS. Transformational has 20 items, transactional has eight items, laissez-faire has eight items, and TOS has nine items. According to Cronbach's alpha of this study, the reliability of transactional leadership was 0.868, transformational leadership was 0.967, laissez-faire was 0.895, and TOS was 0.949, which were acceptable. Furthermore, the original version showed Cronbach's alpha of 0.74-0.97. Likewise, the instrument has been utilized by Berger et al. (2012), Manning (2014), and García-Sierra and Fernández-Castro (2017) likewise applying MLQ for their investigations. The content validity was calculated by inviting three experts in the field of leadership and hospital management. The experts were asked to rate the relevance and clarity of items in the instrument. The calculated CVI was 0.65, signifying that the tested tool measures what it intends to measure (Yusoff, 2019).

### *2.3.3. POS*

The Spanish version of POS proposed by Ortega (2003) clarified measuring the POS as the mediator of this research. This Spanish version included 17 items and comprised a 7-point Likert scale (1=strongly disagree, 7=strongly agree). The reliability of POS according to Cronbach's alpha was 0.753, which was acceptable. According to the original version, Cronbach's alpha showed 0.93. Also, the instrument has been validated and used by researchers such as Alcover et al. (2018). The CVI of the instrument was calculated by inviting 3 experts in the field; the result showed 0.7 of content validity (Yusoff, 2019).

The data collection is fundamental to this research, designed based on quantitative methods. This research's objectives required preliminary information on respondents' backgrounds, leadership styles, TOS, work engagement, and POS via standardized questionnaires that collected essential data to answer the research questions. The Spanish version of the questionnaire was sent as an online questionnaire via email and WhatsApp to nurses. This data collection was conducted from 17 May 2019 to 15 March 2020 among the nurses working in healthcare organizations in Catalonia, Spain.

## 2.4 Data analysis

T-test and ANOVA were performed to investigate the differences in nurses' work engagement between socio-demographic factors. The research measures the mediatory role of POS on the relationship between leadership styles, TOS, and work engagement. Descriptive statistics, Pearson correlation coefficient analysis, multiple linear regression analysis, and mediation analysis (Sobel Test) were utilized.

## 2.5 Ethical consideration

The research requested informed consent, that it was voluntary, that the participants could abandon it at any time, and that it was anonymous since at no time did it generate customized databases (with no personal data). Additionally, this Research followed the code of good practices (Agreement of the Governing Council 30 January 2013) of the Ethics Committee in Animal and Human Research (CEEAH) of UAB. The research likewise exactly persuaded part of the Research involving people from CEEAH.

## 3. Results

### 3.1 Differences in work engagement between socio-demographic factors based on t-test and ANOVA results

By considering the critical role of nurses' work engagement in health systems and their different socio-demographic factors, finding differences by using t-test and ANOVA were performed in this research, illustrated in Table 1.

**Table 1.** Differences in work engagement between socio-demographic factors based on t-test and ANOVA results (n=85)

Variable	f	Mean(SD)	t	p
Marital Status				
Married	51	165.66 (36.30)	0.724	0.471
Unmarried/Other	32	159.96 (32.47)		
Work Experience				
>15 years	66	162.15 (34.83)	0.615	0.540
<15years	18	167.83 (34.25)		
Residence (Province)				
Barcelona	56	166.87 (35.86)	1.20	0.231
Other	29	157.37 (31.25)		
			<i>F</i>	
Age				
Under 35	8	164.25 (38.85)	0.908	0.407
36-50	36	169.22 (36.92)		
51 and older	41	158.60 (31.36)		
Gender				
Female	75	164.22 (34.72)	0.299	0.826
Male	7	154.71 (34.35)		
Other	2	161.50 (48.79)		
Work Position				
Hospital Care	46	156.13 (34.98)	2.87	0.04
Primary & Community Care	22	164.50 (34.36)		
Socio-Healthcare	7	190.71 (13.48)		
Teaching & Research	10	177.30 (32.00)		

Notes: t = t-test; F = F-test (variation between sample means / variation within the samples).

Table 1 reveals no significant difference in work engagement in the function of marital status; also, there was no meaningful variation in work engagement and years of work experience; similarly, there was no significant disparity in work engagement and residence. Therefore, calculating the Cohen's effect size is unnecessary for this part of the t-test analysis. Additionally, Table 1 shows the results of one-way ANOVA that exposed a meaningful difference between work position groups and work engagement. Cohen's effect size ( $\eta^2=0.32$ ) also suggested a medium effect size; the difference between work engagement and work position is

acceptable. Tukey Post-hoc displays that work engagement varies among different work position groups. The Tukey Post-hoc test (LSD) results illustrated significant differences in nurses' work positions who were working in the socio-healthcare and hospital care positions at 0.05 level. The nurses who worked in socio-healthcare positions experienced a significantly higher level of work engagement ( $M=190.71$ ,  $SD=13.48$ ) than those in the hospital care group ( $M=156.13$ ,  $SD=34.98$ ). In contrast, primary & community care and teaching & research groups were not statistically significantly different from the other groups. On the other hand, the findings of the ANOVA test showed that there are no significant differences between age groups and work engagement ( $F(2, 82)=0.908$ ,  $p=0.407$ ); as well, the results showed there are no meaningful differences between gender groups and work engagement ( $F(3, 81)=0.299$ ,  $p=0.826$ ).

### 3.2 Relationships between leadership styles, TOS, POS, and work engagement

In this research, to find the relationships between leadership styles, TOS, work engagement, and POS, Pearson correlation had been applied. Table 2 illustrates these results.

**Table 2.** Pearson Correlations between leadership styles, TOS, POS, and work engagement

Variables	1. WE	2. POS	3. TAL	4. TFL	5. LF	6. TOS
1. WE						
2. POS	0.447**					
3. TAL	0.257*	0.431**				
4. TFL	0.329**	0.530**	0.880**			
5. LF	-0.356**	-0.522**	-0.667**	-0.691**		
6. TOS	0.425**	0.616**	0.844**	0.912**	-0.681*	

Notes: \* $p<0.05$ ; \*\* $p<0.01$ ; WE=Work Engagement; POS=Perceived Organizational Support; TAL=Transactional Leadership; TFL=Transformational Leadership; LF=Laissez Faire; TOS=Three Outcome Scales

Table 2 reveals that there was a positive association between TOS ( $r=0.616$ ,  $p<0.01$ ), transactional leadership ( $r=0.431$ ,  $p<0.01$ ), and transformational leadership ( $r=0.530$ ,  $p<0.01$ ), with POS; on the other hand, there was a negative association between laissez-faire ( $r=-0.522$ ,  $p<0.01$ ) with POS. The results showed a significant association between work engagement and POS ( $r=0.447$ ,  $p<0.01$ ). In addition, the findings released that there is positive association between TOS ( $r=0.425$ ,  $p<0.01$ ), transactional leadership ( $r=0.257$ ,  $p<0.05$ ), and transformational leadership ( $r=0.329$ ,  $p<0.01$ ), with work engagement; on the other hand, there was a negative association between laissez-faire ( $r=-0.356$ ,  $p<0.01$ ) with work engagement.

### 3.3 Predictors of work engagement

Multiple linear regression analysis was applied to investigate and determine leadership styles, TOS, and POS predictors of nurses' work engagement. The research's variables were likewise tested for the multivariate analysis's assumptions. Table 3 illustrates the result of multicollinearity and multiple linear regression analysis for work engagement.

**Table 3.** Results of Multicollinearity and multiple linear regression analysis for work engagement

Variable	Collinearity Statistic		B	SE	$\beta$	t	p
	Tolerance	VIF					
(Constant)	0.134	7.474	153.969	28.836		5.339	0.000
TOS	0.123	8.110	2.051	0.934	0.581	2.196	0.031*
TFL	0.198	5.058	-0.372	0.480	-0.214	-0.776	0.440
TAL	0.469	2.133	-1.148	1.037	-0.241	-1.106	0.272
LF	0.559	1.789	-0.671	0.628	-0.151	-1.070	0.288
POS	0.134	7.474	0.163	0.092	0.228	1.760	0.082

Notes:  $F(5,78)=5.76$ ; \* $p<.05$ ,  $R=0.52$ ;  $R^2=0.27$ ; Adjusted  $R^2=0.22$

Table 3 illustrates that the tolerance of variables was between 0.123 to 0.559, and the amount of VIF ranged from 1.789 to 8.110. Based on these results, there is no multicollinearity among variables. Additionally, Table 3 displays the results of multiple regression analysis to

work engagement, indicating that all the independent variables in the equation explained (27%) of the variance. The findings show that among factors of leadership styles, TOS, and POS, only TOS has a significant proportion of variance in work engagement scores ( $R^2=0.27$ ,  $F(5, 78)=5.76$ ,  $p<0.05$ ). As displayed in Table 3, it was found that TOS ( $\beta=0.581$ ,  $t(78)=2.196$ ,  $p<0.05$ ) significantly predicted work engagement.

3.4 Mediation effect of POS on relationships between leadership styles, TOS, and work engagement

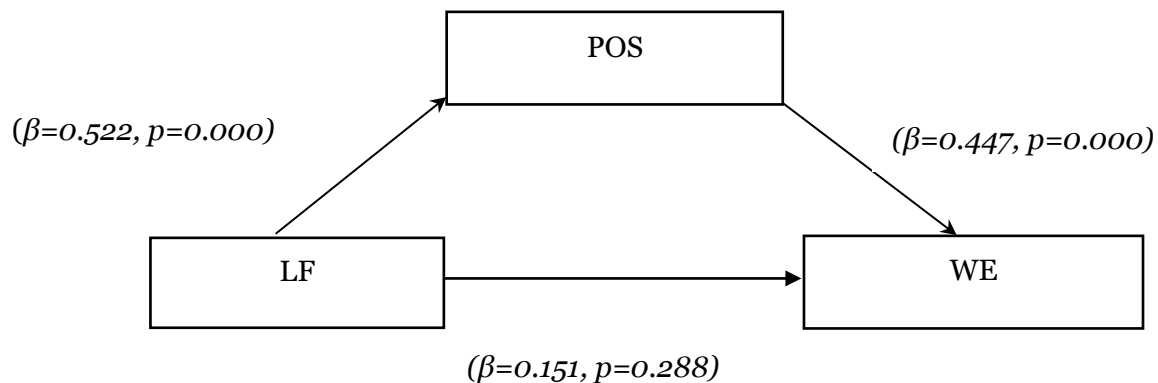
This research performed a series of regression analyses to examine POS’s mediating effect on the relationships between leadership styles, TOS, and work engagement. Before the examination, the assumptions of mediation have been analysed. Table 4 shows all mediating tests by leadership styles and TOS on work engagement through POS.

**Table 4.** Mediating test of leadership styles and TOS on work engagement through POS

IV	DV	B	SE	$\beta$	T	p
LF	POS	-3.249	0.586	0.522	-5.54	0.000**
POS	WE	0.319	0.071	0.447	4.525	0.000**
LF	WE	-0.671	0.628	-0.151	-1.070	0.288
TAL	POS	2.879	0.665	0.431	4.326	0.000**
POS	WE	0.319	0.071	0.447	4.525	0.000**
TAL	WE	-1.148	1.037	-0.241	-1.106	0.272
TFL	POS	1.293	0.228	0.530	5.663	0.000**
POS	WE	0.319	0.071	0.447	4.525	0.000**
TFL	WE	-0.372	0.480	-0.214	-0.776	0.440
TOS	POS	3.045	0.431	0.616	7.072	0.000**
POS	WE	0.319	0.071	0.447	4.525	0.000**
TOS	WE	2.051	0.934	-0.581	2.196	0.031*

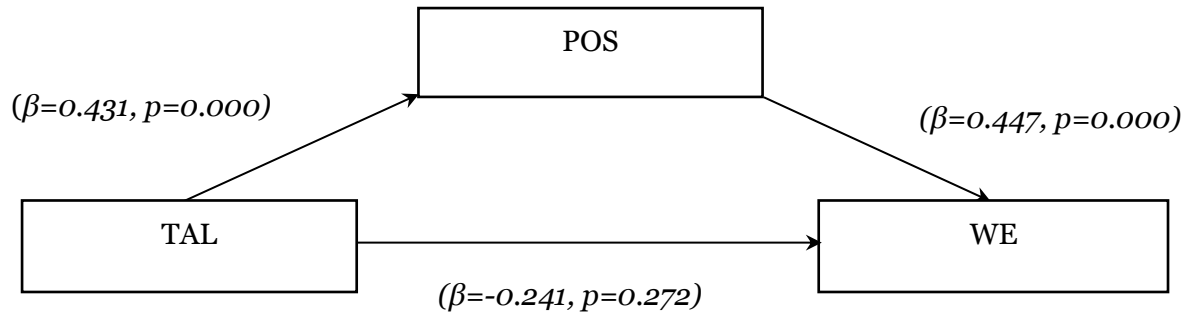
Notes. B = Unstandardized beta;  $\beta$  = Standardized beta; \*\*  $p<0.01$ , \*  $p<0.05$

Figure 1 illustrates the mediation of POS between laissez-faire and work engagement. According to the results POS fully mediates the relationship between laissez-faire and work engagement.



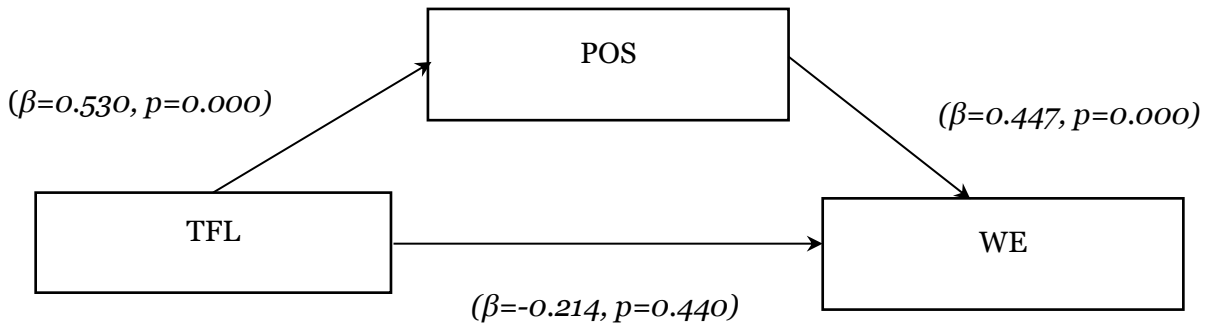
**Figure 1.** The mediating role of POS on the relationship between laissez-faire and work engagement

Figure 2 shows the mediation of POS between transactional leadership and work engagement. By the results POS fully mediates the relationship between transactional leadership and work engagement.



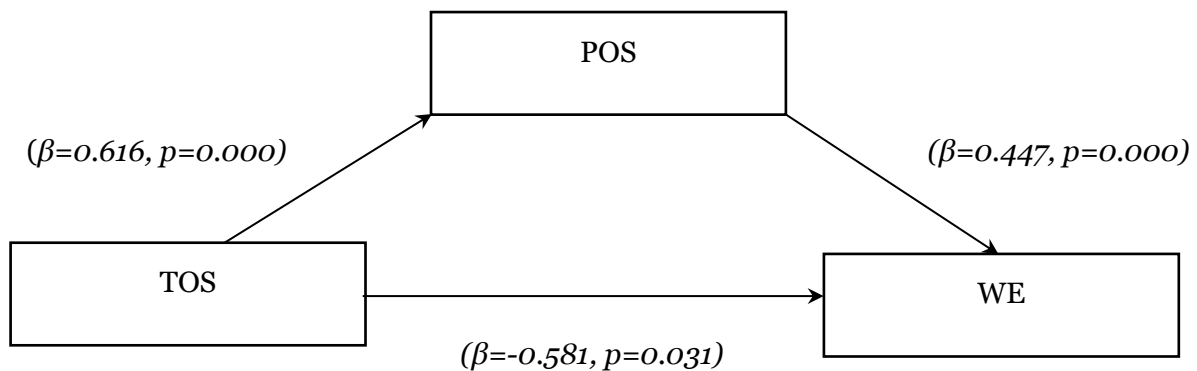
**Figure 2.** The mediating role of POS on the relationship between transactional leadership and work engagement

Figure 3 presents the mediation of POS between transformational leadership and work engagement. The results show POS fully mediates the relationship between transformational leadership and work engagement.



**Figure 3.** The mediating role of POS on the relationship between transformational leadership and work engagement

Figure 4 indicates the mediation of POS between TOS and work engagement. The results proof POS fully mediates the relationship between Three Outcome Scales and work engagement.



**Figure 4.** The mediating role of POS on the relationship between TOS and work engagement

Table 4 shows the direct effect of laissez-faire on work engagement ( $\hat{c}$  path) is not significant ( $b=-0.671, p=0.288$ ). Conversely, the direct effect of laissez-faire on POS (a path) is significant ( $b=-3.249, p<0.01$ ). In addition, the relationship between POS and work engagement (b path) is also significant ( $b=0.319, p<0.01$ ). Thus, POS fully mediates the relationship between laissez-faire and work engagement. The Sobel test calculation likewise displayed that the indirect effect of laissez-faire on work engagement is statistically significant ( $z=-3.490, p=0.000$ ).

In addition, Table 4 demonstrates the direct effect of transactional leadership on work engagement ( $\hat{c}$  path) is not significant ( $b=-1.148, p=0.272$ ). Conversely, the direct effect of



transactional leadership on POS (a path) is significant ( $b=2.879, p<0.01$ ). Also, the relationship between POS and work engagement (b path) is also significant ( $b=0.319, p<0.01$ ). Thus, POS fully mediates the relationship between transactional leadership and work engagement. The Sobel test calculation showed that transactional leadership on work engagement's indirect effect is statistically significant ( $z=3.117, p=0.008$ ).

By the results in Table 4, the direct effect of transformational leadership on work engagement ( $\hat{c}$  path) is not significant ( $b=-0.372, p=0.440$ ). Conversely, the direct effect of transformational leadership on POS (a path) is significant ( $b=1.293, p<0.01$ ). In addition, the relationship between POS and work engagement (b path) is also significant ( $b=0.319, p<0.01$ ). Thus, POS fully mediates the relationship between transformational leadership and work engagement. The Sobel test calculation similarly showed that the indirect effect of transformational leadership on work engagement is statistically significant ( $z=3.521, p=0.000$ ).

Moreover, the results of Table 4 show that the direct effect of the TOS on work engagement ( $\hat{c}$  path) is significant ( $b=2.051, p<0.05$ ). Additionally, the direct effect of TOS on POS (a path) is significant ( $b=3.045, p<0.01$ ). The relationship between POS and work engagement (b path) is also significant ( $b=0.319, p<0.01$ ). Therefore, POS partially mediates the relationship between the three outcome scales and work engagement. The Sobel test calculation similarly showed that the direct effect of TOS on work engagement is statistically significant ( $z=3.791, p=0.000$ ).

#### 4. Discussion

By considering the aim of this study that explores the mediation role of POS between leadership styles and work engagement, the study's findings showed that age, gender, marital status, work experience, and residence were not significant differences in work engagement. On the contrary, the findings revealed a significant difference between work position groups and work engagement. The work positions showed meaningful differences in work engagement, and nurses with different roles at healthcare organizations illustrated an extra level of work engagement. Between socio-healthcare and hospital care positions found significant differences, while the rest of the positions (teaching & research - primary & community care) did not show significant differences. Additionally, those nurses who worked in the socio-healthcare position showed a high level of work engagement than in other positions. In comparing the findings with earlier studies, Tshilongamulenzhe and Takawira (2015) explained no significant differences between gender and work engagement. Additionally, Ntsoane (2017) reported that gender and age do not have any significant relation or difference with work engagement. In addition, Sharma et al. (2017) stated no difference in work engagement regarding gender and marital status, while they explained a significant difference between work engagement and age. Jaworek (2018) found a significant difference between work position groups and work engagement; those employees who worked as sales representatives, welfare services/rehabilitation, and teachers were more engaged in their work with telesales operators and blue-collar workers. Similarly, Hakanen et al. (2019) explained that a work position has a meaningful relationship with work engagement. Employees in human service occupations reported higher work engagement levels than those in other industries in 30 European countries. Considering the study results and previous findings, the work position among nurses assumed importance and effect on their engagement in this study.

Research results illustrated that transformational leadership, transactional leadership, and TOS were positively related to work engagement. On the contrary, laissez-faire was negatively associated with nurses' work engagement. Also, POS was positive with work engagement. Besides, transformational leadership, transactional leadership, and the TOS showed positive relations with POS. On the other hand, laissez-faire showed a negative association with POS. By considering the study results and comparing them with previous studies, Muthia Roza and Yuki (2016) reported that transformational leadership and POS have a significant and positive association. Similarly, Kim (2017) explained that transformational leadership style and POS are two critical factors impacting differential attitudes toward diversity. Gaudet and Tremblay (2017) likewise determined that leadership style is one of the main factors influencing POS. Moreover, Yildirim and Naktiyok (2017) also reported that transformational leadership and POS positively impact the employee. In their study, Qi et al. (2019) evaluated POS as a mediator between inclusive leadership and innovative employee behaviour in their research. Based on Imran and Aldaas (2020), POS and leadership substantially impact the organization's

outcomes; these are assumed as two primary organizational motivators for employees at the workplace. Also, the researcher's findings support previous investigations by Corin and Bjork (2016) that explained that organizational support is generally assumed as the managerial assignment that needs to be analysed to improve administrative work and sustainability.

The study results likewise showed that leadership styles, TOS, and POS enhanced work engagement prediction; TOS was a significant predictor of nurses' work engagement. Additionally, this study demonstrated the mediation model of the relationship between leadership styles, TOS, and work engagement; POS significantly mediated the associations between leadership styles, TOS, with nurses' work engagement at healthcare organizations. Moreover, among them, the only variable that directly affected work engagement was leadership behaviour outcomes. The earlier studies showed that Wang et al. (2016) described the POS influence on hospitals' work engagement levels. Similarly, Yongxing et al. (2017) evaluated POS's role in the association between job performance and work engagement as a moderator and reported POS and work engagement to have a positive association. Similarly, there is a positive relationship between POS and work engagement. Gillet et al. (2017) clarified that POS and work engagement positively contribute to employees' motivation. Additionally, Yasin Ghadi et al. (2013) reported that transformational leadership contributes to employees' attitudes and encouragement and increases employee engagement. In parallel, Hayati et al. (2014) clarified this result and emphasized the critical role of transformational leadership on employees' behaviours. Correspondingly, Dimitrov (2015) stressed that leadership influences employees' work engagement in the workplace. Gözükarar and Simsek (2015) also described that transformational leadership considerably improves work engagement. Schmitt et al. (2016) reported that transformational leadership positively impacts work engagement; in reality, this factor increases employee performance and positive attitudes. Manning (2016) examined the relationship between leadership styles and engagement amongst nurses and reported transactional and transformational leadership styles positively impacting nurses' engagement. According to these findings and the importance of situations for applying leadership styles, the Situational Leadership Theory proposed by Hersey and Blanchard during the mid-1970s referred to organizational behaviour management. It explained that there is no single "best" style of leadership. The investigators believed that effective leadership is task-relevant. Most successful leaders adapt their leadership style to the individual or group's performance or group they are endeavouring to lead or impact (Hersey & Blanchard, 1977). Additionally, by considering the results, TOS predicted nurses' work engagement at healthcare organizations in Catalonia, Spain. The study by Fant (2019) evaluated the role of transactional leadership and transformational leadership on work engagement and determined the role of these two styles as the best predictors. Furthermore, Dabke and Patole (2014); and Peng (2018) focused on the role of POS as a predictor of work engagement. Furthermore, Giray and Şahin (2014), almost similarly, reported that POS mediated the association between leadership styles (paternalistic, participative, and authoritarian leadership) and organizational variables.

## **5. Implications and limitations**

Studying work engagement by linking it to leadership styles, TOS, and POS is relevant to the context of healthcare organizations across the globe. The results indicate that acting on organizational variables such as the supervisors' guidelines, organization strategies, and policies is necessary to improve nurses' performance. Additionally, some specific implications include: (1) Realizing and attention to nurses' needs for satisfying them in the health system by managers to improve work engagement; (2) Obtaining initial and necessary training about leadership styles and organizational behaviour; (3) Encouraging managers to support the nurses and consider their requirements by the health system; (4) It is essential to prepare updates and practical seminars and workshops for managers, supervisors, leaders, and nurses to become more familiar with organizational behaviour, and conflict management

There are some limitations to the present research. First, this study used a cross-sectional design and one time data collection. We recommend a longitude study for future researchers. Second, this study only focused on healthcare organizations in Catalonia, while it is necessary to cover bigger location such as whole Spain. Third, the Research evaluated private and public healthcare organizations together simultaneously, so it is suggested that future studies compare nurses in two different groups of public and private sectors. Fourth, this research is focused on

nurses and their perception of their supervisors (leaders); it would be convenient to do the same research with the supervisors' participation. The last, in this study, only 85 nurses participated, which assumed small compared to the total number of nurses in Catalunya; it would be convenient for future studies to have more participants.

## 6. Conclusion

According to the relationship between POS, leadership styles and work engagement among nurses, we can express that nurses have a higher demand and temporary pressure, which health systems should support and consider. Likewise, based on the critical role of nurses in health systems development, success, and the accomplishment of good population health outcomes, working of nurses in primary health care positions is valuable and internationally needs aid from leaders or managers. The results of the research demonstrate that those nurses who worked in socio-healthcare positions are more engaged compared to teaching and research, primary and community care, and hospital care positions. In the case of relationships between leadership styles, TOS, POS, and work engagement, transformational and transactional leadership styles have a considerable role in the high levels of work engagement. At the same time, laissez-faire cannot be assumed as a convenient style for nurses to increase their engagement in work. TOS, i.e., follower satisfaction, extra effort, and effectiveness, play a positive and influential role in nurses' work engagement. Additionally, based on the results, transformational and transactional leadership styles increase POS's effectiveness at work; and laissez-faire is conducted to a low level of POS. Based on positive relationship results of POS and work engagement, it can conclude that POS as one of the main organizational factors needs to be considered by managers or any persons in charge and the health organizations to provide a dynamic and productive environment for nurses according to their requirements, position level, and characteristics. These attentions can lead to a high level of satisfaction and well-being among nurses; also motivate them to be more engaged in their job and work environment. Finally, by considering the aim of this study POS plays essential role on nurses' engagement, also applying accurate styles of leadership increase the level of nurses' engagement.

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## Author contribution

AM, JFC, and MPGGO: performed all the research by developing the research theory and had completed the research methodology and data analyzing. They were involved in drafting the article. RGS: supervised the research data collection and had conducted the sampling of the study. JFC: supervised the whole of the research and had approved the final version of the manuscript. AM: completed all the manuscript and was correspondence with the article.

## Conflict of interest

The authors have reported no conflicts of interest.

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