INVESTIGATING THE ASSOCIATION BETWEEN EMOTIONAL INTELLIGENCE, PHYSICAL ACTIVITY AND WORK ENGAGEMENT AMONG FEMALE WORKERS

BY

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Abstract

Introduction: Workplace mental health initiatives have a positive impact on productivity. Vigor, dedication, and absorption are the three sub-dimensions of work engagement, which is a positive motivating, and emotional state during work. By creating a postive work environment, emotional intelligence and physical activity are essential for raising employee motivation and engagement. **Aim of Work:** To evaluate the relation between female employees' work engagement, physical exercise, and emotional intelligence. **Materials and Methods:** An online questionnaire comprising the General Practice Physical Activity Questionnaire, the Utrecht Work Engagement Scale, and an Emotional Intelligence self-assessment was used in a cross-sectional study involving 200 female employees. **Results:** The age of 60% of the studied females were ≤ 35 years old, 30% were physicians. The median (Interquartile Range (IR)) total work engagement score of the participants was 64 (59-77), 25.5 % had good Emotional Self-awareness, 10.5 % had good Self-management, 30.5 % had good Motivation, 29% had good Empathy, 4% had good Relationship Management. According to Physical Activity Index (PAI), 55.5% of the studied participants were physically inactive. Higher Self-management score, higher Empathy score and higher PAI score were significant independent single predictors for greater total work engagement score. Meanwhile age , number of children, working days/ week, working years, emotional self-awareness score, self-management score, motivation score and empathy score were significant independent multiple predictors for work engagement score. **Conclusion:** Emotional Intelligence and Physical Activity have a vital effect on work engagement

Key-words: Emotional Intelligence, Work Engagement, Physical Activity Index (PAI) and Emotional Self-awareness.

Introduction

In occupational health psychology, work engagement (WE) is one of the most accepted outcomes (Lesener et al., 2020). The idea of WE is gaining popularity as it offers numerous positive outcomes for both the employees and their organizations. WE is a productive, satisfying, and work-related mental state that is marked by vigor, dedication, and absorption. WE can result in improved worker health and well-being, organizational commitment and productivity (Kiema-Junes et al., 2022).The organizational, social, psychological, and physical components of the workplace provide resources for WE. Prior research indicated that WE is related to employee mental and physical health (Boelhouwer et al., 2020) and (Lupsa et al., 2020). Sedentary behavior has been shown to be associated with lower work engagement. It has been demonstrated that physical activity (PA) and mental health are related through a variety of concurrently operating pathways, including behavioral, psychological, and neurobiological ones (Martín-Rodríguez et al., 2024) that might potentially support the link between PA and WE. Stress in general and work-related stress in particular have become commonplace in modern life that threatens employee mental health. Women in modern world -with increasing complexity- have to juggle the roles between being a career builder and a housewife role (Oraon, 2019). Being emotionally intelligent is a key to how you respond to what you face and helps managing the emotions and stress when facing tough times (Jagannarayan and Jayachitra, 2021). Emotional intelligence (EI) is the capacity for good emotional understanding, usage, and management in order to overcome challenges, communicate effectively, empathize with people, lessen stress, and defuse tension and Emotional Intelligence helps workers to become more creative, and make plans to achieve their goals. Also it enhances relationships within and across the organization and helps employees to cooperate with others .Therefore, EI has emerged as a crucial evaluation factor for determining if a worker is productive and trustworthy both inside and across the organization (Acheampong , 2023).

Aim of Work

To evaluate the relationship between female employees' work engagement, physical exercise, and emotional intelligence.

Materials and Methods

Study design: It was a cross sectional study.

Place and duration of the study: The study included female Egyptian workers. Collection of data was conducted from 15th of September to the end of December 2023**.**

Study population: Egyptian female workers at least eighteen years old and accept to participate were included. Exclusion criteria: female workers working for less than one year.

Sample size: The sample size was calculated using G* power software version 3.1.9.2 and based on previous study done by Molero Jurado et al.(2020) which studied the correlation between emotional intelligence components and work engagement. So, with test family (Pearson correlation), expected correlation coefficient= 0.23, error= 0.05, power (1-)= 0.95, resulting output parameter was total sample size of 200 subjects .**Pilot study:** To evaluate the tool's applicability and clarity, a pilot research was conducted prior to the main study. Pilot testing was carried out on 15 participants who were not included in the study.

Study methods :

Data were collected by the researchers using an Arabic online questionnaire adopted by Schaufeli et al, (2006), NHS (2013), Mambra and Jaleel, (2021) .

A. Sociodemographic data and work related data of the participants were determined including; age, residence, economic status, marital status, number of children, occupation, number of working hours, working days/week and working duration.

B. Work engagement was evaluated with the Utrecht Work Engagement Scale (UWES-9) (Schaufeli et al., 2006). Vigor (VI, for example, "I feel like I am bursting with energy at work."), Dedication (DE, for example, "I am proud of the work that I do."), and absorption (AB, for example, "I get carried away when I am working.") are the three dimensions covered by the UWES-9. A seven-point scale, ranging from 1 (never) to 7 (always every day).

C. Emotional intelligence was assessed using a self-assessment questionnaire which was adopted by Mambra and Jaleel, 2021 encompassing the five emotional intelligence competencies; i. Emotional self-awareness: being aware of one's own

feelings. ii. Self-regulation: managing emotions iii. Motivation: using emotional components to accomplish objectives iv. Empathy: seeing other people's feelings versus social skills.

The General Practice Physical Activity Questionnaire (GPPAQ) was used, which included questions about: a. The kind and quantity of physical activity that was done at work b. The physical activities that were done during the last week and how long they lasted (NHS, 2013).

Participants can be divided into four groups. **Inactive:** sedentary work without any physical activity**, Moderately inactive**: either a standing employment with no physical activity, or a sedentary job with some but less than an hour of exercise per week or standing job and no physical exercise or cycling. **Moderately active**: sedentary employment with 1-2 hours of weekly physical activity or standing job with a little less than 1 hour of weekly physical activity or a physically demanding work without any exercise. **Active:** sedentary work with at least three hours of physical activity and/or cycling per week or standing work with one to two and a half hours of physical activity per week or standing work with one to two and a half hours of physical activity per week or hard manual labor (NHS,2013).

Consent

Prior to participation, the participants gave their informed oral agreement, which contained information regarding the study's purpose, design, location, time, subject, instrument, and confidentiality as well as the patient's access to medical counsel even if they chose not to participate.

Ethical Approval

Benha Faculty of Medicine's Research Ethics Committee (REC) gave its clearance (Study code: MS:38-9-2023).

Data Management

The Statistical Package for the Social Sciences (SPSS) 25.0 for Windows was used to code, enter, analyze, and display the gathered data in appropriate tables and graphs (SPSS Inc., Chicago, IL, USA). The Kolmogorov-Smirnov test was used to determine whether the quantitative data's distribution was normal. The gathered information was presented using the median Interquartile Range (IQR)) for quantitative data and numbers and percentages for qualitative data. A significance criterion of $p<0.05$ was accepted for all two-sided tests; $p<0.01$ was deemed statistically significant.

Result

Table 1: Socio- demographic characteristics of the participants:

Socio- demographic characteristics (No=200)		No	%
Age/years	≤35	120	60
	>35	80	40
Employment	Physician	60	30
	Pharmacist	50	25
	Engineer	27	13.5
	Teacher	27	13.5
	Accountant	18	9
	Employee	18	9
Marital status	Single	34	17
	Married	143	71.5
	Divorced	23	11.5
Number of children	0	34	17
	≤2	89	44.5
	≥ 3	77	38.8
Education	Bachelor›s	119	59.5
	MD/PhD	81	40.5
Income	In debt	16	8
	Just meet routine expenses	58	29
	Meet routine expenses and emergencies	75	37.5
	Able to save/invest money	51	25.5
Residence	Urban	182	91
	Rural	18	9
Working hours/ day	< 8	134	67
	≥ 8	66	33
Working days/ week	<4	34	17
	≥ 4	166	83
Working years	<10	53	26.5
	10 – 29	143	71.5
	≥ 30	4	2

Table 1 showed that 60% of the studied females were ≤ 35 years old, 30% were physicians, 71.5 % were married, 44.5% have ≤ 2 children. About half of studied females (59.5%) have bachelor's degree. The majority (91%) of studied females were form urban area, 67% worked less than 8 hours per day, 83% worked for 4 days or more per week and 71.5% worked for 10 -29 years.

Table 2: Relationship between socio-demographic characteristics and work engagement domain score.

	Age/ years	Median (IQR)	P value	Marital status	Median (IQR)	P value	Number of children	Median (IQR)	P value	Education	Median (IQR)	P value	Residence	Median (IQR)	P value
Vigor score	**≤35**	25 (8)	.41	**Single**	25 (13)	.06	**0**	25 (13)	.05	**Bachelor›s**	23 (9)	**.000***	**Urban**	25 (10)	.07
	>35	23 (12)		**Married**	25 (7)		**≤2**	27 (8)		**M/PhD**	**27 (10)**		**Rural**	26 (12)	
				Divorced	20 (2)		**≥ 3**	23 (6)							
Dedication score	**≤35 years**	20 (9.25)	**.02***	**Single**	**22.5 (17)**	**.005***	**0**	22.5 (17)	.21	**Bachelor›s**	19 (9)	**.02***	**Urban**	19.5 (12)	**.003***
	>35	**25 (17)**		**Married**	20(9)		**≤2**	20 (12)		**M/PhD**	**20 (11)**		**Rural**	**22 (19)**	
				Divorced	15 (2)		**≥ 3**	20 (6)							
Absorption score	**≤35**	24 (9)	.53	**Single**	**29.5 (9)**	**.003***	**0**	**29.5 (9)**	**.003***	**Bachelor›s**	24 (7)	**.02***	**Urban**	24 (10)	.93
	>35	24 (12.25)		**Married**	23 (9)		**≤2**	23 (9.5)		**Ms/PhD**	**25 (12)**		**Rural**	23 (13)	
				Divorced	19 (11)		**≥ 3**	23 (10)							

IQR: Inter Quartile Range Ms/PhD: Master of science/ Doctor of Philosophy

*: Significant difference (P<..05)

There was statistically significant difference between the studied females' dedication score according to their age where dedication score was significantly higher among those <35 years old (P<.05). Work dedication and absorption scores were significantly higher among single females than married and divorced females (p<.01). There was a high statistically significant difference between the studied females absorption score according to their number of children (p<.01). Absorption score was significantly higher among those who did not have children. There were statistically significant differences between the studied females' vigor, dedication and absorption scores according to their educational level as they were significantly higher among those with M/PhD degree (P<.01).Dedication score was significantly higher among those from rural areas (p<.01) (Table 2).

On investigating the scores of each EI domain among the studied participants, 71.5% of them had moderate emotional and self- management scores, 53% had moderate motivation score, 63.5% had moderate empathy score and 91% had moderate relationship management score. According to PAI, 55.5% of the studied participants were inactive, 28% were moderately inactive, 5.5% were moderately active and 11% were active. The median (IQR) of total WE score of the participants was 64 (59-77) (Non tabulated results).

Table 3: Relationship between work related characteristics and work engagement domain score:

	Employment	Median (IQR)	P value	Income	Median (IQR)	P value	Working hours/ day	Median (IQR)	P value	Working days/ week	Median (IQR)	P value
Vigor score	Physician	**28 (0)**	**.006***	In debt	**29 (6)**	**.000***	<8	23 (10)	**.008***	< 4	22 (8)	**.012***
	Pharmacist	25 (10)		meet routine expenses	20 (12)							
	Engineer	25 (13)		Meet routine expenses and emergencies	25 (5)							
	Teacher	19 (2)					≥ 8	**25 (8.5)**		≥ 4	**25 (10)**	
	Accountant	26 (7)		Money Able to save	25 (14)							
	Employee	27 (0)										
Dedication score	Physician	**21 (11.5)**	**.006***	In debt	**26 (5)**	**.000***	<8	20 (12)	.601	<4	17 (12)	.487
	Pharmacist	20 (14)		Meet routine expenses	15 (22)							
	Engineer	20 (10.5)		Meet routine expenses and emergencies	20 (3)							
	Teacher	15 (14)					≥ 8	20 (6)		≥ 4	20 (10)	
	Accountant	20 (0)		Money Able to save	15(10)							
	Employee	15 (0)										
Absorption score	Physician	**26 (12)**	**.005***	In debt	**33 (9)**	**.000***	<8	24 (12.2)	.415	<4	21 (16)	**.000***
	Pharmacist	24 (12)		meet routine expenses	19 (13)							
	Engineer	23 (10.5)		Meet routine expenses and emergencies	24 (7)							
	Teacher	24 (14)					≥ 8	23 (9)		≥ 4	**24 (12)**	
	Accountant	25 (0)		Money Able to save	22 (7)							
	Employee	19 (0)										

IQR: Inter Quartile Range *: Significant difference (P<.05)

Vigor, dedication, and absorption scores were significantly higher among physicians and among those have debts. Vigor score was significantly higher among those working more than 8 hours/day. Vigor and absorption scores were significantly higher among those working for more than 4 days/week (p<.01) (Table 3).

Table 4: Relationship between physical activity level and work engagement domain scores:

Work engagement domains	Physical activity level				Kruskal Wallis Test	P value
	Inactive Median (IQR)	Moderately inactive Median (IQR)	Moderately active Median (IQR)	Active Median (IQR)		
Vigor score	23 (8)	25 (6)	27 (2)	**32 (21)**	12.081	**.007***
Dedication score	15 (10)	18 (11)	22 (5)	**26 (4)**	52.014	**.000***
Absorption score	22 (8)	23 (18)	24 (9)	**25 (5)**	20.289	**.000***

IQR: Inter Quartile Range *: Significant difference (P<.05).

There were highly statistically significant relationship between physical activity level and work engagement domain scores where females with active PAI had the highest vigor score , dedication score, and absorption score (p<.01) (Table 4).

Table 5: Linear regression for the predictors of total work engagement score:

Total work engagement score Predictors (No=200)	Simple linear				Multivariate			
	B	95% CI		P value	B	95% CI		P value
		Lower bound	Upper bound			Lower bound	Upper bound	
Age	-.002	-.480	.469	.981	.486	.649	2.642	**.001***
Number of children	-.135	-4.549	.072	.057	-.315	-7.772	-2.693	**.000***
Income	-.050	-4.036	1.925	.486	-.127	-5.429	.020	.052
Working hours/day	.042	-1.358	2.509	.558	.108	-.355	3.341	.113
Working days/ week	.152	.233	4.938	**.031***	.176	828	5.137	**.007***
Working years	-.134	-.977	.019	.059	-.400	-2.434	-.432	**.005***
Emotional self awareness score	.071	-.497	1.510	.321	.277	.980	3.003	**.000***
Self management score	.155	.096	1.689	**.028***	.158	205	1.617	**.012***
Motivation score	.419	.000	1.406	2.633	.605	2.309	3.521	**.000***
Empathy score	.210	.472	2.237	**.003***	.414	1.828	3.507	**.000***
Relationship management score	.114	-.221	2.190	.109	-0.67	-1.609	.456	.272
PAI	.207	1.369	6.763	**.003***	-.010	-2.781	2.395	.883

C.I: Confidence interval *: Significant predictor (P<.05) PAI: Physical Activity Index

Regarding predictors of total work engagement score, higher working days/ week, higher self-management score, higher empathy score and higher PAI were significant independent single predictors for greater total work engagement score. Meanwhile higher age , lower number of children, greater working days/ week, lesser working years, higher emotional self-awareness score , higher self-management score, higher motivation score, and higher empathy score were significant independent multiple predictors for greater total work engagement score (Table 5).

Discussion

Work engagement has become of great interest in recent years. Due to the fact it has been shown

to predict favorable employee outcomes, organizational success, and financial performance**.**

The current study evaluated 200 females' professionals' work engagement and relevant factors. The median (Inter Quartile range) total work engagement score of the participants was 64 (59-77) (Non tabulated results). The majority of them had moderate emotional self-management scores, motivation score, moderate empathy score and moderate relationship management score. The work Dedication score was significantly higher among older females (Table 2). This was matched with Misoska and Muchi ,2022 study results which was done in Republic Of North Macedonia. The highest levels of work engagement were found among the oldest employees. The younger employees might be less concentrated in their work, and time passes slower for them. They might feel more detached from their work than older employees. As well as among older employees who become more mature and aware of their duties and responsibilities. Work dedication and absorption scores were significantly higher among single females than others (Table 2). Compared to their single colleagues, employees with spouses and/or children have more life responsibilities and taking on more than one role has never been easy (Cemberci et al., 2022). This was incompatible with Shahnavazi et al., 2021 study results from Iran ; who stated that married females have statistically significant better performance than others. Work absorption score was significantly higher among those who did not have children (Table 2). This is mismatched with the study done by Cemberci et al., 2022 on the relationship of work engagement with job experience, marital status and having children among flexible workers after the Covid-19 pandemic in Turkey. Work engagement did not differ based on the number of the participant's children. In the present study, Vigor, Dedication and Absorption scores were significantly higher among those with master or PhD's degree (Table 2). As experienced employees with doctorates are more engaged, compassionate, and satisfied; they also endure less burnout and secondary traumatic stress (Remegio et al., 2021)and (Kjellaas et al.,2020). Regarding residence,

Dedication score was significantly higher among those from rural areas and those have debts than other groups (Tables 2&3). This can be explained by rural poverty rates around the world (ILO, 2024). Regarding employment, Work Engagement score was significantly higher among physicians than other groups (Table 3). This was matched with Bakertzis and Myloni, 2021 study results who found that physicians had higher work engagement score than other professionals. Also, Vigor score was significantly higher among those working more than 8 hours/day. Vigor and Absorption scores were significantly higher among those working for more than 4 days/week (Table 3). This aligned with the results of Wang et al., 2023 from China. The observed higher levels of Absorption and Dedication among older workers may be explained by a number of factors relating to life stage, work experience, and psychological characteristics. On the one hand, a wealth of work experience gained over the years helps people become proficient and master their roles (Douglas and Roberts, 2020). Older workers, compared to their younger counterparts, usually demonstrate superior emotional management abilities (Do and Pham , 2024).

Studied females with active PAI had the highest Vigor, Dedication, and Absorption scores (Table 4). This was in agreement with Kiema-Junes et al., 2022 study results which was conducted in Northern Finland. In comparison with the findings of the current study regarding predictors of total Work Engagement score, Poulsen et al., 2016 found that long work duration and workers with children were significantly associated with work engagement in multiple regression analysis, Chan et al., 2020 agreed that older age, was significant predictor for participants' work engagement. The results of linear regression by Lang and Saurage-Altenloh, 2023 agreed that emotional intelligence is a statistically significant predictor of employee engagement and its Vigor, Dedication, and Absorption dimensions and emotional intelligence explains 41.9% of the variability of employee engagement. On exploring PA as a predictor for WE, the results of the bivariate and multivariate regression analyses by Nishi et al., 2017 agreed that regular exercise, was significantly positively associated with total WE.

Limitations of the study: The present work was unable to investigate the causal association due to the cross-

sectional study.

Conclusion: Egyptian women employees had a positive association between Work Engagement and Emotional Intelligence as well as between physical activity.

Conflict of Interests

The authors have no relevant financial or non-financial interests to disclose.

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References

1. 1-Acheampong A, Owusu-Manu DG, Kissi E and Tetteh PA (2023): Assessing the influence of emotional intelligence on project performance in developing countries: The case of Ghana. Int J Constr Manag; 23(7): 1163-73.
2. 2-Alshammari F, Pasay-An E, Gonzales F and Torres S (2020):Emotional intelligence and authentic leadership among Saudi nursing leaders in the Kingdom of Saudi Arabia. J Prof Nurs; 36(6): 503-9.
3. 3-Awad NH and Ashour HM (2020): The relationship between emotional intelligence, moral distress and work engagement as perceived by critical care nurses. IJANM; 8(3): 237-48.
4. 4-Bakertzis E and Myloni B (2021): Profession as a major drive of work engagement and its effects on job performance among healthcare employees in Greece: A comparative analysis among doctors, nurses and administrative staff. HSMR; 34(2): 80-91.
5. 5-Boelhouwer I G, Vermeer W and Van Vuuren T (2020): Work ability, burnout complaints, and work engagement among employees with chronic diseases: job resources as targets for intervention? Front Psycho;11: 1805.
6. 6-Çemberci M, Civelek ME, Ertemel AV and Cömert P N (2022): The relationship of work engagement with job experience, marital status and having children among flexible workers after the Covid-19 pandemic. PloS one; 17(11):e 0276784.
7. 7-Chan CM, Wong JE, Wee LH, Jamil NA, YeapLL et al, (2020): Psychological and work-related factors predicting work engagement in Malaysian employees. J Occup Med; 70(6): 400-6.
8. 8-D'Amico A, Geraci A and Tarantino C (2020): The relationship between perceived emotional intelligence, work engagement, job satisfaction, and burnout in Italian school teachers: an exploratory study. Psihol Teme; 29(1):63-84.
9. 9-Do TT and Pham MT (2024): Exploring work engagement among young workers: The impact of gender, age, and experience. J Multidiscip Res ;7(9):2024194.
10. 10-ILO (International Labour Office) (2024). Employment and wage disparities between rural and urban areas : Retrieved from:https://webapps.ilo.org/static/english/intserv/working-papers/wp107/index.html#ID0EJ3AI. Accessed on: 2-9-2024
11. 11-Jagannarayan N, and Jayachitra TA (2021): Emotional Intelligence Among Women Employees of Private Sector Banks, While Working From Home in Coimbatore City. NIU

Intl J Hum Rts : 2394-8.

12. 12-Kiema-Junes H, Saarinen A, Korpelainen R, Kangas M, Ala-Mursula L, et al. (2022): More Physical Activity, More Work Engagement? A Northern Finland Birth Cohort 1966 Study. Occup Environ Med; 64(7):541.
13. 13-Kjellaas S, Fredheim G and Moen L (2020) :Registered nurses' experiences with master's degree competence in the specialist health service: A qualitative descriptive study. Nord J Nurs.;40: 221–8.
14. 14-Lang T, and Saurage-Altenloh S (2023): Emotional Intelligence as a Predictor of Employee Engagement: A Study of US Manufacturing Workers. Business Management Research and Applications: Cross-Discip J; 2(1):77-96.
15. 15-Lesener T, Gusy B, Jochmann, A and Wolter C (2020): The drivers of work engagement: A meta-analytic review of longitudinal evidence. Work Stress; 34(3): 259-78.
16. 16-Lupsa D, Baciu L and Virga D (2020): Psychological capital, organizational justice and health: The mediating role of work engagement. Pers Rev; 49(1): 87-103.
17. 17-Mäkikangas A, Juutinen S, Mäkiniemi J P, Sjöblom K and Oksanen A (2022): Work engagement and its antecedents in remote work: A person-centered view. Work Stress; 36(4): 392–416.
18. 18-Mambra K and Jaleel A (2021): Role of Social-Emotional Learning on Emotional Intelligence Among Adolescents. Accessed on 1-7-2023. Available at SSRN: https://ssrn.com/abstract=4118840.
19. 19-Martín-Rodríguez A, Gostian-Ropotin LA, Beltrán-Velasco AI, Belando-Pedreño N, Simón J A et al. (2024): Sporting Mind. Interplay Phys. Act Psychol Health Sports; 12(1):37.
20. 20-Misoska AT and Muchi H (2022): Demographic Differences In Work Engagement In The Private Educational Institutions In Republic Of North Macedonia. Psychol Sci Pract ;VI: 11-12.
21. 21-Molero Jurado MD, Pérez-Fuentes MD, Barragán Martín B, Gázquez Linares JJ, Oropesa Ruiz NF et al. (2020): Emotional intelligence components as predictors of engagement in nursing professionals by sex. In Health; 8(1): 42.
22. 22-Mukaihata T, Fujimoto H and Greiner C (2020): Factors influencing work engagement among psychiatric nurses in Japan. J Nurs Manag; 28(2): 306-16.
23. 23-NHS(National Health Services) (2013): General practice physical activity questionnaire (GPPAQ). Retrieved from https://www.gov.uk/government/publications/general-practice-physical-activity-questionnaire-gppaq. Accessed on 15/8/2023.
24. 24-Nishi D, Suzuki Y, Nishida J, Mishima K and Yamanouchi Y (2017): Personal lifestyle as a resource for work engagement. JOH; 59(1):17-23.
25. 25-Obuobisa-Darko T, Dogbe-Zungbey O D, Frimpong F and Sokro E (2023): Emotional intelligence and work engagement: The Moderating effect of work-related psychological impact due to the COVID-19 pandemic. Environ Soc Psychol; 9(1).
26. 26-Oraon KC and Kumari R (2019): A Psychological Study on Stress among Working and Non-Working Married Women. Int J Indian Psychol; 7(2).
27. 27-Poulsen MG, Khan A, Poulsen EE, Khan SR and Poulsen AA (2016): Work engagement in cancer care: The power of co-worker and supervisor support. EJON; 21:134-8.
28. 28-Remegio W, Rivera RR, Griffin MQ and Fitzpatrick JJ (2021): The professional quality of life and work engagement of nurse leaders. Nurse Lead J; 19(1): 95-100.
29. 29-Sanchez-Gomez M, Sadovyy M and Breso E (2021): Health-care professionals amid the COVID-19 pandemic: how emotional intelligence may enhance work performance traversing the mediating role of work engagement. J Clin Med; 10(18): 4077.

30. 30-Schaufeli WB, Bakker AB and Salanova M (2006): The measurement of work engagement with a short questionnaire: A cross-national study. EPMEAJ; 66(4): 701-16.
31. 31-Sebastian K and Hess J (2019): Leader emotional intelligence and work engagement in virtual teams within a healthcare service setting: A quantitative study. J Okla State Med Assoc; 3(1).
32. 32-Shahnavazi A, Eshkiki M F, Shahnavazi H and Bouraghi H (2021): The effect of perceived organizational climate on the performance of nurses in private hospitals. J Clin Res Paramed Sci; 10(2).
33. 33-Turjuman F and Alilyyani B (2023): Emotional Intelligence among Nurses and Its Relationship with Their Performance and Work Engagement: A Cross-Sectional Study. J Nurs Manag ;(1): 5543299.
34. 34-Wang Y, Tang L and Li L (2023): Work engagement and associated factors among healthcare professionals in the post-pandemic era: a cross-sectional study. Public Health Front; 11: 1173117.