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Psychological Capital and Teacher Well-Being: The Mediation Role of Coping with Stress and Work Task Motivation

PhD Dissertation

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INTRODUCTION

Due to the complex nature of the teaching profession (McCallum et al., 2017), teachers face different challenges in their daily work life. Failure to manage these work tasks would affect the organization, their interaction with students, administrators, and the work environment (Zewude & Hercz, 2021). Thus, scientific literature suggests the crucial role of positive psychology, motivational strategies and positive psychological resources in fostering teacher well-being and maintaining the healthy functioning of teachers in the workplace (e.g. Luthans et al., 2015; Selvaraj & Bhat, 2018; Zewude & Hercz, 2021).

Nowadays, well-being, positive psychology, and self-determination theory of motivation greatly interest practitioners and the scientific community due to their innumerable benefits to individuals and organizations, such as fostering teacher well-being, improving the university's culture and staff happiness(Fred Luthans et al., 2015; Li, 2018). In addition, positive psychological capital, motivation, and coping with stress predict and affect work-life and an employee's well-being (Milyavskaya & Koestner, 2011; Rabenu et al., 2016; Youssef-Morgan & Luthans, 2015). For that reason, measuring positive psychological capital (PsyCap), work task motivation, coping stress, and well-being are central to understanding positive human flourishing and optimal functioning (Fernet et al., 2008; Fred Luthans et al., 2015; Gable & Haidt, 2005). Also, it is crucial to have a well-established assessment of the measures (Zewude & Hercz, 2022) and examine their direct and indirect effect (Zewude & Hercz, 2021). One of the most critical domains paramount to the quality of education but rarely studied is teacher well-being.

In the context of education, healthy teacher well-being and positive self-evaluation consist of three domains: workload, organizational, and student-related well-being (Collie et al., 2015; Van Horn et al., 2004). Collie et al. (2015) developed measures for the three well-being domains and noted a need for further psychometric evaluation across various cross-cultural settings.

Nowadays, teacher well-being is an area of inquiry due to several reasons. *First*, educators spend most of their lives in school settings. Their experiences, institutional support, rules, and regulations affect their social development and powerfully influence their well-being and physical development (Singh et al., 2015). *Second*, understanding teachers' well-being helps create conducive school contexts, establish healthy student-teacher relationships, and enhance their well-being (Hamre & Pianta, 2010). Third, examining the most satisfying and rewarding teachers can better understand their attitudes toward school reforms and affirmative psychological intervention programs (Horn et al.,2004; Youssef-Morgan & Luthans, 2015). *Fourth*, some evidence exists that teacher well-being indirectly has critical effects on children's socio-emotional adjustment and tutorial performance (Malmberg & Hagger, 2009; Hamre & Pianta, 2010). *Fifth*, in a current global world, the well-being of teachers plays a significant role in enhancing the current problem of teacher attrition and burnout in education contexts

(Acton & Glasgow, 2015). *Six,* knowing teacher well-being is critical for teachers and students (Collie, 2014; Collie et al., 2015). *Seven*, university teachers in Ethiopia faced different challenges. Such as problems associated with professional development, financial benefits, poor school facilities, school management and administration, overburdened by meetings, low level of well-being, teacher motivation, and low value of teaching experience are some of the most notable challenges (Abebe and Tassew, 2013; World Bank, 2003, 2017). As a result, researchers in Ethiopia have examined universities, including reforms to teacher education, causes of and possible solutions for academic staff flight, gender equality in public universities, challenges and practices for professional development, and financial issues (Abebe & Tassew, 2013; Alemayehu & Woldemariam, 2020; Gemechu et al., 2017; World Bank, 2003; Egne, 2015; Gemeda & Tynjälä, 2015). Even though studies are found on higher institutions in Ethiopia, this study is novel. Despite these significant contributions, there are no studies on teacher well-being in the Ethiopian cultural context(Zewude & Hercz, 2021).

Another crucial construct examined in this study was psychological capital (PsyCap), derived from positive psychology (Seligman, 2011) is a relatively novel construct. Psychological capital also has an essential positive psychological resource and is a global concern with a multi-dimensional role. Psycap also significantly impacts teacher well-being and is relevant to organizational change (Avey et al., 2008; Zewude & Hercz, 2021).

The third construct of this dissertation is the work task motivation of teachers. The self-determination theory of work task motivation is the most noticeable and applicable theoretical model that links teachers' well-being and work task motivation(Ryan & Deci, 2017). According to Ryan & Deci (2000), the Self-Determination Theory (SDT) of motivation has innumerable benefits in acting toward fruitful results, such as parents, healthcare providers, religious leaders, managers, coaches, and teachers.

Finally, coping with stress is the primary strategy for those overburdened by different tasks and working in stressful work environments like teaching. Researchers have evidence that coping style has contributed to physical and psychological health (Park & Adler, 2003). In addition, Zewude & Hercz (2021) found that coping with stress mediates the relationship between PsyCap and teacher well-being and coping through acceptance had a negative and significant direct effect on organizational well-being and student interaction well-being.

The study's overall goal is to examine the mediation role of work task motivation and coping with stress in the relationship between PsyCap and teacher well-being. First, it tested the psychometric properties of the Psychological Capital Questionnaire (PCQ-12), Work Task Motivation Scale for Teachers (WTMST), Coping With Stress Questionnaire(CWS-Q) and Teacher Well-being Scale (TWBS) measures: reliability (Cronbach alpha, composite reliability), validity (convergent, discriminant, divergent, construct) and measurement invariance (configural, metric, scalar, and residual). Second, based on the new psychology movement initiated by Seligman, the significance of positive psychological resources and motivational strategies (Luthans et al., 2007;2015; Ryan & Deci,

2017; Seligman & Csikszentmihalyi, 2000; Seligman, 2011; Zewude & Hercz, 2021), coping strategies model of Rabenu et al.'s (2016) and the-newly emerging teacher well-being model of Collie et al.'s (2015) to university instructors, this study examined the mediator role of Work Task Motivation (WTM) and Coping With Stress (CWS) between Psychological Capital (PsyCap) and Teacher well-being (TWB). Besides, this study also explored the direct effects of PsyCap, WTM and CWS on TWB.

AIM OF THE RESEARCH

Based on the problem mentioned above, this research study examines the potential role of psychological capital on teacher well-being mediated through work task motivation and coping with stress in Ethiopian higher education settings. The newly proposed and developed hypothetical models (see Figures 1 to 5) are based on scientific research to improve higher education teachers' well-being, foster motivation, and use positive psychological and coping resources to boost university staff relationships with administrators and students.

To achieve the research aims, this dissertation is divided into two phases, (1) contribute to the scientific usage of the Psychological Capital Questionnaire-12, Work Task Motivation Scale for Teachers, Coping With Stress Questionnaire and Teacher Well-Being Scale with a translation, adaption, psychometrical validation, and equivalence measurement in Ethiopian education settings, and (2) to examine the direct and indirect effect of PsyCap on teacher well-being through work task motivation and coping with stress, and to test group differences of PsyCap, work task motivation, coping with stress, and teacher well-being across socio-demographic groups (sex, university, age, university type, and years of teaching experience). Various analyses were employed to make the study applicable in the Ethiopian context and enhance teachers' well-being. Therefore, this dissertation is conducted to test 13 research hypotheses by dividing them into the instrument validation and the main study.

METHODS

Research design

The nature of this study followed the quantitative and associational approach with a cross-sectional design.

Sample

In examining the four studies in this dissertation, we analyzed the data based on each study's goals from 3,517 participants by considering the three clustering universities: Research, Applied and General universities. Hence, the sex ratio of the participants in each study is presented in Table 1.

Table 1

Summary of Samples in the four empirical studies

Studies	Female	Male	Samples
Study one	282	835	1117
Study two	149	447	596
Study three	206	630	836
Study four	239	729	968
Total	876	2,641	3,517

Instruments

In this dissertation, we used adapted and translated standardized questionnaires presented below in detail.

Positive Psychological Capital (PsyCap; Fred Luthans et al., 2007). The concept of PsyCap, derived from positive psychology, is a widely used tool and relatively novel construct used to measure positive psychological states of teachers. The PsyCap is a multi-dimensional 12-item scale scored on a six-point Likert scale, ranging from 1 (strongly disagree) to 6 (strongly agree). It contains hope, efficacy, resilience, and optimism sub-dimensions, shortened to HERO (Scheier & Carver, 1985; Wagnild & Young, 1993). We used the 12-item short version for this study, with four items for hope, three for self-efficacy, three for resilience, and two for optimism (Luthans et al., 2007). For instance, the psychometric properties of the PCQ-12 scale were tested in the four studies. Besides, the construct validity was tested using the CFA model of the Ethiopian Amharic versions, and the model's goodness of fit was acceptable in all four consecutive studies. We also used both Cronbach alpha and composite reliabilities to check the construct reliability in the four studies. The PCQ-12 was used, drawn from the www.mindgarden.com permission process (Luthans, 2007), which provided a permission letter to use the PsyCap instrument for this study.

Teacher well-being scale (TWBS). The original version of the TWBS consisting of 16 items can be found in Collie et al. (2015), published in the *Journal of Psycho-educational Assessment*. It is used to assess aspects of teaching work that influence teachers' lives. It is a seven-point Likert scale, assessed with a 16-item adapted scale that comprises workload well-being (WLW), organizational well-being (OWB), and student interaction well-being (SIWB) was used (Zewude & Hercz, 2022c). In this study we used the Amharic version of TWBS (Zewude & Hercz, 2022c). In a previous study, Collie et al. (2015) performed various analyses to ensure the psychometric properties of the TWBS in the Canadian cultural context. Besides that, Collie et al. (2015) showed that the teacher well-being construct has excellent internal and external validity and reliability (Collie, 2014; Collie et al., 2015). Moreover, the

status of TWB was the highest for student interaction well-being, followed by organizational and workload well-being (Collie et al., 2015). Confirmatory factor analysis (CFA) of external factors and TWB have adequate external validity Collie et al. (2015). Therefore, the construct validity and reliability of the scale in the four studies were confirmed.

The work tasks motivation scale for teachers (WTMST). ***Teachers'*** WTM levels were measured using the Work Task Motivation Scale for Teachers (WTMST-15), which was developed by Fernet et al. (2008) used in this study measured the question "why you are teaching?" The WTMST is based on Ryan and Deci's (2000) SDT. The scale consists of five subscales, each with three items, intrinsic, identified, external, introjected regulation, and amotivation (Fernet et al. 2008). The WTMST construct included 15 self-reported items on a 7-point scale, from 1 = "does not correspond at all" to 7 = "corresponds completely. It is a standardized, validated instrument for measuring teachers' motivation in the teaching context in the study one. The reliability of the five components of WTM was evaluated, and Cronbach's alpha values in the previous study ranged from r = .77 to .92 for all constructs. Finally, WTMST results provide excellent support for its psychometric properties(Fernet et al., 2008), and the scale was published by Fernet et al. (2008) in the Journal of Career Assessment. The construct validity and reliability of the scale in the four studies were proved.

The Coping with Stress Questionnaire (CWS-Q) is a ten-item scale developed by Rabenu et al. (2016) to assess teachers' coping strategies, with three sub-scales. The questionnaire is composed of three dimensions, including change (three items), acceptance (three items), and withdrawal (four items). However, in study 3, the initial validation stage of this questionnaire, one item was discarded due to poor factor loadings. As a result, the reliability and validity were confirmed in studies 3 and 4.

Convergent and divergent validity measures

Satisfaction with life: The Amharic version of SWLS is a five-item global life satisfaction scale (Zewude & Hercz, 2022c). Each item is rated between 1 = strongly disagree, and 7 = strongly agree. The SWLS is a reliable instrument in Africa (Vosloo et al., 2009) and the Amharic language's Ethiopian cultural context. In the present study, scores from the SWLS achieved a Cronbach's alpha reliability of 0.84.

Depression and anxiety: The 'Patient Health Questionnaire-4' (PHQ-4) comprises four items, of which two items measure anxiety (e.g., of the items "feeling nervous, anxious, or on edge," $\alpha = 0.78$), whereas the other two items measure depression (e.g., "feeling down, depressed, or hopeless," $\alpha = 0.75$) (Kroenke et al., 2009; Löwe et al., 2010). All items are rated on scales that range between 0 = Not at all and 3 = Nearly every day. In this study, overall Cronbach's alpha for scores from the PHQ-4 was 0.88 (anxiety: $\alpha = 0.84$; depression: $\alpha = 0.80$). This study used the Amharic version of PHQ-4 (Zewude & Hercz, 2022d).

Socio-demographic characteristics. This study consisted of demographic factors such as gender, age, university, and educational qualification as general information.

Procedures

The participants responded to the questionnaires using the paper-and-pencil method. The data collection procedure was conducted in compliance with the University of Szeged, Internal Review Board, Doctoral School of Education and the ethical principles and standards of the American Psychological Association. Participation was voluntary. The study followed all procedures, rules, and was in accordance with the 1964 Helsinki declaration: 21 CFR 50 (Protection of Human Subjects) and 21 CFR 56 (Institutional Review Boards). As a result, This dissertation was granted an ethical approval letter (certificate number: Ref. 26/2019) from the research ethics committee of the Doctoral School of Education at the University of Szeged. Furthermore, the researchers assured the participants of the anonymity of their participation and data. In addition, Studies 1 to 4 were approved by the Amhara Regional State Universities Forum, and the certificate number for the studies was Ref. No. ARSUF.1,1712/2022.

Prior to the data collection procedures, the study received two supporting letters from the Doctoral School of Education in relation to providing assistance with the data collection processes. The letter were presented to the department heads and deans of the selected universities to obtain their permission and cooperation to conduct the study. The Amhara Regional State Universities Forum facilitated and encouraged all ongoing research processes. The study was given an opportunity to present a briefing about the research objectives during an academic staff meeting held on June 29, 2019, prior to the start of the summer program. University Secretariats of two universities also provided briefings through a forum regarding the objective of Studies 1 to 4 to the respective academic deans to obtain data. In addition, on December 20, 2019, and June 2020, I also presented the supporting letter from the Doctoral School of Education at the University of Szeged to the deans of the universities and made an appointment for data collection in collaboration with the departments of the two other universities. Discussions were held about the research objectives and the process for obtaining accurate information from the university staff. The next step is the description of the data analysis process.

In addition, we examined the psychometric properties of each construct and employed CFA to ensure the validity of the study in each data; we then performed Pearson's correlation

to verify the relationships among the constructs (they have no strong correlation). The absence of multicollinearity was confirmed by examining the correlation matrices among the constructs, which should be less than 0.90, and by verifying the assumption of normality. Outliers of the constructs were also examined following the procedures of Hair et al. (2019), Kline (2016), and Tabachnick and Fidell (2018). Values of ≤ 2 or ≤ 4 for skewness or kurtosis, respectively, indicate the normal distribution of data (Kim, 2013; Mishra et al., 2019). The skewness values are between 0.077 and 0.170, and kurtosis scores range from −0.079 to 0.50, which suggests the relatively normally distribution of all constructs.

Data analysis

All analyses were conducted using SPSS version 26.0, IBM AMOS version 26, and Microsoft excel.

Exploratory factorial data: Before starting the primary data analysis process, we addressed multicollinearity by checking the correlation among the values of the variables, which should be greater than 0.90, and the normality of distributions was examined following Kline (2016) and Tabachnick and Fidell (2018) recommendation. In the second step, we conducted the normality of distributions. For studies with more than 300 samples, the values of skewness and kurtosis lie between [-2] and [+2]; this is acceptable to prove the normal distribution of the data (Ryu, 2011).

Reliability: For all four empirical studies, both Cronbach's alpha coefficient(α) and composite reliability (CR) were used for assessing each construct's internal consistency and individual response. The reliability coefficient is ranged from 0 to 1.00 (Cronbach & Shavelson, 2004). Cronbach (1951) suggested the guidelines of Cronbach's alpha for assessing each construct's internal consistency: $\alpha \geq 0.9$ = Excellent; the value range from α 0.9 to 0.8 = Good; α 0.8 to 0.7 = acceptable; α 0.7 to 0.6 = Questionable; α 0.6 to 0.5, Poor; and $0.5 > \alpha$ = Unacceptable. Besides, evidence indicated that the acceptable reliability value ranged 0.70─ 0.80, good (0.80─0.90), and > 0.90 indicate an excellent internal consistency (George & Mallery, 2020; Hair et al., 2019; Kline, 2016). Thus, the current study assessed reliability scores by both Cronbach's alpha and composite reliability coefficients (CR).

Convergent, discriminant and divergent validity: The concept of validity is the degree to which a measure precisely represents what it is supposed to measure (Hair et al., 2019). Three aspects of validity are critical issues for assessing the measurement and structural model (Hair et al., 2019). Hair et al. (2014) and Nunnally and Bernstein (1994) distinguished three types of validity. **First, construct validity** refers to items that reflect the latest theoretical construct designed to measure. For example, for construct validity, Hair et al. (2019) suggested that individual standardized factor loadings (regression weights) should be within the minimum range of **0.5,** and the best should be **0.7.** Second, convergent validity is the relationship among the constructs. In contrast, **discriminant validity** is the extent to which a construct is genuinely distinct from other constructs (Hair et al., 2019). First, convergent and discriminant validity were assessed using the maximum shared variance (MSV) and the average variance extracted (AVE). The AVE values that exceed a threshold limit higher than 0.5 (AVE

> 0.05) demonstrate good convergent validity. Moreover, factors with MSV lower than AVE are characterized by adequate discriminant validity (Hair et al., 2019).

Confirmatory factorial analysis (CFA): We used confirmatory factor analysis to test the construct validity of the TWBS (Collie et al., 2015), the WTMST (Fernet et al., 2008), the PCQ-12(Luthans et al., 2007) and the WCS-Q In addition, we compared correlated factor models, the higher-order factor model, the bi-Factor and the single factor models.

Measurement invariance: For the measurement invariance (MI) testing the psychometric equivalence of the variables across various groups using CFA (Putnick & Bornstein, 2016), the researchers followed well-established scientific procedures using single and multi-group CFA (Millsap, 2011; Putnick & Bornstein, 2016; Vandenberg & Lance, 2000), using the four MI stages. In stage 1, a *configural invariance* was conducted to establish a baseline model across groups without restriction, where the tested construct was the same across all groups (Vandenberg & Lance, 2000). In stage 2, the *metric measurement invariance (MMI)* was examined; the same constrained factorial loadings to the different groups responded similarly to indicators. In stage 3, *scalar measurement invariance* or strong invariance (SMI) was performed. In this test, the indicator intercepts and the factor loadings were constrained in the same way across groups. Finally, the residual measurement invariance or the strict invariance (RMI) was tested in the fourth stage. RMI refers to the similarity of item residuals of metric and scalar invariant items (Putnick and Bornstein, 2016). The present study's MI four-sequential-staged analysis used single and multi-group CFA following Millsap (2011) and Putnick and Bornstein (2016) and arrived at the following recommendation criteria: ΔTLI, 0 = perfect and $\leq$ 0.01 = acceptable, ΔRMSEA, 0.015 for metric, scalar, and residual invariance (Chen, 2007; Putnick & Bornstein, 2016).

The researchers tested the CFA models for the subgroups of gender and university type separately in the initial stage of this study. Therefore, an adequate model fit in the existing data, the highest model fit, and the lower score of AIC and BIC are prerequisites for testing MI (Byrne & van de Vijver, 2010).

Structural equation modelling (SEM): This study aimed to examine how well construct validity explained the study variables (Hamid, Mustafa, Idris, Abdullah, & Suradi, 2011; Hair, Ringle, & Sarstedt, 2014). A powerful analytical tool for validating the plausibility of a theoretically assumed structure of a set of study variables, including exogenous and endogenous variables, is structural equation modelling (SEM; Wan, 2002), of which there are three types: **measurement model**, **structural model** (Byrne & Vijver, 2010; Hair, Black, Babin, & Anderson, 2014), and **path analysis** (Hair et al., 2012).

Finally, the hypothesized mediation models in studies 2 – 4 were examined using the maximum likelihood method (ML), a standardized estimate-based SEM. The main reasons for using SEM in this study are: (1) this study is testing the relationships among latent constructs using various methods (Lei & Wu, 2007); (2) it is recommended to confirm the factor structure of a psychological instrument (Tomarken & Waller, 2005); (3) our proposed model is a complex one which examines direct and

indirect (mediated) effects, structural factor models (CFA), and other complex relationships among variables (Lei & Wu, 2007); (4) this study uses bootstrapping for the proposed mediation model for inferences about indirect effects; and (5) it helps when discussing the theoretical and practical implications of the study.

One Way ANOVA: Descriptive statistics (i.e. mean and standard deviation) were used to describe the major demographical characteristics of PsyCap, teacher well-being, work task motivation and coping with stress. In the meantime, one-way ANOVA (F-test) was carried out to determine the significance of age, educational qualification, university type, and years of teaching experience. One-way Analysis of the Variance model was significant (e.g. not all means at each level of the factor were equal). The Tukey posthoc test was selected to analyze the results of the one-way ANOVA in terms of which means vary among the factors in the model. Tukey tends to be more conservative in rejecting the null hypothesis in the event of unequal comparison group sizes, a concern that was anticipated concerning groupings by independent variables of the level of (i.e. age, educational qualification, university type, and years of teaching experience) on PsyCap, teacher well-being, work task motivation and coping with stress.

The issue of common method biases: The common method Biases comprise potential influences in social science studies, especially in the paper-and-pencil instrument, including the content, the response format, the general instructions of the items, and why the subject is taking the test (Podsakoff et al., 2003). Therefore, in this study, to overcome such problems, the following measures were done: (a) the content or face validity of each item was evaluated by experts in the field before administering the instrument; (b) Informed consent was obtained from all participants and their identity coded anonymously; (c) some items were reversely scored; (d) the predictor and the criterion variables were taken from different sources and cultural contexts; (e) for the issue of measurement error, the factor variance was computed (Zewude & Hercz, 2021). In addition, following the Harman single-factor test guidelines, the common method bias was performed (Podsakoff et al., 2012; Podsakoff et al., 2003;). Hence, there are no significant common method biases in study two, study three and study four since the computed variance were **19.27%, 28.52%,** and **17.18 %,** respectively, below the threshold of 50.

RESULT

FIRST PHASE: VALIDATION AND MEASUREMENT INVARIANCE OF THE MEASURES

In the study's first phase, the researcher focused on analyses to provide psychometric evidence of the measures in Ethiopian higher education settings. This investigation is also justifiable for several reasons. *First,* the TWBS and WRMST instruments were developed to examine elementary and high school teachers in the Canadian cultural context (Collie et al., 2015; Fernet et al., 2008). At the same time, the PCQ-12 measure was developed in the US cultural context. Besides, the CWS-Q was developed and assessed employees in the Asian cultural context. Therefore, crucially the portability of the PCQ-12, TWBS, CWS-Q, and WTMST to a culturally diverse and predominantly non-Western and

non-North American environment should be investigated before inferences derived from the measures are used with confidence in the Ethiopian context.

Second, a cross-cultural validation and adaptation of an instrument across groups could have proceeded after confirmed measurement equivalence or invariance (Davidov et al., 2014). Measuring invariance or equivalence is essential for two main reasons: (a) the samples of the studies have different cultural backgrounds applying the same instrument, and (b) the data collected from different nations using different languages of the same instrument (Eremenco et al., 2005). Failure to establish measurement invariances hinders the sound interpretation of the data and the ability to demonstrate reliability and validity (Byrne & van de Vijver, 2010; Vandenberg & Lance, 2000); therefore, some gaps are found in the literature to be investigated in other cultural contexts. *Third,* there have not been any validated studies on university teachers using model comparisons (single, higher-order, bi-factor, and correlated factor models) and measurement invariance concerning gender, age, university type, and experience in teaching, and there has not been any research on the psychometric properties of the PCQ-12, CWS-Q, TWBS, and WTMST in the Amharic language or the African cultural context.

Fourth, to test the construct validity of the PCQ-12, CWS-Q, TWBS and WTMST, we run single and multi-confirmatory factor analysis using positive psychology, conservation resource theory, broaden and build a theory of positive emotion (BBPE) and the self-determination model assessed by Fernet et al. (2008). *Fifth*, we compare single, correlated, bi-factor, and higher-order factor models as those have been overlooked in earlier studies, and our examination follows recent methodological and analytical recommendations (Chen et al., 2006; Immekus & Imbrie, 2008; Liang & Luo, 2020; Stockdale et al., 2002; Wang et al., 2018). *Sixth,* as a final step, we select the best-fitting model and perform further measurement invariance analysis across various groups, following Chen et al.'s (2006) suggestion to ensure the cross-cultural validation of the study (Eremenco et al., 2005).

Consequently, it can be concluded that the psychometric properties of the Amharic version PsyCapQ-12, WTMST, CWS-Q and TWBS measures are reliable and meet the best criteria of convergent, discriminant, divergent and construct validity and are appropriate for measuring a healthy work functioning University instructors' in Ethiopian higher education (Zewude et al., 2022; Zewude & Hercz, 2022a; Zewude & Hercz, 2022b). The model fit evaluations and invariance tests were conducted to select the best-fitted model for further measurement invariance in each instrument. As a result, the bi-factor model for TWBS and WTMST and the correlated factor model for the PCQ-12 and CWS-Q measures (see Table 2) were tested across genders and university types. Concerning invariance, in a single group and multi-group CFA, the four stages of invariance were satisfied in the four constructs, PCQ-12, WTMST, CWS-Q and TWBS and fulfilled in all groups.

Table 2

Comparison of fit indices in the four competitive models for PsyCap, WTMST, and TWBS

Psychological capital (PsyCap; N=1117)						
Models	χ 2 (df)	TLI	CFI	RMSEA (95% CI	AIC	BIC
Single-Order Factor	2661.50 (54) *	0.530	0.616	0.208 [.201, .215]	2709.0	2830
Correlated Factor	304.05 (48) *	0.948	0.962	0.069 [.062, .077]	364.05	514.61
Bi Factor	396.47 (47) *	0.928	0.949	0.082 [.074, .089]	458.47	614.04
Higher-Order Factor	405.94 (50) *	0.931	0.948	0.080 [.073, .087]	461.95	602.46
Models	**Work Task motivation scale for teachers (WTMST; N=1117)**					
Single-Order Factor	4541.85 (90) *	0.306	0.405	0.211 [.205, .216]	4601.85	4752.40
Correlated Factor	243.181 (80) *	0.971	0.978	0.043 [.037, .049]	323.18	523.92
Bi Factor	189.74 (75) *	0.979	0.985	0.037 [.031, .044]	279.74	505.56
Higher-Order Factor	289.17 (85) *	0.966	0.973	0.046 [.041, .052]	359.17	534.81
Models	**Teacher Well-being Scale (TWBS; N=1117)**					
Single-Order Factor	5470.98 (104) *	0.513	0.578	0.215 [.210, .220]	5534.98	5695.58
Correlated Factor	455.63 (101) *	0.967	0.972	0.056 [.051, .061]	525.63	701.27
Bi Factor	359.75 (88) *	0.971	0.979	0.053 [.047, .058]	455.75	696.63
Higher-Order Factor	455.63 (101) *	0.967	0.972	0.056 [.051, .061]	525.63	701.27
Models	**Coping with Stress *(*CWS-Q; N=836)**					
	χ 2 (df)	TLI	CFI	RMSEA (95% CI	AIC	BIC
Single-Order Factor	3332.15(27) *	0.315	0.486	0.383 [.372, .394]	3368.15	3453.26
Correlated Factor	104.35(24) *	0.981	0.988	0.063 [.051, .076]	146.35	245.65
Bi Factor	313.33(19) *	0.913	0.954	0.136 [.123, .150]	365.33	488.27
Higher-Order Factor	104.35(24) *	0.981	0.988	0.063 [.051, .076]	146.35	245.65

Note: * *p < 0.001. AIC = Akaike information criterion. BIC= Bayesian information criterion; CFA=confirmatory factor analysis; df = degree of freedom; FI = comparative fit index RMSEA = root mean squared error of approximation; TKI = Tucker-Lewis's index; χ2= chi-square.* Source: Zewude & Hercz (2022a, P.75)

PHASE TWO: THE MEDIATION TESTING

After the instrument validation and measurement invariance in the first phase or study, the researcher conducted three main studies with reasonable and appropriate samples to investigate the direct and indirect role of PsyCap on teacher well-being through work task motivation and coping with stress.

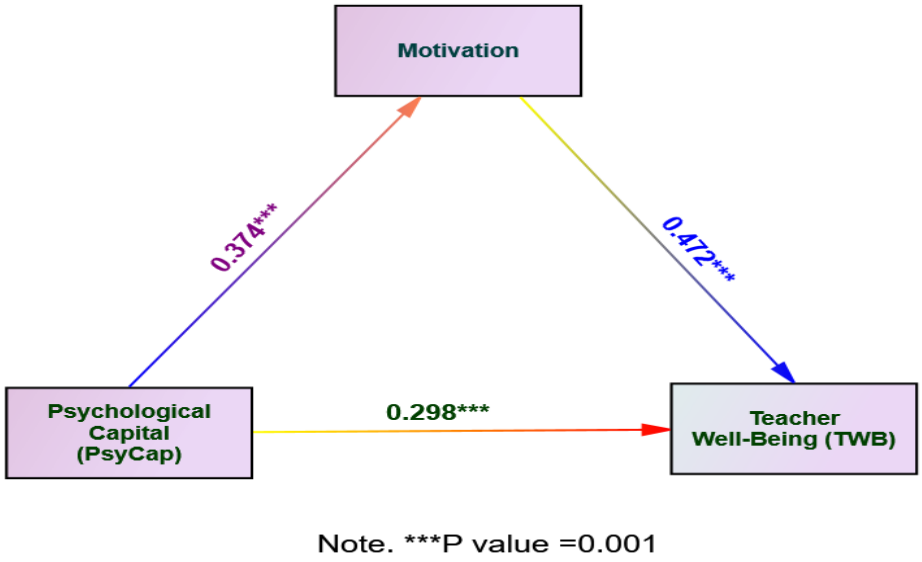
STUDY TWO: THE MEDIATION ROLE OF WORK TASK MOTIVATION IN THE RELATIONSHIP BETWEEN PSYCHOLOGICAL CAPITAL AND TEACHER WELL-BEING

The main purpose of the second study was to examine the direct and indirect effect of PsyCap on teacher well-being through work task motivation (see Figure 1). Besides, in this study, the role of PsyCap on dimensions of work task motivation (intrinsic motivation, identified regulation, external regulation, introjected regulation and amotivation) and dimensions of teacher well-being (workload, organizational and student-interaction well-being) (see Figure 2). As a result, the researcher examined the proportion of variance (i.e., $\mathbf{R^2}$) explained by the predictor variables to measure the correctness of the prediction obtained with the structured model. As a result, PsyCap explains the variance of intrinsic motivation (42.4 per cent), introjected regulation (34.5.4 per cent), amotivation (33.9 per cent), external regulation (26.1 per cent) and identified regulation, 17.3 per cent of the data indicated a better fit for the model. In addition, the model accounts for 44.9 per cent of the variance of student interaction well-being, 42.1 per cent of workload well-being, and 33.8 per cent of organizational well-being. Besides, this study shows that the standardised direct effect path from PsyCap to work task motivation, and teacher well-being was positive and significant ($\beta = 0.374$, [BC 95% bootstrap CI: 0.271 to .474], $p < .001$), and ($\beta = 0.298$ [95% bootstrap CI: 0.150 to 0.430], $p < .001$).

The result also confirmed that work task motivation positively and significantly mediated the relationship between PsyCap and teacher well-being (see Figure 1). In addition, the structural and measurement model also met the global cutoff points, which means various methods confirmed the mediation model.

Figure 1

Mediation model: the mediation role of work task motivation between PsyCap and teacher well-being



Note: Zewude & Hercz (2022a, P.101)

The second mediation model of this study was by considering the workload, organizational, and student interaction well-being as the dependent variable, PsyCap as the predictor variable, and dimensions of work task motivation as the mediator variables.

In addition, the direct effect of intrinsic motivation on workload and student interaction well-being was significant and positive but had no direct effect on organizational well-being. Besides, identified regulation has a negative and significant direct effect on organizational well-being but does not directly affect workload and student interaction well-being. Furthermore, external regulation, introjected regulation, and amotivation had a positive and significant direct effect on workload well-being, organizational well-being, and student interaction well-being. Our findings partially supported with the previous studies on work task motivation, PsyCap and well-being (e.g., Datu et al., 2018; Fernet et al., 2008; Ferraro et al., 2018; Milyavskaya & Koestner, 2011; Ryan & Deci, 2017; Youssef-Morgan & Luthans, 2015; Zewude & Hercz, 2021).

Besides, PsyCap and teacher well-being was positively and significantly mediated by work task motivation. This model confirmed that work task motivation has fully mediated the relationship between PsyCap and teacher well-being. The structural and measurement model also met the global cutoff points, which means various methods confirmed the mediation model.

The second mediation model of study two was by considering the workload, organizational, and student interaction well-being as the dependent variable, PsyCap as the predictor variable, and dimensions of work task motivation as the mediator variables (see Figure 2). This study also found a significant and positive direct effect of PsyCap on workload well-being, organizational well-being,

student interaction well-being, intrinsic motivation and identified regulation. Whereas PsyCap directly and negatively affect external regulation, introjected regulation and amotivation.

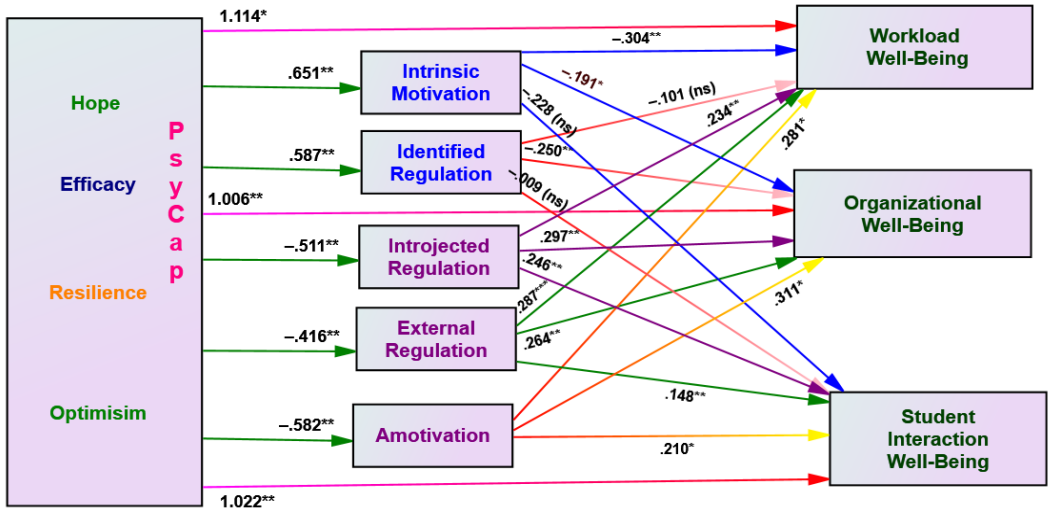
The indirect effect of PsyCap through intrinsic motivation identified regulation, external regulation, introjected regulation, and amotivation is significant to workload, organizational and student interaction well-being (see Figure 2). The measurement and structural model of this mediation model through intrinsic motivation, identified regulation, external regulation, introjected regulation, and amotivation indicates an acceptable fit: which is confirmed (Hair et al., 2019; Kline, 2016; Tabachnick & Fidell, 2018). Scientific evidence supported our hypothesis. For example, Luthans et al. (2015) discussed that helping psychologically healthy people and encouraging them to be more productive and use their inner potential leads to them being happy and, consequently, enabling the individual to build personal resources (Luthans et al., 2015). Therefore, this study used the positive psychology theory of Seligman (2011) and the self-determination theory of Ryan & Deci (2017) as a guiding theoretical framework. The structural model of this study tested the directed and indirect effect of PsyCap on teacher well-being through work task motivation of teachers. Examining the potential role of a PsyCap and motivation to foster teachers' well-being is novel research. As far as the best of our knowledge, there are no studies in education, particularly for university teachers leading to a knowledge (literature) gap).

Specifically, we found that PsyCap, intrinsic motivation, identified regulation directly positively affected teacher well-being. In contrast, external regulation, introjected regulation and amotivation negatively affected teacher well-being, which means the lower the external, introjected regulations and amotivation, the better the components of teacher well-being. Our findings supported the previous studies on work task motivation, PsyCap and well-being (e.g., Datu et al., 2018; Fernet et al., 2008; Ferraro et al., 2018; Milyavskaya & Koestner, 2011; Ryan & Deci, 2017; Youssef-Morgan & Luthans, 2015;(Zewude & Hercz, 2021). In addition, Zewude & Hercz (2021) found a significant and positive relationship between PsyCap and organizational, student interaction well-being, and teacher well-being.

To sum up, conducting a study on the PsyCap and its association with teachers' well-being and motivation by establishing an integrated, fresh, and novel model following the emerging theory of teacher well-being of Collie et al. (2015), the self-determination theory of motivation(Ryan & Deci, 2017), and the theory of positive psychology of Seligman (2011), become relevant for today's higher education.

Figure 2

The conceptual model of PsyCap construct on teachers' well-being dimensions mediated through work task motivation dimensions



Note: Zewude & Hercz (2022a, P.104)

STUDY THREE: PSYCHOLOGICAL CAPITAL AND TEACHER WELL-BEING: THE MEDIATION ROLE OF COPING WITH STRESS

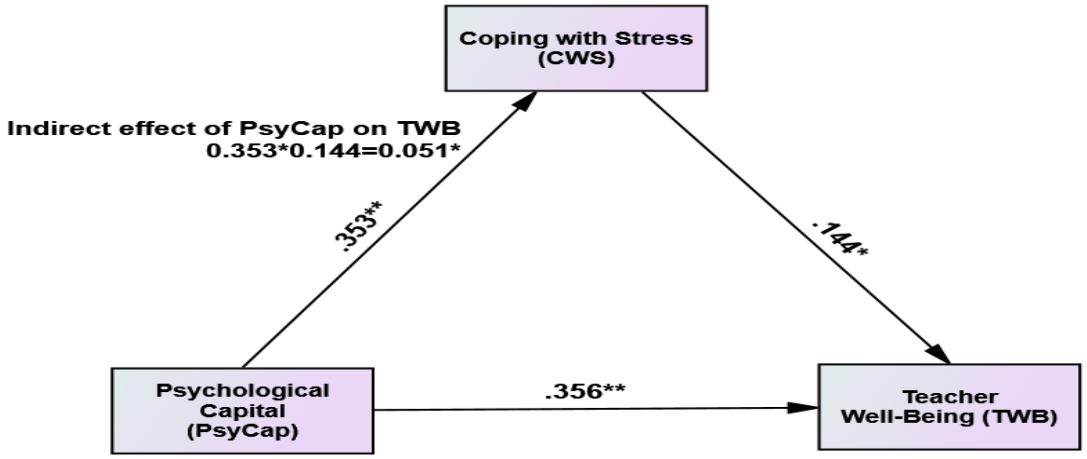
In study three, the researcher examined the mediating role of coping with stress as a link between PsyCap and teachers' well-being. The direct effect model (PsyCap) is compared to another direct and indirect model (with mediators). The best structural equation model requires specifying the relationships, examining causations, and developing the models (structural and measurement models) recommended by Hair et al. (2019). For instance, the fit between the two models in the mediation analysis was used in this study. Comparing the direct and indirect effect model (Figure 3) with the dimensional construct's direct and indirect effect (Figure 4) showed a good model fit. To measure the precision of prediction obtained with the structured model, we examined the proportion of variance explained by the predictor variables (i.e., $\mathbf{R}^2$).

Consequently, PsyCap explains 18.4 per cent and 12.5 per cent of the variance of teacher well-being and coping with stress, respectively. The model accounts for 58.4 per cent of the variance of student interaction well-being, 11.3 per cent of organizational well-being, and 4.3 per cent of workload well-being. The predictor variables' direct and indirect effects on the criterion variables were analyzed and presented (see Figures 3 and 4). The result shows that the standardized direct effect path from PsyCap to coping with stress and teacher well-being were positive and significant (β=0.353, [BC 95% bootstrap CI: -0.260–0.442], p<0.01), and (β=0.356 [95% bootstrap CI: 0.230–0.492], p<0.01), which supports the stated hypothesis 16 a & b, respectively. Furthermore, coping with stress has a significant and positive direct effect on teachers' well-being (β=0.144 [95% bootstrap CI: 0.0.021–0.272], p<0.01).

Furthermore, the indirect effect of PsyCap on teachers' well-being mediated through coping with stress was positive and significant (β=0.051, 95% bootstrap CI [0.010–0.100], p<0.05). The direct effect of CWS is also significant and positively affects teachers' well-being. The measurement and the structural model of this meditation were tested to prove the sound psychometrics. The study design is based on positive psychology theory (Seligman & Csikszentmihalyi, 2000), conservation (Hobfoll, 1989), and the broaden-and-build theory (Fredrickson, 2004) and is of paramount significance to university teachers.

Figure 3

Mediation model of the relations between PsyCap, CWS and TWB



Adapted from Zewude & Hercz (2021a, p.1239)

In addition, the structural model illustrated in Figure 4 tested the direct and indirect (mediated) effects of PsyCap and coping with stress on teacher well-being and examined the direct and indirect effects of PsyCap on the dimensions of teacher well-being mediated by coping through acceptance, change and withdrawal. The Pearson correlation result found a significant and positive relationship between PsyCap and organizational well-being, student interaction well-being, total teacher well-being, and a positive correlation with coping through acceptance, change, and coping with stress. However, PsyCap has no significant correlations with workload well-being and coping through withdrawal. Studies demonstrate a substantial and significant positive relationship between PsyCap and well-being (Rabenu et al., 2016) and are negatively associated with adverse outcomes (Avey et al., 2010). Besides, regarding the link between psychological capital and teacher well-being, Zewude & Hercz (2021) argued that psychological capital positively predicts organizational, student interaction, and total well-being. Therefore, a study on the relationship between PsyCap and teacher well-being is crucial for teachers, students, and the teaching profession.

A mediation model found that coping through acceptance, change, and withdrawal significantly mediate between PsyCap and workload well-being, organizational well-being, and student interaction well-being. PsyCap also has a significant and positive direct effect on coping through acceptance and coping through change. In contrast, it has a negative and significant direct effect on coping through withdrawal. PsyCap also shows a significant and positive direct effect on workload, organizational, and student interaction. The above findings are congruent with Rabenu et al. (2016). Besides, Luthans et al. (2015) and Youssef and Luthans (2015) argued that self-efficacy, hope, resilience and optimism (PsyCap) significantly and positively predict well-being and are related to desirable outcomes in the workplace

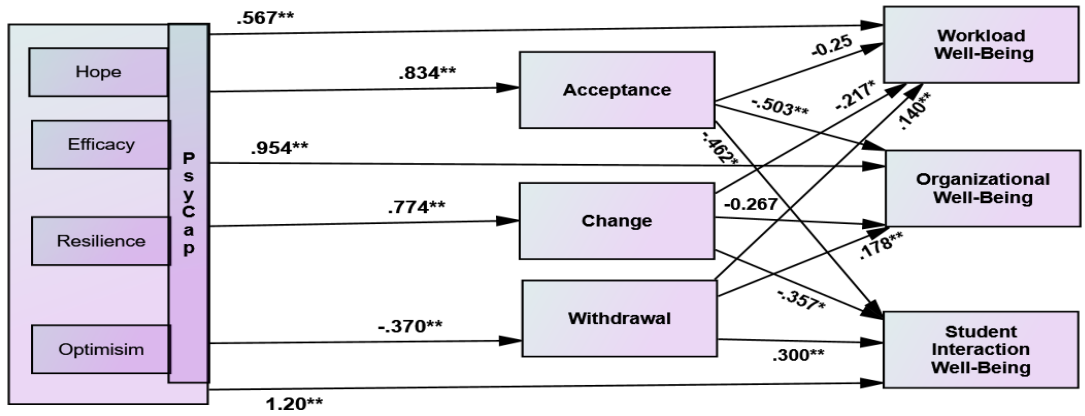
Surprisingly, coping through acceptance negatively affects organizational and student interaction well-being, not workload well-being. Coping through change also affects workload and student interaction directly and negatively. However, it has no significant direct effect on organizational well-being. Coping through withdrawal positively and significantly affects the well-being of workload and organizational and student interaction. This finding contradicts Rabenu et al. (2016). The indirect effect of PsyCap through coping with acceptance, change and withdrawal are significant for workload well-being, organizational well-being and student interaction well-being. The model has acceptable and confirmed structural and measurement validity (Hair et al., 2019; Kline, 2016; Tabachnick & Fidell, 2018).

Coping with acceptance and coping with change significantly mediate PsyCap and workload well-being, organizational well-being, and student interaction well-being. However, coping through withdrawal has no indirect effect on workload well-being, organizational well-being and student interaction well-being. The structural and measurement models of the three coping strategies (acceptance, change and withdrawal) have an acceptable model fit. Hair et al. (2019) and Kline (2016) recommended a structural model fit to test the mediated effects that GFI, AGFI, RFI, TLI, and CFI ≥ 0.90, and $\chi 2/df$ value ≤ 5, whereas values ≥ 0.95 and less than 3, respectively, should be a good model fit. Similarly, Rabenu et al. (2016) found that coping through change and acceptance mediated the relationship between PsyCap and well-being. The broaden-and-build theory suggests that positive emotions increase people's attention and thinking, and healthy longevity fuels psychological resilience, builds significant personal resources, triggers and fosters well-being, and seeds human flourishing. Positive psychology also focuses on helping healthy people be happier, more productive, and actualizing human potential. The COR theory also shows the potential of resources to help individuals attain goals, better cope with difficulties they face in the workplace, and move towards nurturing and optimizing their resources. According to Rabenu et al. (2016), PsyCap capacities of optimism, self-efficacy, resilience and hope would function as potential resources for coping with stress since coping evolves from resources that precede and influence coping, and psychological resources may boost the individual to adapt their lives, manage things more positively, and expect positive

workplace outcomes. Total PsyCap potentially impacts employees' well-being and performance more significantly than each sub-dimension (Rabenu et al., 2016). For instance, a study conducted by Luthans et al. (2005) found that PsyCap as a possible resource leads university teachers to be more confident, resulting in higher performance; to be more motivated to perform challenging tasks; to generate solutions, and to choose the best alternative pathways when facing challenges. Li (2018) also argued that teachers' PsyCap is a vital ingredient in the positive relationship between teaching, organization, and relations with students. In addition, coping with stress contributes to physical and psychological health (Park & Adler, 2003).

Figure 4

The mediation role of CWS dimensions between PsyCap and teacher well-being elements



Adapted from Zewude & Hercz (2021a, p. 1240)

STUDY FOUR: PSYCHOLOGICAL CAPITAL AND TEACHER WELL-BEING: THE MEDIATION ROLE OF COPING WITH STRESS AND WORK TASK MOTIVATION

The final and fourth study was based on studies two and three, testing an integrated/holistic model that might improve teacher well-being and strengthen the direct and indirect impact of PsyCap through CWS and WTM (see Figure 5). In addition, this study focused on testing teacher well-being, PsyCap, work task motivation and coping with stress across various socio-demographic groups (age, education, university type and experience in teaching). We have tested whether PsyCap is correlated with CWS, motivation, and teacher well-being or not. In this regard, the result was found that PsyCap had a positive and significant correlation with CWS, motivation and teacher well-being. This finding indicated that PsyCap, motivation, and CWS have a positive relationship with teacher well-being; that is, teachers have a high level of positive psychological resources (hope, efficacy, resilience and optimism), coping strategies (acceptance, change and withdrawal), and motivational strategies or types (intrinsic

motivation, identified regulation and less external, introjected regulation and motivation), improving teacher well-being (workload, organizational, and student interaction well-being). Similarly, the findings found in the scientific literature are also consistent with this study(Ferraro et al., 2018; Rabenu et al., 2016; Zewude & Hercz, 2021). This study found that CWS, motivation and PsyCap as an integrated resources should be helpful to improve teachers' well-being in their work life.

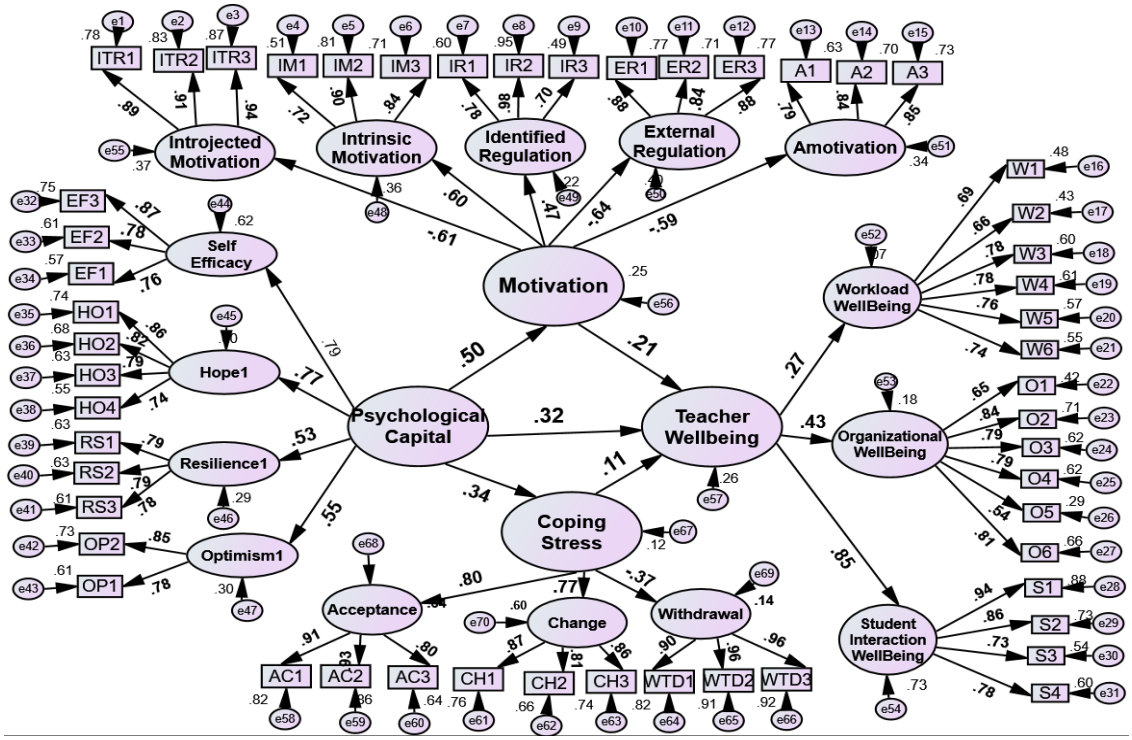
There were statistically significant differences for teachers' reports of gender, education, university type and years of experience in teaching on teacher well-being, PsyCap, work task motivation and coping with stress for participants in the present study. Furthermore, the Tukey HSD multiple groups' comparisons result also showed that when the age, educational qualification, and experience in teaching increase teacher well-being, PsyCap and coping skills also increase but work task motivation decreases.

The structural model of this study tested the direct and indirect effect of PsyCap on teacher well-being mediated through CWS and work task motivation. Therefore, conducting a study on a current agenda inspired researchers and practitioners. Examining the role of PsyCap and its association with teachers' well-being, motivation, and CWS, by establishing an integrated, fresh, and novel model following the positive psychology theory of Seligman (2011), the self-determination theoretical approach of Ryan & Deci (2017), the coping stress theory of Lazarus & Folkman (1984) and conservation resource theory of Hobfoll (1989;2002), become relevant for today's higher education.

Before assessing the mediation model, this study established the construct validity and reliability of all primary constructs to ensure the CFA approach's psychometric properties. The PCQ-12, the CWS-Q, WTMST, and the TWBS have been researched in studies 1, 2, and 3 and studied globally across cultures; only CFA was performed and had good construct validity and reliability.

Study four confirmed that work task motivation and coping with stress positively predicted teachers' well-being and played a mediator between PsyCap and teachers' well-being. These results suggest that motivational strategies, coping stress methods, and positive psychological capital resources could improve teacher well-being. Thus, positive psychology intervention approaches, coping strategies/methods, and motivation as a positive resource should be designed to improve teachers flourishing life and develop high motivation and coping methods to nurture their well-being. Furthermore, well-being is broad, and each professional task is different; therefore, we suggest examining in different contexts, such as work (Collie et al., 2015; Diener, 2009), to address each employee's problem. Hence, this model will apply to various educational, clinical, marketing, and other organizations.

Figure 5. *Mediation model: the mediation role of work task motivation and CWS between PsyCap and teachers' well-being (Result)*



Note*:* (Zewude & Hercz, 2022c, P. 130)

Conclusion

Teacher well-being with positive psychological capital, coping resources and motivational strategies benefits teachers, students, and the university. The present study investigated positive PsyCap and its association with teachers' well-being, work task motivation, and coping with stress. In addition, this study also examined the mediation role of work task motivation and coping with stress on the relationship between psychological capital and teacher well-being in an Ethiopian higher education setting. Ethiopia university teachers face several challenges, including poor professional development, low salaries, poor school facilities, poor university management, low value of teaching experience, lack of academic freedom and encounter institutional interference; higher work stress, poor motivation, and lower job satisfaction; overburdened by meetings, and lower well-being (Abebe and Tassew 2013; World Bank, 2003, 2017; Zewude & Hercz,2021). As a result, the studies of this dissertation established the direct and indirect role of psychological capital resources on teacher well-being mediate through work task motivation and coping with stress. Therefore, university teachers find working in such a stressful environment very challenging.

This dissertation study has many practical and theoretical implications. First, it has increased our knowledge of the multi-dimensional constructs of psychological capital, work task motivation, coping with stress, and teacher well-being. Second, this research contributes to the scientific usage of PCQ-12,

WTMST, CWS-Q and TWBS with a translation, adaption, psychometrical validation and equivalence measurement in Ethiopian education settings. Third, PsyCap is a potential positive psychological resource to help university instructors combat stress by coping, fostering their inner strength and nurturing their well-being. Fourth, PsyCap also has a determinant role as a resource to cope with stress, improve motivation, and enhance well-being. Fifth, teacher well-being has increased our knowledge of the true nature of teachers' work life and its association with students, colleagues, universities and administrators. Finally, Kaur & Singh (2019) suggested that teacher well-being can significantly reduce illness and diseases and improve an organization's success, economics, and productivity.

Therefore as a long-term goal, this research recommends that practitioners and researchers use positive psychological intervention strategies to enhance teachers' well-being. It is recommended that the current teacher well-being mediation model be employed in future inquiries to examine many university teacher problems in higher education settings. The mediation models from Figures 1 to 5 could also be used to address the limitations of previously untouched problems of university teachers.

Despite the benefits of the current study, there were some drawbacks to the studies. First, the findings reported in this dissertation emerged from university teachers' samples. Second, the effect of positive psychological resources, motivational strategies and coping skills on teacher well-being needs interventional studies (experimental approach) by designing specific strategies from each model to know the effect. Third, however, this study is more associational and quantitative, (3) this study only looks at the practical part of the teacher well-being model. However, the subjective well-being model of Dinner (2009) and current teacher well-being (collie and colleagues (2015) combined the theoretical and practical aspects of teacher well-being and can give a wholistic picture (Zewude & Hercz M., 2022). (4) Fourth, we analyzed and reported various types of reliability (Cronbach's alpha and CR), validity (construct), structural equation modelling, and path analysis in this article. Future research should develop an expanded experimental research design to identify time effects.

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