

Self-Regulation and Mental Well-Being in a Cohort of African Teachers: The Sabpa Study

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Abstract

The aim of this study was to obtain an understanding of the role of self-regulation in the well-being of Black South African teachers working within a highly stressful environment. It also aimed to determine the role of specific sub-constructs of self-regulation in the well-being of the teachers. The quantitative study made use of a cross-sectional design and incorporated Structural Equation Modelling (SEM). The group was divided into tertiles according to their levels of self-regulation as reported on the Short Self-Regulation Questionnaire (SSRQ). The descriptive statistics indicated that participants from the first and third tertiles experienced similar levels of stress, but that the group with high self-regulation levels experienced higher levels of well-being than the group with low self-regulation. Correlation analysis confirmed that there is a strong association between self-regulation and mental well-being. With the use of SEM, the nature of the relationship between self-regulation and its sub-constructs and wellbeing was determined. The results indicated that although all of the sub-constructs contribute to well-being, three sub-constructs seem to have a unique contribution to well-being. Lastly, the results indicated that self-regulation performs a similar role in the well-being of individuals from a collectivistic group as individuals with an individualistic orientation.

Keywords: Self-regulation, well-being, stress, Black teachers, protective factors, South Africa.

INTRODUCTION

The teaching profession is known both internationally and in South Africa as a stressful occupation (Austin, Shah & Muncher, 2005; Jackson, Rothmann & Van de Vijver, 2006; Kasalak & Dagyar, 2020; Maree, 2022). This can be ascribed to a number of challenges that teachers face daily, including work

overload, pupil misbehaviour and difficult interactions with parents (Brown, 2012; Mahan et al., 2010). Within the South African context, teachers are expected to fulfil numerous roles, adapt to frequent policy changes and teach in poor physical conditions (Ngidi & Sibaya, 2002). Especially Black teachers teaching in impoverished, predominantly Black schools face additional challenges such as a lack of

resources and equipment, including libraries, textbooks, water and electricity, as well as a lack of training, second-language difficulties and overcrowded classrooms (Harley, Barasa, Bertram, Mattson & Pillay, 2000; Hosking, 2002; Ngidi & Sibaya, 2002; Maree, 2022). All of these challenges contribute to the very high levels of stress reported by Black South African teachers (Motseke, 2013; Ngidi & Sibaya, 2002; Peltzer, Shisana, Zumba, Van Wyk & Zungu-Dirwayi, 2009).

Occupational stress is known to have negative effects on employees' productivity, job satisfaction, health and well-being (Shiet-Ching, Fatimah & MalissaMaria, 2011). Chronic stress has been associated with various forms of psychopathology, like mood and anxiety disorders (Kadzikowska-Wrzosek, 2012; Mahan et al., 2010; Peltzer et al., 2009) as well as medical conditions such as cardiovascular disorders, hypertension and somatic complaints (e.g. headaches and back pain) (Malan et al., 2010; Shiet-Ching et al., 2011). Given the high-stress environment teachers function in, it is not surprising that this group commonly report symptoms of depression, anxiety and burnout (Kittel & Leynen, 2003; Mahan et al., 2010).

In spite of the above factors, a growing body of literature suggests that not all individuals report symptoms of stress-related illness, despite exposure to the same stressful environment (Dolbier, Smith & Steinhardt, 2007; Jackson et al., 2006; Klassen, Usher & Bong, 2010). The growing movement of positive psychology has become increasingly interested over the past decade in the observation that some individuals seem to be more able than others to adjust to the experience of stress and are able to maintain or even enhance their experience of well-being despite stressful circumstances (Friborg, Hjemdal, Rosenvinge & Martinussen, 2003; Ryff & Singer, 2003). This observation has contributed to the revision of the very definition of well-being, so that the concept is no longer equated to the absence of illness, but rather described as individuals' ability to function well within their communities, maintain meaningful interpersonal relationships and realise their own abilities despite facing

stressors and challenges (Keyes, 2007; World Health Organization, 2004). The holistic

conceptualisation of well-being offered by Keyes (2002) identifies social, emotional and psychological components that collectively contribute towards an individual's ability to function and flourish in spite of stress, or even psychological disorder. Research on his model has found that flourishing individuals (i.e. those who experience a combination of social, emotional and psychological well-being) even when diagnosed with mental or physical illness, have positive mental health and are able to function better than individuals who are free of physical and mental illness but who are not flourishing (Keyes, 2002; Keyes, 2007; Lamers, Westerhof, Bohlmeijer, ten Klooster & Keyes, 2011).

Within the field of Positive Psychology, the ability of some individuals to maintain mental health, a sense of well-being and even optimal functioning in times of stress has been associated with psychological strengths and personal traits that act as buffers against stress and the development of illness (Ryff & Singer, 2003; Seligman, 2003; Seligman & Csikszentmihalyi, 2000). Among these so-called protective factors, which include aspects like courage, future-mindedness, perseverance, hope, optimism, self-determination and self-mastery to name but a few (McCarthy, Fouladi, Juncker & Matheny, 2006; Seligman & Csikszentmihalyi, 2000), the process of self-regulation has attracted a great deal of research attention, and is considered to be key to mental wellbeing (Hofer, Busch & Kärtner, 2011; Toering, Elferink-Gemser, Jordet & Visscher, 2009).

Self-regulation is a broad term that refers to an intricate process that involves the setting of clear and realistic short- and long-term goals and the subsequent regulation of thoughts, emotions and actions in such a way that the chances of goal achievement are optimised (Terry & Leary, 2011). In addition to the engagement in goal-directed behaviour, successful self-regulation entails the constant monitoring of progress towards goal achievement and also for behaviour to be

changed when the progress is insufficient (Ader & Erkin, 2010; Human-Vogel, 2006; Peterson & Seligman, 2004; Terry & Leary, 2011). Through the different aspects identified to be part of the self-regulation process, individuals are able to alter their behaviour, thoughts or emotions in order to overrule a natural, habitual or learned response when confronted with internal and external stimuli, to ensure that their responses are optimal and adaptive (Peterson &

Seligman, 2004; Baumeister & Vohs, 2007).

The successful implementation of self-regulation can thus have far-reaching effects on individuals' well-being. When individuals are able to understand the early signs of discomfort and distress, effective self-regulation will give them time to plan an appropriate response to the stressor and enable them to replace reactive and impulsive behaviour with specific and intentional acts that will optimise the chances of a successful outcome (Perry, 2010). This may explain why individuals who have good self-regulation have been found to report greater tolerance for negative emotional states, such as anxiety, fewer incidences of mood disorders, as well as improved personal adjustment, self-acceptance, self-esteem and interpersonal relationships (Baumeister & Vohs, 2007; Peterson & Seligman, 2004; Vohs & Baumeister, 2004). Therefore, the process of self-regulation increases the capacity to tolerate sensations of distress, which, in turn, allows individuals to strengthen themselves for times of stress (Perry 2010; Peterson & Seligman, 2004).

Although self-regulation's potential in protecting the well-being of individuals who function in high-stress environments has been illustrated, the majority of research on self-regulation and its effects emanate from Western or Eurocentric contexts (Klassen, 2004). Race and culture, and the related aspects of individualism and collectivism, are known to influence individuals' experiences of stress (Oyserman & Lee, 2008). It cannot, therefore, be assumed that the findings for Western individuals are similar for non-Western individuals (Klassen, 2004). Black South

Africans mostly embrace the Afrocentric or collectivism approach, which places an emphasis on the individual becoming subordinate to the group's social needs (Niemann, 2006). This approach is in contrast to the individualistic view of Western cultures that places the emphasis on the individual's own needs and independence (Niemann, 2006). Therefore, given that self-regulation is focused on the individual and not the group, it seems important to investigate the role of self-regulation on well-being within a collectivistic community. The objectives of this study were, therefore, to determine the association between self-regulation and Black South African teachers' self-reported levels of mental well-being. The study, furthermore, aimed to determine the role of the subcomponents of the self-regulation process in Black South African teachers' self-reported levels of mental well-being.

METHOD

Design

A cross-sectional design with a purposively selected study population was used in the current study, which forms part of the Sympathetic Activity and Ambulatory Blood Pressure in Africans (SABPA) project.

Participants

Black South African teachers (N=200) from the North-West Province participated in this study. This participant group included 101 men and 99 women between the ages of 25 and 65 years. The teachers were all secondary school teachers with similar socio-economic status.

Procedure and data collection

The North-West University Health Research Ethics committee granted ethical approval (NWU-00036-07-S6) for the study. Data collection took place at the Metabolic Unit Research Facility on the Potchefstroom Campus of North-West University. The following measures were completed: Short Self-Regulation Questionnaire (SSRQ: Carey, Neal & Collins, 2004); Teacher Stress

Inventory (TSI: Boyle, Borg, Falzon & Baglion, 1995), General Health Questionnaire (GHQ-28: Goldberg & Hillier, 1979), and the Mental Health Continuum–Short Form (MHC-SF: Keyes, 2006).

The Teacher Stress Inventory (TSI) is a 20-item self-report scale that measures the occupational stress experienced by teachers (Boyle et al., 1995). This instrument enquires about various possible sources of teacher stress, and uses a five-point Likert-type response format that ranges from no stress to extreme stress. The Cronbach's Alpha coefficients for the current study attested to the internal consistency of the total scale, and its subscales (TSI Total = 0.91, TSI General = 0.84, TSI Learner = 0.82).

The General Health Questionnaire (GHQ-28) was included in this study in order to indicate the presence of symptoms indicative of mental illness. It is a 28-item self-report scale used as a screening measure to identify individuals who are at risk of developing psychiatric disorders, and is often used as a measure of psychological well-being; (Nagyova et al., 2000). Symptoms are categorized by four subscales, including Somatic Symptoms (SS), Anxiety and Insomnia (AS), Social Dysfunction (SD) and Severe Depression (DS). The response options to the different items range from "Not at all" to "Much more than usual". Cronbach's alpha reliabilities previously reported for Black individuals from the general South African population ranged between 0.77 and 0.91 for the subscales and the total scale score (Wissing & Van Eeden, 2002). Similar Cronbach's Alpha coefficients were reported for the current study (GHQ Total scale = 0.89, GHQ-SS = 0.74, GHQ-AS = 0.74, GHQ-SD = 0.55, GHQ-DS = 0.75).

The Mental Health Continuum – Short Form (MHC-SF) was included to provide information regarding the presence of positive signs of mental health. Together with the GHQ-28 it provided a holistic view of the participants' mental well-being. This scale consists of 14 items which measure participants' self-reported levels of positive mental health over the past 30 days. Mental health is defined by Keyes (2002) as a "syndrome of symptoms of an individual's

subjective well-being" (p. 208). The 14 items enquire about the self-reported presence of each of three facets of well-being, including emotional well-being (EWB), social well-being (SWB) and psychological well-being (PWB). Response options range from "Never" to "Every day". Individuals can be diagnosed as flourishing (presence of mental health), languishing (absence of mental health) or as moderately mentally healthy (representing a state between the aforementioned) (Keyes, 2002). The internal consistency and three-factor structure (Keyes et al., 2008) of the MHC-SF has been confirmed in representative samples in South Africa. Cronbach's Alpha coefficients for the current study were also satisfactory (MHC-SF = 0.72, MHC-SF EWB = 0.82, MHC-SF SWB = 0.79, MHC-SF PWB = 0.84).

The Short Self-Regulation Questionnaire (SSRQ) is a 31-item version of the 63-item Self-Regulation Questionnaire (SRQ) that assesses seven dimensions of self-regulation (Brown, Miller & Lawendowski, 1999). Carey, Neal and Collins (2004) found that the scale contained one principal component, allowing for the SRQ to be substantially shortened. The SSRQ makes use of a five-point Likert-type response format. Item scores are summed to create a total scale score (Neal & Carey, 2005). The SSRQ has been found to show good internal consistency, with a Cronbach's alpha of 0.92 when used in an American context (Neal & Carey, 2005). For the current study, reliability coefficients yielded a Cronbach's alpha of 0.86 for the SSRQ total scale score. Factor analysis revealed five different facets of self-regulation as measured by the SSRQ. These facets can be described as Mindfulness (CA = 0.80); Self-efficacy (CA = 0.74); Monitoring Change (CA = 0.68); Goal Focus (CA = 0.72) and Internal Locus of Control (CA = 0.72).

Data analysis

The participant group was divided into tertiles according to their scores on the SSRQ. For the purpose of this study, the participants' results from the first and third tertiles were compared. The first tertile consisted of participants with

low total scale scores on the SSRQ, henceforth referred to as Group 1. The third tertile consisted of participants with high total scale scores on the SSRQ, henceforth referred to as Group 2. T-tests were conducted to determine the statistical significance of differences between group 1 and group 2. Effect sizes (Cohen's *d*) were calculated to determine the practical significance of the difference between the two groups. An effect size of $d = 0.8$ is considered to be a large effect, one of $d = 0.5$ is considered as a medium effect and $d = 0.2$ is considered a small effect (Berben, Sereika & Engberg, 2012). For the purpose of this study, a *d* value of approximately 0.5 and larger was considered to be of practical significance.

SEM was used to determine the structure of the relationships amongst these variables

Table 1. *Descriptive statistics of the study population and the t-test values for the difference between the first and third tertile*

Variable	Total group			Group 1		Group 2		t-tests		
	N	Mean	SD	Mean	SD	Mean	SD	Effect size	p-values	α
TSI_T	199	77.66	12.86	77.44	12.17	77.04	12.73	0.03	0.856	0.91
TSI_General	199	3.91	0.69	3.92	0.66	3.88	0.69	0.05	0.749	0.84
TSI_Learner	199	3.96	0.72	3.93	0.73	3.93	0.71	0.01	0.954	0.82
GHQ_T	200	8.26	6.50	10.69	6.28	6.21	5.97	0.71	<0.001	0.89
GHQ_SS	200	2.51	2.17	2.75	2.19	2.22	2.08	0.24	0.152	0.78
GHQ_AS	200	2.63	2.43	3.75	2.39	1.78	2.15	0.82	<0.001	0.85
GHQ_SD	200	2.01	2.12	2.60	2.07	1.59	2.05	0.49	0.005	0.80
GHQ_DS	200	1.11	1.86	1.58	2.17	0.61	1.29	0.45	0.002	0.83
MHC_T	200	48.30	10.94	45.17	11.98	53.41	8.39	0.69	<0.001	0.72
MHC_EWB	200	10.14	3.01	9.56	3.13	10.84	3.09	0.41	0.019	0.83
MHC_SWB	200	14.91	5.32	13.98	5.69	16.89	4.56	0.51	0.001	0.80
MHC_PWB	200	23.24	4.99	21.60	5.66	25.67	3.43	0.72	<0.001	0.84
SSRQ_Total 8	200	3.72	0.46	3.19	0.28	4.18	0.26	3.51	<0.001	0.86
Mindfulness	200	3.67	0.71	2.98	0.64	4.25	0.37	1.98	<0.001	0.80
Self-efficacy	200	3.95	0.52	3.56	0.53	4.32	0.35	1.42	<0.001	0.74
Monitoring change	200	3.74	0.66	3.35	0.64	4.10	0.55	1.17	<0.001	0.68
Goal focus	200	3.46	0.64	2.84	0.51	3.92	0.45	2.11	<0.001	0.72
IntLoC	200	3.83	0.68	3.34	0.77	4.25	0.46	1.19	<0.001	0.63

* $d \geq 0.2$ (small); ** $d \geq 0.5$ (medium); *** $d \geq 0.8$ (large)

Note: Group 1 = Tertile 1; Group 2 = Tertile 3; SD = standard deviation, α = Cronbach Alpha; TSI_Total = Teacher Stress Inventory Total Score, TSI_Gen = Teacher Stress Inventory General Mean, TSI_Learner_Mean = Teacher Stress Inventory – Learner Mean, GHQ-T = General Health Questionnaire – Total Score, GHQ_SS = General Health Questionnaire – Somatic Symptoms subscale, GHQ_AS = General Health Questionnaire – Anxiety and Insomnia subscale, GHQ_SD = General Health Questionnaire – Social Dysfunction subscale, GHQ_DS = General Health Questionnaire – Depression Symptoms subscale, MHC_EWB = Mental Health Continuum – Emotional Well-being subscale, MHC_SWB = Mental Health Continuum – Social Well-being subscale, MHC_PWB = Mental Health Continuum – Psychological Well-being subscale, MHC = Mental Health Continuum- Total Scale Score. Mindfulness = Mindfulness subscale, Self-eff = Self efficacy subscale, Monitoring change = Monitoring change subscale, Goal focus = Goal focus

(McQuitty & Wolf, 2013). The indices of fit included the CMIN/DF (Chi-square statistic divided by its degrees of freedom), Root Mean Square Error of Approximation (RMSEA) and Comparative Fit Index (CFI) indices. The AMOS application within the SPSS statistical software package was used to explore different models.

RESULTS

The descriptive statistics (means and standard deviations) with regard to the self-regulation and well-being for the whole group as well as group 1 and group 2 respectively are reported in table 1.

subscale, IntLoC = Internal locus of control, SSRQ_Total 8 = Short Self-Regulation Questionnaire total score.

The division of the groups according to their self-regulation total scale scores highlighted a number of interesting inter-group differences (Table 1). T-test results revealed no differences of any practical significance between the two groups with regard to the TSI total scale or subscale scores. Comparison of the GHQ-28 scores however indicate a difference that is both statistically ($p < 0.001$) and practically significant with a large effect ($d = 0.71$). The guidelines by Goldberg and Hiller (1979) suggest that GHQ-28 scores higher than the cut-off score of 4 are indicative of individuals who experience symptoms of possible mental disorders that may necessitate psychiatric intervention. Although both groups obtained

scores higher than 4, Group 1's scores were nearly twice as high as that of Group 2.

The MHC-SF results also indicated differences of statistical ($p < 0.001$) and medium practical ($d = 0.69$) significance between the groups. Further analysis indicated that, while 25.5% of participants in group 1 reported to be flourishing, a much higher number (49.1%) of participants from group 2 were flourishing. It is interesting that none of the participants from high SR-group (group 2) reported to be languishing.

The Spearman correlation coefficients of the TSI, GHQ-28, MHC-SF and SSRQ total and subscale scores are reported in table 2.

Table 2. Spearman correlation coefficients

	TSI	GHQ_T	MHC_TOT	SSRQ_TOT	Mindfulness	Selfeff	Monitoring change	Goal focus	IntLoC
TSI	1								
GHQ_T	.207**	1							
MHC_TOT	-.012	-.330**	1						
SSRQ_TOT	-.042	-.304**	.352**	1					
Mindfulness	-.011	-.223**	.206**	.830**	1				
Selfeff	0.0003	-.163*	.397**	.661**	.402**	1			
Monitoring change	-.063	-.166*	.297**	.576**	.329**	.370**	1		
Goal focus	-.138	-.307**	.228**	.736**	.528**	.290**	.386**	1	
IntLoC	.028	-.244**	.238**	.607**	.341**	.425**	.372**	.367**	1

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

* . Correlation is significant at the 0.05 level (2-tailed).

Note: SD = standard deviation, TSI_T = Teacher Stress Inventory – Total Score, GHQ-T = General Health Questionnaire – Total Score, MHC_TOT= Mental Health Continuum- Total Scale Score, Mindfulness = Mindfulness subscale, Self-eff = Self efficacy subscale, Monitoring change = Monitoring change subscale, Goal focus = Goal focus subscale, IntLoC = Internal locus of control, SSRQ_TOT = Short Self-Regulation Questionnaire total score.

The statistically significant correlation between the teachers' TSI and GHQ-28 total scores ($p < 0.01$) suggests a positive association between their self-reported stress levels, and the symptoms of possible mental illness reported by these teachers. Interestingly

though, there was not a significant correlation between the TSI and MHC-SF total scale scores. A statistically significant negative correlation was, however, found between the GHQ-28 and MHC-SF total scale scores ($p < 0.01$).

The SSRQ total scale score did not correlate significantly with the TSI total scale score. There was a statistically significant negative correlation between the SSRQ total scale score and GHQ-28 total scale score ($p < 0.01$). In line with this finding, the SSRQ total scale score revealed a statistically significant positive correlation with the MHC-SF ($p < 0.01$).

The subscales of the SSRQ revealed no correlations of any significance with the TSI total scale score. They did, however, show a number of significant correlations with the indicators of mental health included in this study. The SSRQ subscales yielded negative correlations of varying significance with the GHQ-28 total scale score. Furthermore, all of these subscales yielded statistically significant positive correlations ($p < 0.01$) with the MHC-SF total scale score.

Lastly, table 2 indicates that all the SSRQ subscales showed significant ($p < 0.01$) positive correlations amongst themselves, as well as with the SSRQ total scale score. The implications of these results will be explored in the discussion section.

Self-regulation as predictor of mental well-being

Structural Equation Modelling (SEM) was used to determine the degree to which the sub-constructs of self-regulation predicted the teachers' well-being. The initial or full model, which contains all the possible paths, is shown in figure 1. This indicates the degree to which

the various sub-constructs of self-regulation predict the mental well-being of participants. Regression weights are indicated on the different paths with the standardized regression coefficients indicated in brackets. The statistically significant paths are indicated with an asterisk.

Due to the lack of a significant difference between group 1 and 2 with regard to their TSI total scale scores, as well as the absence of significant correlations between the TSI and measures of mental health (MHC-SF) and self-regulation (SSRQ), it was decided to omit the TSI from the SEM model. Table 3 provides the measures of fit for the full and reduced models. The results indicated that the fit indices of the full model were indicative of a more acceptable fit than the reduced model.

Table 3. *Goodness of fit indices for structural model*

	CMIN/DF	CFI	RMSEA
Full model	1.869	0.798	0.066
Reduced model	2.193	0.795	0.077

Note: CMIN = Minimum Sample Discrepancy, DF = Degrees of Freedom, CFI = Comparative Fit Index, RMSEA = Root Mean Square Error of Approximation

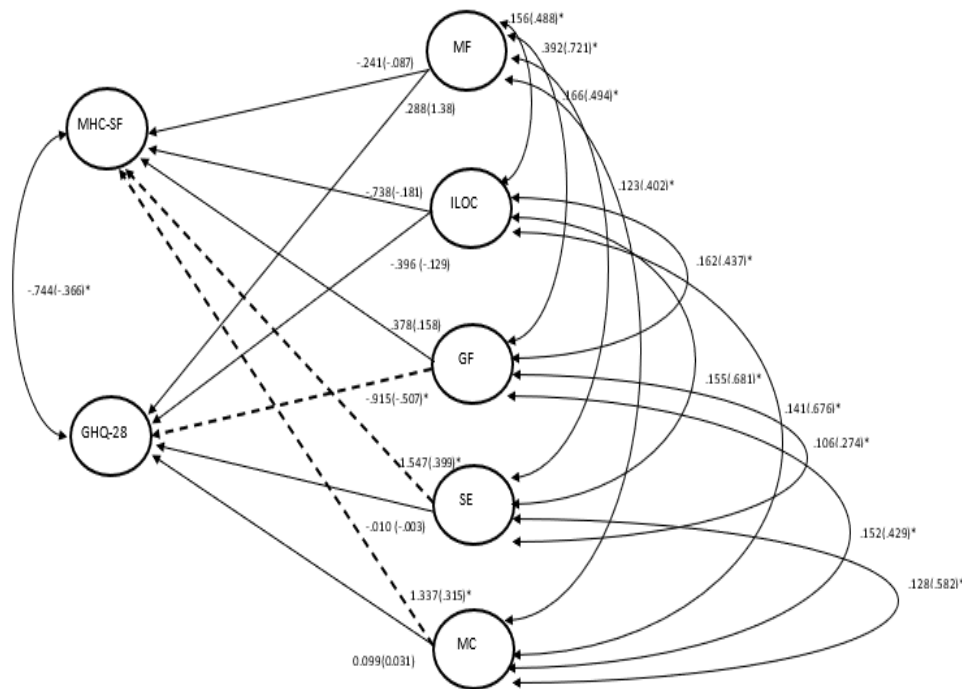


Figure 1. Model relating self-regulation and mental well-being in Black African participants.

Note: Significant paths are indicated by dashed lines.

GHQ-28 = General Health Questionnaire Total Scale Score. MHC-SF= Mental Health Continuum-Total Scale Score; MF = Mindfulness subscale, SE = Self efficacy subscale, MC = Monitoring change subscale, GF = Goal focus subscale, ILOC = Internal locus of control.

*p<0.05

As can be seen from figure 1, the model indicates that goal focus significantly predicts the absence of mental illness symptoms ($\beta = -.507$). The self-efficacy subscale offers a significant prediction of the presence of mental health ($\beta = .399$). Similarly, the monitoring change subscale also showed a direct and statistically significant path to the presence of mental health ($\beta = .315$). The model also confirms that there are statistically significant correlations between the subscales of the SSRQ.

DISCUSSION AND CONCLUSION

Descriptive statistics and t-test results indicated that there were no statistically significant differences between the low (group 1) and high (group 2) self-regulation groups regarding their self-reported stress levels. In fact, both groups reported experiencing significant stress that are

on par with, and even higher than what has been reported in international (Ballou, 2012) and other South African studies (Ngidi & Sibaya, 2002; Peltzer et al., 2009). The group as a whole, therefore, experience high levels of stress, independent of their capacity for self-regulation. Further results regarding the association between self-regulation and participants' well-being should therefore be interpreted within a context that was experienced as highly stressful by both these subgroups.

The results did, however, indicate that there were large, practically significant differences between the two groups with regard to their experience of well-being. Overall, group 2 reported significantly higher levels of mental health and lower occurrences of mental illness symptoms than group 1, despite sharing the same high-stress teaching environment, and reporting similar levels of stress. A possible

explanation for these results is the role of so-called protective factors, which often influence the individual's reaction to a stressful situation in various ways, resulting in successful adaptation (Daniilidou, & Platsidou, 2018). According to Peterson and Seligman (2004), these factors can affect problems by (a) directly decreasing the problem; (b) interacting with the risk factors to buffer its effects; (c) disrupting the process leading from the risk factor to the problem and (d) undoing the risk factor (Peterson & Seligman, 2004). The fact that group 2 reported significantly higher levels of mental well-being, and significantly lower levels of mental illness symptoms, suggests the possible protective role that self-regulation plays against the negative outcomes of stress. This is on par with the findings from international studies by Baumeister and Vohs (2007), Perry (2010) and Peterson and Seligman (2004).

In keeping with the second aim of the study, the role played by five sub-constructs of self-regulation came under scrutiny. The correlation analysis provided insight into the associations of the different constructs. Whilst all five sub-constructs of the SSRQ showed significant correlations with participants' mental health, three emerged as significant predictors of during path analysis.

Goal focus

Goal focus (GF) refers to the ability to set goals, defined as the outcomes that an individual would like to achieve or avoid, and to keep to them (Ter Doest et al., 2006; Vosloo et al., 2013). Both correlation analysis and SEM indicated that the SSRQ's goal focus subscale showed a significant negative association with presence of mental illness symptoms. It has been established that the planning and achieving of personally congruent goals creates a sense of direction and the feeling that life has purpose and meaning (Ryff, 1995; Huppert, 2009). Our results suggest that this group of African teachers' ability to continue setting goals and keep to them combats the presence of symptoms indicative of deteriorating health.

Self-efficacy

Self-efficacy (SE) refers to individuals' judgement of their ability to perform a specific behaviour and complete tasks successfully (Beefink et al., 2012; Reicks et al., 2004). SE guides our lives since we generally pursue courses of action which we believe will lead to desired outcomes (Kassin, Fein, & Markus, 2014). SE correlated negatively with the presence of mental illness symptoms, and positively with the presence of mental health. These results are on par with other studies that indicated that individuals high in SE are more likely to engage in challenging tasks, are more determined to achieve their goals and are more resilient in dealing with setbacks (Steyn & Mynhardt, 2008). Results from the SEM (Figure 1) also indicate that the presence of SE is highly predictive of the presence of mental health. This association has indeed been indicated by other studies, which reported that higher levels of SE increased individuals' persistence levels and coping efforts when they are faced with stressful and challenging situations (Beefink et al., 2012). Klassen et al. (2010) reported on international studies that revealed how teachers' SE beliefs correlated with various positive outcomes, such as a reduction in their stress levels and career longevity. Furthermore, low SE have been linked with depression, anxiety and avoidant behaviour. It has also been proven that SE has an influence on individuals' physical health as it influences both the individuals' engagement in healthy behaviour as well as the body's physiological responses to stress (Maddux, 2002). Although Kononovas and Dallas (2009) reported that individuals from an individualistic culture tend to report higher levels of SE in comparison collectivistic cultures, the results from the current study indicate that SE tends to have the same beneficial effect for this group of African teachers.

Monitoring change

Monitoring change (MC) is defined as individuals' ability to keep track of their progress in reaching their goals (Vosloo et al., 2013). The MC subscale of the SSRQ showed a significant positive correlation with the levels

of mental health, and correlated negatively with the presence of symptoms of mental illness. These findings are on par with studies reporting that the ability to monitor one's progress has therapeutic benefits, in that it lowers anxiety levels as well as unwanted automatic behaviours (Maas, Hietbrink, Rinck & Keijsers, 2013). SEM confirmed that participants' monitoring of their progress toward goal attainment significantly predict their level of mental health. A possible explanation could be that, through self-monitoring, individuals can increase desirable actions whilst decreasing the frequency of undesirable behaviour. According to Maas et al. (2013) increased awareness of unwanted and habitual behaviour allows for it to be changed. In the case of our participants, it can be speculated that heightened awareness of their goals and current progress toward those goals contributed to their ability to necessary adjustments to maintain their well-being.

In addition to highlighting certain aspects of self-regulation as significant predictors of mental health, our model also clearly indicates that the sub-constructs of self-regulation are significantly related to each other. Due to the strong inter-correlation between these self-regulation sub-constructs, it can be argued that the presence of all the sub-constructs should be considered when focusing on the role that the self-regulation process plays in teachers' well-being. The contributions of goal focus, self-efficacy and monitoring change to participants' well-being should, therefore, not be seen in isolation, but be interpreted as also representing the collective contribution of the other sub-constructs in the process of self-regulation. This is especially important given that the other self-regulation sub-constructs also showed statistically significant correlations with all the subscales of the MHC-SF and GHQ. The results from the current study do seem to indicate, however, that goal focus, monitoring change and self-efficacy have a unique contribution over and above that of the other self-regulation sub-constructs included in the model. These teachers' ability to set and remain focused on their goals, their belief in their own capabilities to achieve these, and their ability to track by monitoring their own

progress contributed significantly to their maintained mental well-being.

Considering the African cultural context, these results suggest that self-regulation plays a similar role as reported in Western, and perhaps more individualistic participant groups. Results from the current study seems to be in accordance with the argument by Bandura (1997) that individuals from a collectivistic culture may still differ in their individual responses to situations, and adjust their own behaviour to adapt and adjust successfully (Bandura, 1997; Klassen, 2004).

Lastly, it was interesting that the group as a whole reported experiencing very high levels of stress, but that no correlation was found between self-reported stress and their self-regulating abilities. This suggests that an individual's inherent ability to self-regulate is relatively independent of his/her context. Research has, however, also indicated that high-stress environments may require of a person to exert self-regulation more sustainably (Wa Chan & Wen Wan, 2012). The implications of so-called 'ego depletion' (i.e., reduction in the mental capacity and willingness to engage in volitional actions due to prior exertion of self-regulation capacity (Zhang, Stock, Rzepus & Beste, 2017) has however not received research attention within the challenging context of teaching in South Africa. In fact, South African studies of self-regulation as a promotive and preventive strength remain scarce, and an area in need of more attention (Potgieter & Botha, 2020).

The results indicated that self-regulation significantly predicts mental well-being among a group of Black South African teachers. As have been found in international studies, self-regulation seems to play a protective role within high-stress contexts such as teaching. This is substantiated by the fact that the group with higher reported levels of self-regulation reported experiencing both lower levels of mental illness symptoms, and significantly higher levels of mental health than the group that reported low levels of self-regulation. Self-regulation as multifaceted concept may therefore be beneficial to the enhancement of

well-being within this cohort of participants. Considering the role of the self-regulation sub-constructs in well-being, all the sub-constructs correlated positively with mental health and negatively with symptoms indicating possible mental illness. There were, however, certain aspects of self-regulation that emerged from this study as stronger predictors of the presence of well-being than others. Although all the sub-constructs of self-regulation had strong correlations to each other, indicating their collective contributions to participants' well-being, the participants' self-efficacy beliefs, ability to monitor their own behaviour and ability to set goals were most predictive of their levels of mental health.

ACKNOWLEDGEMENTS

Competing interests

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this research article.

Ethical considerations

Ethical approval for the SABPA project was obtained (NWU-00036-07-S6) from the North-West University's Ethics Committee, for the period from its commencement in November 2007 up to the final data collection in November 2012.

Funding information

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

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