

# Psychological Well-Being as the Predictor of Work Engagement in College Teachers

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**Abstract:** *The purpose of the study is to analysis the relationship of overall psychological well-being and work engagement of college teachers. In addition to this, relation between psychological well-being facets like autonomy, personal growth, positive relations, and environmental mastery, purpose in life and self-acceptance and work engagement is found. The moderating effect of demographic factors like gender, age, educational qualification and years of experience on the relationship between psychological well-being and work engagement is presented. A cross-sectional survey was conducted including 388 college level teachers of North Karnataka, India; applying snow ball sampling technique. The results of the study were in line with the pervious similar studies, showing a statistically significant relationship between psychological well-being and work engagement. The study contributes to the field of educational management literature by providing insights into the teachers' intrinsic resources like psychological well-being aspects and work engagement. The study draws attention of administrators and policy makers towards the psychological well-being for the enhancement of college teachers' work engagement.*

**Keywords:** psychological well-being, work engagement, teachers, autonomy, personal growth

## 1. Introduction

Scholars have seen a surge in the research in positive psychology areas of well-being and engagement in the past few decades (Joy & K, 2016) (Shuck & Reio, 2014). Psychological well-being and employee engagement have shown their impact on job performance, retention, burnout and positive organisational outcomes (Harter et al., 2002) (Saks, 2006) (Rich et al., 2010) (Harter et al., 2004) (Oktavia et al., 2021) (Harter et al., 2010) (Xanthopoulou et al., 2009) (Tanwar, 2017) (Truss et al., 2013). Studies considering teachers have shown that psychological well-being is positively related to quality of work life (Ilgan et al., 2015), psychological well-being is positively related to teachers effectiveness, poor well-being is positively related to stress at work, dissatisfaction (Kidger et al., 2016). Teachers work engagement is found to be positively related to performance (Bakker & Bal, 2010), work engagement is found to bring positive outcomes for both teachers and students (Klassen et al., 2012), inversely related to burnout, attrition (Hakanen et al., 2006). The extensive literature review pertaining to psychological well-being and work engagement shows hardly any studies undertaken to know the relationship between these constructs with respect to postsecondary teachers (college teachers).

## 2. Literature Review

### 2.1. Psychological well-being

Well-being for long has been viewed as the absence of anxiety, distress, depression, etc., but in 1990s, positive psychology emerged giving well-being a proactive and positive approach focusing on fulfilment, flourishing, happiness, etc. (Pečjak et al., 2021). Well-being is a complex and multifaceted concept and CDC defined it as "wellbeing as the presence of positive emotions and moods

(contentment or happiness), the absence of negative emotions (depression or anxiety), satisfaction with life, fulfilment, and positive functioning". There are two approaches to well-being; the hedonic and the eudaimonic well-being. The hedonic approach views it as pleasure or affective experience, often operationalized as the presence of positive emotions and life satisfaction and avoidance of pain. The eudaimonic well-being focuses on self-realization, meaningful life, purposeful life, self-actualization and realizing potential

The works of Erik Erikson, Abraham Maslow and Gordon Allport in connection to self-actualisation were followed by, Mihály Csikszentmihályi's concept of flow, Ryff's model of psychological well-being, Keyes concept of flourishing and Martin Elias Peter Seligman's PERMA model. Carol Ryff's model of psychological well-being consists of six key dimensions: self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth (Ryff, 1996). Autonomy dimensions is characterised by independence, self-determination, ability to resist social pressure and regulation from within. Self-acceptance consists of maturity, self-actualisation, positive attitude towards self and optimal functioning. Having sense of direction, goals in life is purpose in life. Personal growth consists of developing one's capacity to grow and with a sense of self-improvement and flourishing. Environmental mastery means having control over the outside world and act in the environment. Positive relations dimension consists of having trusting and satisfying relationships with others (Ryff, 2013).

### 2.2. Work engagement

The initial researches regarding work were constituted of dissatisfaction, absenteeism, cynicism, exhaustion, attrition and burnout. Maslach and Leiter worked intensively on

burnout. By the advent of positive psychology work engagement emerged to be considered as opposite to burnout (Maslach & Leiter, 1997). Kahn conceptualized work engagement in 1990 as the “harnessing of organizational members’ selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances” (Kahn, 1990). Schaufeli et al. define it as “a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption” (Schaufeli et al., 2002) and developed the Utrecht Work Engagement Scale. Vigor is the positive emotional state full of energy, zest, motivation and enthusiasm regarding the work. Dedication involves feeling proud of the work, inspired and challenged by the work; being loyal and committed. Absorption is being immersed in work, results in a sense of flow in work which comes by deep focus in the work.

### 2.3. Psychological well-being and Work engagement

“Research evidence suggests that high levels of psychological well-being and employee engagement play a central role in delivering some of the important outcomes that are associated with successful, high performing organisations” (Robertson & Cooper, 2010) hence the two constructs have been of great interest to researchers. The research carried by Brad Shuck and Thomas G. Reio Jr. presented a positive correlation between psychological well-being and employee engagement. The researchers reported that the employees who reported higher levels of psychological well-being were the employees reported higher levels of employee engagement and positive levels of psychological climate (Shuck & Reio, 2014).

Abdurrahman Ilgan et al., conducted research on school teachers’ psychological well-being and quality of work life with dimensions like Human Relations Among Employees, Administrative support and human development, Fair Wages and Benefits, Safe and healthy work environment, Supportive Work Environment. The findings of the study revealed a significant relationship of quality of work life with teachers’ psychological well-being (Ilgan et al., 2015). Such dimensions of quality of work life lead to higher work engagements in teachers. The study with 500 employees working in 25 software firms, showed a positive association of pleasure and purpose aspects of well-being with employee engagement (Joy & K, 2016). Xiansui Kong through the co-relational and path analysis explained that self-efficacy and psychological well-being play a vital role in improving teachers’ work engagement (Kong, 2021).

Ivan T. Robertson and Cary L. Cooper in their research article introduce the concept of ‘full engagement,’ integrating employee engagement and psychological well-being into one construct. They propose that employee engagement is sustainable when employee well-being is high and this integrated approach would help to improve organisational effectiveness (Robertson & Cooper, 2010). The literature review paves way for the below research questions:

- Is there a significant association between college teachers’ psychological well-being, and work engagement?

- Does college teachers’ psychological well-being significantly predict their work engagement?
- Are autonomy, self-acceptance, personal relations, purpose in life, personal growth and environmental mastery predictors of work engagement?
- Do demographic variables like gender, age, education and number of years of work experience moderate the relationship between college teachers’ psychological well-being, and work engagement?

### 3. Objectives

- To find the relationship between the psychological well-being and work engagement of college teachers
- To analyse the influence of psychological well-being on work engagement
- To analyse the influence of autonomy, self-acceptance, personal relations, purpose in life, personal growth and environmental mastery on work engagement
- To analyse the moderation effect of gender, age, education and number of years of work experience on the relationship between college teachers’ psychological well-being, and work engagement

### 4. Methodology

A descriptive correlation survey design was applied to examine the relationship between the psychological well-being and work engagement of college teachers of Karnataka state, India. A sample size of 388 was considered for the present study based on the Morgan sample size table showing 384 as the sample size for infinite population (Krejcie & Morgan, 1970). An online based self-report survey was conducted using a structured questionnaire with 5 items relating to demographics, 42 items of Ryff’s psychological well-being instrument with a seven-point scale consisting of description scale as 1 for entirely disagree with the statement to 7 for entirely agree with the statement and 17 items of Utrecht Work Engagement instrument with a seven-point scale consisting of frequency scale as 0 as never feel to 6 as feels always, every day. Descriptive analysis was followed by preliminary correlational analysis and regression analysis, and moderation analysis in SPSS.

**Table 1:** Demographics variables of sample

Variable	Level	N	%
Gender	Male	215	55
	Female	173	45
		388	100
Age	26-35	57	15
	36-45	179	46
	46-55	124	32
	56 and above	28	7
		388	100
Educational qualification	PG	306	79
	PG with Ph.D./ MPhil	82	21
		388	100
Years of teaching experience	Less than 10 yrs	151	39
	10 to 19 yrs	167	43
	20 to 29 yrs	63	16
	30 yrs and above	7	2
		388	100

5. Results

5.1. Descriptive

Table 2: Descriptive statistics

Scale	Dimensions	Min	Max	Mean	S.D.
Psychological well-being	Autonomy	14.00	46.00	30.16	6.22
	Environmental mastery	15.00	46.00	28.90	6.45
	Personal growth	12.00	44.00	26.35	6.32
	Positive relations	14.00	44.00	29.50	5.64
	Purpose in life	16.00	45.00	27.57	6.48
	Self-acceptance	13.00	46.00	28.59	5.89
Overall Psychological well-being		100.00	249.00	171.07	34.78
Work engagement	Vigor	8.00	36.00	24.87	7.89
	Dedication	8.00	36.00	23.69	7.35
	Absorption	7.00	36.00	24.37	9.04
Overall Work engagement		28.00	107.00	72.92	24.08

Descriptive statistics (Table 2) shows that the Psychological well-being Mean scores were 171 with a Standard deviations 35 and the Work engagement Mean scores were 73 with a Standard deviations 24. Among the Psychological well-being dimensions Autonomy showed the highest mean of 30.16 and among the Work engagement dimensions Vigor showed the highest mean of 24.37.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.704 <sup>a</sup>	0.496	0.495	17.11690	0.496	379.955	1	386	.000

a. Predictors: (Constant), pw

Table 5: ANOVA<sup>a</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	111322.252	1	111322.252	379.955	.000 <sup>b</sup>
	Residual	113093.428	386	292.988		
	Total	224415.680	387			

a. Dependent Variable: we

b. Predictors: (Constant), pw

Table 6: Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
		B	Std. Error			
1	(Constant)	-10.506	4.367		-2.406	0.017
	pw	0.488	0.025	0.704	19.492	.000

a. Dependent Variable: we

Table 4, 5, 6 show regression analysis pointing that Psychological well-being of college teachers predicts Work engagement with un-standardised B 0.488

5.3.2 Regression model of dimensions of psychological well-being and work engagement

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.762 <sup>a</sup>	0.581	0.575	15.70769	0.581	88.092	6	381	0

a. Predictors: (Constant), sa, en, pr, at, pg, pl

Table 8: ANOVA<sup>a</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	130411.03	6	21735.171	88.092	.000 <sup>b</sup>
	Residual	94004.652	381	246.731		
	Total	224415.68	387			

a. Dependent Variable: we

b. Predictors: (Constant), sa, en, pr, at, pg, pl

5.2. Correlation analysis

Correlation between psychological well-being and work engagement

Table 3: Correlations

		we	pw
we	Pearson Correlation	1	.704 <sup>**</sup>
	Sig. (2-tailed)		.000
	N	388	388
pw	Pearson Correlation	.704 <sup>**</sup>	1
	Sig. (2-tailed)	.000	
	N	388	388

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 3. shows that college teachers' Psychological well-being was positively associated with Work engagement (r=0.704, n=388, p=0.000, α=0.01).

5.3. Regression analysis

5.3.1 Regression model of Psychological well-being and work engagement

Table 9: Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	
	B	Std. Error				
1	(Constant)	-12.66	5.373		-2.356	0.019
	at	-0.069	0.41	-0.018	-0.169	0.866
	en	1.929	0.194	0.517	9.948	0
	pg	1.082	0.561	0.284	1.931	0.05
	pr	1.319	0.406	0.309	3.252	0.001
	pl	0.09	0.566	0.024	0.159	0.874
	sa	-1.328	0.636	-0.325	-2.089	0.037

a. Dependent Variable: we

Table No. 7, 8, 9 show that environmental mastery, positive relations dimensions of psychological well-being predict work engagement.

5.4 Moderation analysis

5.4.1 Moderation of gender on the relationship between relationship between college teachers' psychological well-being, and work engagement

Table 10: Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	
	B	Std. Error				
1	(Constant)	-10.646	4.359		-2.442	.015
	pw	.465	.029	.672	16.266	.000
	pwbg	.016	.010	.067	1.630	.104
	a. Dependent Variable: we					

Table No. 10 shows that moderation effect of gender was insignificant

5.4.2 Moderation of age on the relationship between relationship between college teachers' psychological well-being, and work engagement

Table 11: Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	
	B	Std. Error				
1	(Constant)	6.802	6.808		.999	.318
	pw	.258	.074	.372	3.474	.001
	pwba	.002	.001	.352	3.286	.001
	a. Dependent Variable: we					

Table No. 11 shows that the moderation effect of age was significant with un-standardised coefficient B being 0.002

5.4.3 Moderation of educational qualification on the relationship between relationship between college teachers' psychological well-being, and work engagement

Table 12: Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	
	B	Std. Error				
1	(Constant)	-10.088	4.443		-2.270	.024
	pw	.493	.027	.713	18.031	.000
	pwbed	-.007	.013	-.021	-.525	.600
	a. Dependent Variable: we					

Table 12. shows that moderation effect of educational qualification insignificant

5.4.4 Moderation of years of teaching experience on the relationship between relationship between college teachers' psychological well-being, and work engagement

Table 13: Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	
	B	Std. Error				
1	(Constant)	3.155	6.396		.493	.622
	pw	.375	.046	.542	8.141	.000
	pwbexp	.003	.001	.193	2.899	.004
	a. Dependent Variable: we					

Table No. 13 shows that moderation effect of years of teaching experience was significant with the un-standardised coefficient B being 0.003

6. Discussion

A Pearson correlation coefficient was performed to evaluate the relationship between Psychological well-being and Work engagement. There was a significant moderate positive relationship between Psychological well-being and Work engagement,  $r(387) = .488, p < .001$ . The results are in line with the previous studies of (Kong, 2021)(Shuck & Reio, 2014)(Wang et al., 2022) as the teachers perceive a higher level of self-acceptance, purpose, autonomy, environmental mastery, personal growth and positive relations in personal and work life they become more dedicated towards work, absorbed in work and work with vigor. The regression analysis shows Psychological well-being of college teachers predicted Work engagement,  $R^2 = .496, F(1, 386) = 379.95, p = .000$ . The regression of dimensions of well-being showed that environmental mastery, personal growth and positive relations  $R^2 = .581, F(6, 381) = 88.09, p = .000$ (with unstandardised B 1.929, 1.082 and 1.319 respectively) could predict work engagement of teachers.

The moderation analysis of gender on the relationship between Psychological well-being and Work engagement was insignificant pointing that the relationship is not effect by gender. This finding is in line with the findings of (Kittel & Leynen, 2003), (Uskul & Greenglass, 2005)(Ilgan et al., 2015) who found no effect of gender on psychological well-being. The moderation effect of age was significant with low effect. The moderation analysis of educational on the relationship between Psychological well-being and Work engagement was insignificant pointing that the relationship is not effect by research qualifications (PhD. or M.Phil.). Years of teaching experience had a positive moderating effect on the relationship between Psychological well-being and Work engagement but with a low effect. With increased



years of experience college teachers the relationship between psychological well-being and work engagement become stronger.

## 7. Conclusion

The correlation between two vital constructs Psychological well-being and Work engagement has been established and it is seen that psychological well-being accounts for around 49% of work engagement of teachers. Given the importance of work engagement of teachers, it becomes essential to take action towards enhancing the autonomy, environmental mastery, personal growth, positive relations, purpose in life and self-acceptance through psychological interventions. In future, researches may focus on experimental research to find the casual relationship between the constructs and research on developing effective intervention programs for the enhancing the psychological well-being of college teachers.

## References

- [1] Bakker, A. B., & Bal, P. M. (2010). Weekly work engagement and performance: A study among starting teachers. *Journal of Occupational and Organizational Psychology*, 83(1), 189–206. <https://doi.org/10.1348/096317909X402596>
- [2] Hakanen, J. J., Bakker, A. B., & Schaufeli, W. B. (2006). Burnout and work engagement among teachers. *Journal of School Psychology*, 43(6), 495–513. <https://doi.org/10.1016/j.jsp.2005.11.001>
- [3] Harter, J. K., Schmidt, F. L., Asplund, J. W., Killham, E. A., & Agrawal, S. (2010). Causal impact of employee work perceptions on the bottom line of organizations. *Perspectives on Psychological Science*, 5(4), 378–389. <https://doi.org/10.1177/1745691610374589>
- [4] Harter, J. K., Schmidt, F. L., & Hayes, T. L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis. *Journal of Applied Psychology*, 87(2), 268–279. <https://doi.org/10.1037/0021-9010.87.2.268>
- [5] Harter, J. K., Schmidt, F. L., & Keyes, C. L. (2004). Well-being in the workplace and its relationship to business outcomes: A review of the Gallup studies. *Flourishing: Positive Psychology and the Life Well-Lived.*, 205–224. <https://doi.org/10.1037/10594-009>
- [6] Ilgan, A., Özü-cengiz, Ö., Ata, A., & Akram, M. (2015). The relationship between teachers' psychological well-being and their quality of school work life. *The Journal of Happiness & Well-Being*, 3(2), 159–181.
- [7] Joy, M. M., & K, S. P. (2016). Employee Engagement- An Empirical Study On Implications For Psychological Well Being. *International Journal of Management (IJM)*, 7(5), 183–187. <http://www.iaeme.com/IJM/index.asp183http://www.iaeme.com/ijm/issues.asp?JType=IJM&VType=7&IType=5JournalImpactFactor%0Awww.jifactor.comhttp://www.iaeme.com/IJM/issues.asp?JType=IJM&VType=7&IType=5>
- [8] Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, 33(4), 692–724. <https://doi.org/10.5465/256287>
- [9] Kidger, J., Brockman, R., Tilling, K., Campbell, R., Ford, T., Araya, R., King, M., & Gunnell, D. (2016). Teachers' wellbeing and depressive symptoms, and associated risk factors: A large cross sectional study in English secondary schools. *Journal of Affective Disorders*, 192, 76–82. <https://doi.org/10.1016/j.jad.2015.11.054>
- [10] Kittel, F., & Leynen, F. (2003). A study of work stressors and wellness/health outcomes among Belgian school teachers. *Psychology and Health*, 18(4), 501–510. <https://doi.org/10.1080/0887044031000147229>
- [11] Klassen, R. M., Aldhafri, S., Mansfield, C. F., Purwanto, E., Siu, A. F. Y., Wong, M. W., & Woods-Mcconney, A. (2012). Teachers engagement at work: An international validation study. *Journal of Experimental Education*, 80(4), 317–337. <https://doi.org/10.1080/00220973.2012.678409>
- [12] Kong, X. (2021). Chinese English as a Foreign Language Teachers' Self-Efficacy and Psychological Well-Being as Predictors of Their Work Engagement. *Frontiers in Psychology*, 12(November). <https://doi.org/10.3389/fpsyg.2021.788756>
- [13] Krejcie, R. V., & Morgan, D. W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*, 30(3), 607–610. <https://doi.org/10.1177/001316447003000308>
- [14] Maslach, C., & Leiter, M. P. (1997). The truth about burnout: How organizations cause personal stress and what to do about it. In *John Wiley & Sons*.
- [15] Oktavia, J., Eva, N., & Achmad, G. (2021). The Correlation of Psychological Well-Being with Work Engagement for Millennial Workers in Malang City. *KnE Social Sciences*, 2020, 336–351. <https://doi.org/10.18502/kss.v4i15.8222>
- [16] Pečjak, S., Pirc, T., Podlesek, A., & Peklaj, C. (2021). Some predictors of perceived support and proximity in students during COVID-19 distance learning. *International Electronic Journal of Elementary Education*, 14(1), 51–62. <https://doi.org/10.26822/iejee.2021.228>
- [17] Rich, B. L., Lepine, J. A., & Crawford, E. R. (2010). Job engagement: Antecedents and effects on job performance. *Academy of Management Journal*, 53(3), 617–635. <https://doi.org/10.5465/amj.2010.51468988>
- [18] Robertson, I. T., & Cooper, C. L. (2010). Full engagement: The integration of employee engagement and psychological well-being. *Leadership and Organization Development Journal*, 31(4), 324–336. <https://doi.org/10.1108/01437731011043348>
- [19] Ryff, C. D. (1996). Psychological Well-Being: Meaning, Measurement, and Implications for Psychotherapy Research. *Psychotherapy and Psychosomatics. Jurnal Penelitian Pendidikan Guru Sekolah Dasar*, 65(1), 14–23. <https://doi.org/doi:10.1159/000289026>
- [20] Ryff, C. D. (2013). Psychological well-being revisited: Advances in the science and practice of eudaimonia. *Psychotherapy and Psychosomatics*, 83(1), 10–28. <https://doi.org/10.1159/000353263>
- [21] Saks, A. M. (2006). Antecedents and consequences of

- employee engagement. *Journal of Managerial Psychology*, 21(7), 600–619. <https://doi.org/10.1108/02683940610690169>
- [22] Schaufeli, W., Salanova, M., González-romá, V., & Bakker, A. (2002). The Measurement Of Engagement And Burnout: A Two Sample Confirmatory Factor Analytic Approach. *Journal Of Happiness Studies*, 3, 71–92. <https://doi.org/10.1103/PhysRevE.63.021114>
- [23] Shuck, B., & Reio, T. G. (2014). Employee Engagement and Well-Being: A Moderation Model and Implications for Practice. *Journal of Leadership and Organizational Studies*, 21(1), 43–58. <https://doi.org/10.1177/1548051813494240>
- [24] Tanwar, A. (2017). Impact of Employee Engagement on Performance. *International Journal of Advanced Engineering, Management and Science (IJAEMS)*, 3(5), 510–515. <https://doi.org/10.26737/ij-mds.v4i1.1673>
- [25] Truss, C., Shantz, A., Soane, E., Alfes, K., & Delbridge, R. (2013). Employee engagement, organisational performance and individual well-being: Exploring the evidence, developing the theory. *International Journal of Human Resource Management*, 24(14), 2657–2669. <https://doi.org/10.1080/09585192.2013.798921>
- [26] Uskul, A. K., & Greenglass, E. (2005). Psychological wellbeing in a Turkish-Canadian sample. *Anxiety, Stress & Coping: An International Journal*, 18(3), 269–278.
- [27] Wang, Y., Derakhshan, A., & Azari Noughabi, M. (2022). The interplay of EFL teachers' immunity, work engagement, and psychological well-being: Evidence from four Asian countries. *Journal of Multilingual and Multicultural Development*, June, 1–17. <https://doi.org/10.1080/01434632.2022.2092625>
- [28] Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2009). Work engagement and financial returns: A diary study on the role of job and personal resources. *Journal of Occupational and Organizational Psychology*, 82(1), 183–200. <https://doi.org/10.1348/096317908X285633>