

The dynamics of appraisal: a review of 20 years of research using the Fortitude Questionnaire

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Abstract

Fortitude refers to the psychological strength to manage adversity and stay well. It is derived from adaptive cognitive appraisals of self, family, and social supports and has consistently been identified as a protective factor in psychological well-being. This study undertakes a scoping review of empirical research on the Fortitude Questionnaire, which was developed to assess levels of fortitude. The aims of the study were to categorize and catalogue studies that have used the Fortitude Questionnaire, identify the variables that have been linked to the scale, and determine the extent to which prior research has replicated the Fortitude Questionnaire's psychometric properties. Arksey and O'Malley's five-stage framework for scoping reviews was followed to review studies published between January 1999 and March 2020. A total of 51 studies met the inclusion criteria. The scoping review found that the Fortitude Questionnaire has been used in different contexts and among various sample groups across the lifespan, including vulnerable and high-risk populations. The scale has demonstrated sound reliability and studies have confirmed its factor structure. The scale has also been used as an independent, dependent, and intervening variable. Fortitude has been linked to positive and negative indicators of well-being, and intervention studies have indicated that fortitude is amenable to change. The findings of this scoping review provide a foundation for the development of appraisal restructuring programmes and interventions.

Keywords

Fortitude, Fortitude Questionnaire, psychometric properties, review, well-being

Adverse life events evoke psychological distress and emotional upheaval for some individuals and lead to positive adaptation and effective coping for others. Cognitive appraisals of stressors have been identified as a central mechanism underling this differential vulnerability to adversity

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(Chishima et al., 2018; Gomes et al., 2017; Yeung et al., 2016). This mechanism includes primary appraisal, which represents an immediate evaluation of a stressor in relation to well-being, and secondary appraisal, which refers to an evaluation of the extent to which they can activate resources for coping (Lazarus & Folkman, 1984). Existing research on adversity has largely focused on the influences of negative primary and secondary appraisals on psychological outcomes (Cao et al., 2016; Gomes et al., 2017). Comparatively less research has investigated the role of positive appraisals.

Drawing on the seminal theory of salutogenesis (Antonovsky, 1979), T. B. Pretorius (1998) proposed the construct of fortitude, which is defined as the psychological strength to cope with life stressors. According to T. B. Pretorius (1998), fortitude is derived from positive (fortigenic) appraisals of one's self, family, and external sources of support. These appraisals are presumed to activate the individual's salutogenic potential and facilitate coping by influencing the way in which adverse events are appraised. Support for this notion has come from studies on vulnerable populations (De Villiers & Van den Berg, 2012; Padmanabhanunni, 2020; T. B. Pretorius et al., 2016).

Based on the theory of fortitude, T. B. Pretorius (1998) developed the Fortitude Questionnaire (FORQ), which assesses three dimensions of fortigenic appraisals: self-appraisal, which includes a global positive evaluation of oneself and specific positive appraisals of one's competence and capacities; family which includes an evaluation of the family environment and family as cohesive, responsive, and accessible in times of stress; and support appraisal, which includes an evaluation of the availability, accessibility, and value of support from others, such as friends and peers.

It has been suggested (T. B. Pretorius et al., 2016) that fortitude bears similarity to the construct of resilience. However, fortitude is based on a theory of appraisal, whereas resilience is typically conceptualized as the ability to maintain stable psychological functioning when confronted with a stressor. A variety of measures have been developed to assess resilience but these scales are not comparable with the FORQ because they assess different constructs and are grounded in a different paradigm.

The FORQ has been extensively used since its development. Hence, the goal of this study is to conduct a scoping review on the use of the FORQ in research over the past 20 years. The aims of the study are threefold and entail (1) categorizing and cataloguing studies that have used the FORQ, (2) identifying the variables that have been linked to the scale, and (3) determining the extent to which prior research has replicated the FORQ's psychometric properties.

Method

A scoping review was undertaken during December 2019 and March 2020 to map the literature on fortitude since the development and validation of the FORQ (T. B. Pretorius, 1998). Scoping reviews represent a means of summarizing and synthesizing the knowledge in a particular area and are typically used to assess the range and nature of research on a specific topic (Arksey & O'Malley, 2005). The methodology for the scoping review was guided by the frameworks of Arksey and O'Malley (2005) and Levac et al. (2010) and included the following phases: (1) generating the research question, (2) identifying and selecting relevant studies, (3) charting the data, and (5) collating, summarizing, and synthesizing the results.

Research question, data sources, and search terms

This scoping review was guided by the following questions: 'What are the types and characteristics of studies that have used the FORQ?' and 'Were studies that have used the FORQ able to replicate its psychometric properties?' The initial search was implemented in December 2019 and was conducted using Google Scholar, PubMed, Academic Search Premier, Sabinet African Journals, EBSCO Open

Access Medical and Health Collection, Academic Search Complete, and UKWAZI (the local library search engine). The databases were selected to be comprehensive and to cover a broad range of fields of study. Search terms included 'fortitude', 'fortitude questionnaire', 'fortitude scale', and 'FORQ'.

Screening process and eligibility criteria

A two-stage screening process was used to assess the suitability of studies identified in the search. First, studies were eligible for inclusion if they used the FORQ and were published in either English or Afrikaans in the period 1999–2020 (January 1999–March 2020). Second, the title and abstract of identified studies were independently screened by each of the authors separately to ensure that these studies adhered to the inclusion criteria. All studies appraised as relevant were procured for full-text review and were reviewed by each author separately to promote rigour. The reference list of the selected studies was also mined to identify suitable studies.

Data extraction and synthesis

All included articles were captured and charted on an Excel spreadsheet (Microsoft Corporation, 2016). The characteristics of each selected study were extracted by the authors. This included type of study design, year of publication, characteristics of study population, findings of the study, and countries where the study was conducted. The methodological quality of the selected studies was not appraised.

Results

The initial search terms yielded 2631 results across a range of disciplines. A secondary search excluded the term 'fortitude', and this excluded 2451 of the original results. Duplicates across databases ($n=104$), dissertations published as journal articles ($n=12$), and studies that only included the FORQ as a reference ($n=12$) were also removed. One study only used the individual items of the FORQ and was also excluded. In all, 51 studies met the inclusion criteria (see Figure 1).

The 51 studies are summarized in Table 1.

Location and sample

The FORQ has been used primarily in South Africa; however, it has also been used by researchers in Canada (Beattie et al., 2016), Indonesia (Yuwanto & Atmadji, 2017), Nigeria (Adejuwon et al., 2015), and the United Arab Emirates (Hameed et al., 2016). The FORQ has been translated into Afrikaans (e.g., Bouma, 2000), Setswana (e.g., Khumalo et al., 2011), and Indonesian (Yuwanto & Atmadji, 2017).

The FORQ has been used among sample groups across the lifespan, including children (e.g., De Villiers & Van den Berg, 2012), adolescents (e.g., I. Pienaar, 2002), students (e.g., Hamid & Singaram, 2016), and various adult samples, including nurses (Heyns et al., 2003), health club members (Edwards, 2003a), lay counsellors (Padmanabhanunni, 2020), police officers (Taylor, 2002), and entrepreneurs (Venter, 2004). It has also been used in research with vulnerable and under-researched populations such as learners with learning disabilities (Bouma, 2000), parents of handicapped children (Constandius, 2003), persons with head injuries (Helmand, 2001), students with physical disability (Hundermark, 2004), caregivers of spouses with Alzheimer's disease (J. C. Potgieter & Heyns, 2006; C. Pretorius et al., 2009), women with the metabolic syndrome (Botha et al., 2007), and children with a life-threatening illness (Talbot, 2012).

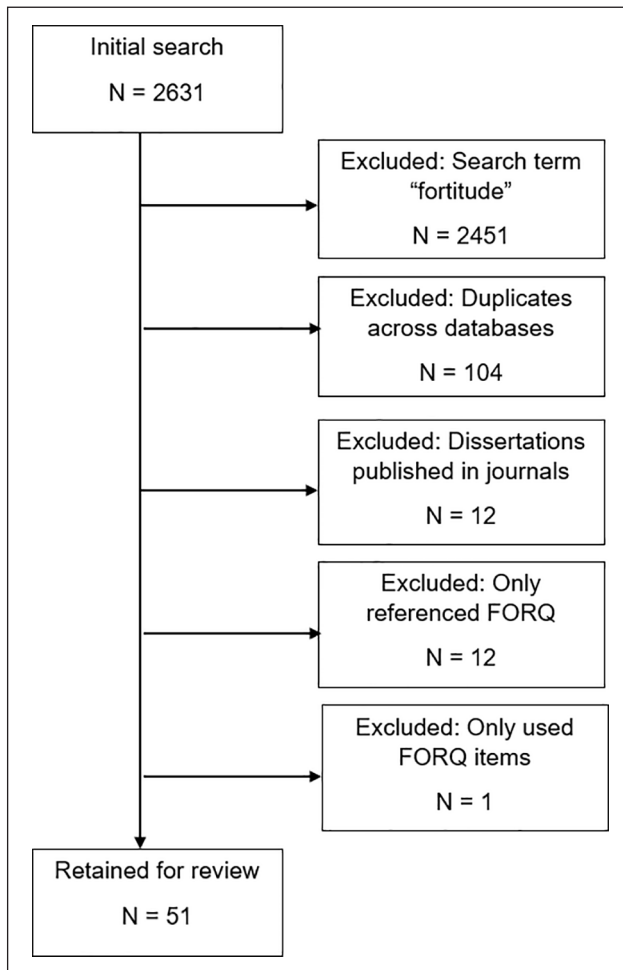


Figure 1. Literature screening procedure.

Research designs

Most of the studies used the FORQ in a cross-sectional design, while some studies used it as an outcome measure to test the effectiveness of an intervention in quasi-experimental designs (e.g., Van Schalkwyk & Wissing, 2013). Several triangulation studies used both qualitative and quantitative data (e.g., J. C. Potgieter, 2002; F. Potgieter, 2004), and one qualitative study explored the dimensions of fortitude (Hundermark, 2004).

Psychometric properties of the FORQ

The majority of studies reported favourable indices of internal consistency (Cronbach’s alpha), ranging from .63 to .91. Some exceptions were related to the self-appraisal subscale (see Laureano et al., 2014; Talbot, 2012; Wissing et al., 2008). The pattern of reliabilities for the FORQ and the subscales were similar across the majority of studies in that the total FORQ scale was the most

Table 1. Studies reviewed.

Author(s)	Location/sample	Objective	Psychometric properties	Findings
Adejuwon et al. (2015)	Nigeria Health workers N = 223	Examine the role of fortitude in the career commitment of health workers	Not reported	Fortitude correlated with perception of alternative employment opportunities ($r = -.18, p < .01$), emotional intelligence ($r = .37, p < .01$), and career commitment ($r = .14, p < .01$).
Barends (2004)	Western Cape Students N = 164	Explore the interaction of resilience constructs, demographic variables, and academic coping	Self-appraisals = .69 Family appraisals = .84 Support appraisals = .71 Fortitude = .83	Men had higher self-appraisals ($t = 2.04, p < .05$). African language speakers had higher self-appraisals ($F = 11.78, p < .01$) and family appraisals ($F = 7.84, p < .01$). Rural students scored significantly higher on family appraisal ($t = -2.10, p < .05$). Fortitude and subscales were positively related to indices of adjustment ($r = .17-.44, p < .05$). Support appraisal ($\beta = -.18, p < .05$) and fortitude ($\beta = -.18, p < .05$) moderated the relationship between age and adjustment.
Beattie et al. (2016)	Canada Students N = 486	Explore the influence of psychological factors on mental health help-seeking	Fortitude = .89	Fortitude related to help-seeking attitudes ($r = .33, p < .01$), and behaviour ($r = -.13, p < .01$), psychological distress ($r = -.51, p < .01$), and mental health symptoms ($r = -.52, p < .01$).
Botha (2006)	North West African and White women N = 217	Explore whether well-being differed among women based on their recalled quality of childhood relationships and determine predictors of obesity in women	Reliability: African/White Self-appraisals = .63/.78 Family appraisals: .86 for both Support appraisals = .75/.85	Participants with higher quality of childhood relationships had significantly higher fortitude ($p < .01, d = .51$). Family appraisals predicted obesity for African women ($t = 2.80, p < .01$).
Botha et al. (2007)	North West Women N = 217	Explore the association between psychological well-being and metabolic syndrome (MS).	Fortitude = .89 Support appraisals: African/ White women = .75/.85	White women without MS had higher support- and family appraisals ($d = .76$ and .55).
Bouma (2000)	Western Cape Learners with learning disabilities N = 99	Investigate psychofortological factors using qualitative and quantitative methods	Fortitude = .74	African women without MS had lower family appraisals ($d = .54$). Self-appraisal predicted total functioning ($\beta = .36, p < .01$).
Constandius (2003)	Gauteng Western Cape, Kwazulu-Natal Parents of handicapped children N = 77	Translated into Afrikaans Explore the stress and coping of parents with severely handicapped children.	Fortitude = .91	The stressors were negatively correlated with fortitude ($r = -.38$ to $-.43, p < .01$).
De Villiers & Van den Bergh (2012)	Bloemfontein 12-year-old children N = 161	Implement and evaluate a resiliency programme for children	Coefficients ranged from .69 to .79	Among fathers, fortitude was negatively correlated with poor health/mood, lack of social support, limits on family opportunity, financial problems, and perceived stress ($r = -.51$ to $-.76, p < .01$). Among mothers, fortitude was negatively correlated with lack of family integration ($r = -.042, p < .01$). Self-appraisal increased following exposure to a resiliency programme ($F = 13, p < .01$).

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Table 1. (Continued)

Author(s)	Location/sample	Objective	Psychometric properties	Findings
Edwards (2003a)	KwaZulu-Natal N = 216 Health club members	Investigate the structure of a psychological wellness profile	Not reported	Fortitude significantly predicted psychological wellness. Fortitude correlated with sense of coherence ($r = .50, p < .01$), satisfaction with life ($r = .40, p < .01$) and coping ($r = .41, p < .01$).
Edwards (2003b)	Richard's Bay Regular/irregular exercisers N = 216	Compare psychological variables of regular and irregular exercisers	Not reported	Regular exercisers showed significant increases in fortitude over time ($t = 3.4, p < .05$).
Edwards (2006)	Richards Bay Health club members N = 26	Investigate the relationship between regular exercise and psychological well-being	Not reported	Regular exercise was associated with significant increases in fortitude. Fortitude was positively correlated with well-being ($r = .50, p < .01$).
Geldenhuis & Van Schaikwyk (2019)	Western Cape Adolescents N = 808	Examine well-being of adolescents living in a high-risk environment	Fortitude = .82	No difference in fortitude between this sample ($M = 59.58$) and a general sample of adolescents ($M = 61.88$).
Gibson (1999)	Western Cape Students N = 125	Determine the extent to which fortigenic constructs have a common underlying dimension	Fortitude = .91	Fortitude had significant direct effects on physical symptoms ($\beta = -.31, p < .05$), depression ($\beta = -.42, p < .05$), and happiness ($\beta = .42, p < .05$).
Hameed et al. (2016)	United Arab Emirates Students N = 251	Investigate the role of fortitude in motivation	Not reported	A direct relationship between fortitude and motivation ($\beta = .35, p < .01$) Fortitude moderated the locus of control–motivation relationships ($\beta = .22, p < .01$).
Hamid & Singaram (2016)	KwaZulu-Natal First-year medical students N = 165	Explore the relationship between academic performance and fortitude	Self-appraisals = .77 Family appraisals = .88 Support appraisals = .82	Fortitude and its components correlated significantly with academic performance ($r = .17$ to $.29, p < .05$). Male students had higher self-appraisal scores.
Helmand (2001)	No location Persons with head injury N = 25	Qualitatively and quantitatively analyse the relationship between psychofortigenic factors and satisfaction with life in persons with head injury.	Not reported	Fortitude and sense of coherence accounted for 23.58% of variance in satisfaction with life. Qualitative findings supported the importance of self-perceptions for satisfaction with life.
Heyns et al. (2003)	Gauteng, Western Cape, Free State Nursing staff N = 226	Explore the relationship between psychofortigenic factors and burnout	Fortitude Afrikaans = .86 English = .88	Fortitude correlated negatively with emotional exhaustion ($r = -.23, p < .01$) and positively with personal accomplishment ($r = .23, p < .01$).

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Table 1. (Continued)

Author(s)	Location/sample	Objective	Psychometric properties	Findings
Hill (2003)	Eastern Cape, Gauteng, Mpumalanga Grade 11 and 12 learners N = 890	Explore the relationship between cognitive flexibility and psychological well-being	Fortitude African/Afrikaans language speakers = .79/.85	A significant negative relationship was found between fortitude and cognitive flexibility for boys ($r = -.15, p < .01$). African language speakers: fortitude correlated negatively with cognitive flexibility ($r = -.19, p < .01$). Afrikaans speakers: fortitude correlated positively ($r = .20, p < .01$) with cognitive flexibility.
Hundermark (2004)	Western Cape Students with physical disability N = 6	Qualitatively determine whether the three dimensions of fortitude apply to students with physical disability	Qualitative construct validity	Positive appraisals of self support from family and support from others, as well as interconnectedness of domains, emerged as distinct themes.
Julius (1999)	Western Cape Students who presented for counselling N = 70	Determine whether fortitude and gender influence psychological distress	Fortitude = .88 Self-appraisals = .69 Family appraisals = .90 Support appraisals = .82	Fortitude ($r = -.38, p < .05$) and self-appraisals ($r = -.37, p < .05$) correlated negatively with total functioning (more concerns). Men: support appraisals and self-appraisals ($r = -.43$ and $-.47, p < .01$) correlated negatively with total functioning. Women: support appraisals ($r = -.43, p < .01$) correlated negatively with academic problems.
Khumalo et al. (2008)	North West Students N = 256	Explore the validity of the Values-In-Action Inventory of Strengths	Fortitude = .86	Fortitude correlated positively with strengths ($r = .21-.41, p < .05$).
Khumalo et al. (2011)	North West Adults N = 459	To validate the General Psychological Well-being Scale (GPWS) and the Mental Health Continuum Short Form (MHC-SF)	Setswana version Fortitude = .87	Both GPWS and MHC-SF correlated positively with the FORQ ($r = .27-.56, p < .01$).
Koen (2009)	Gauteng Adolescents N = 276	Examine the effect of parent-adolescent relationships on emotional well-being	Fortitude = .88	Fortitude correlated negatively with anger towards parents ($r = -.57, p < .05$) and positively with trust towards parents, open communication and family satisfaction ($r = .69, .59$, and $.70$, respectively, $p < .05$).
Kok (2013)	North West Teachers N = 408	Compare psychological well-being among Black and White teachers	Not reported	White teachers had higher support appraisals ($t = -8.43, p < .01$). White teachers: self-appraisals ($r = -.25, p < .01$) and support appraisals correlated negatively with stress. Black teachers: family appraisals correlated positively with stress ($r = .21, p < .01$).
Laureano et al. (2014)	No Location First-year university rugby players N = 41	Evaluate the effectiveness of an experiential-learning programme (ELP) on psychological well-being of university rugby players	Self-appraisals = .59 Family appraisals = .64 Support appraisals = .67	Participants exposed to ELP scored higher on fortitude ($p < .01, d = .66$), self-appraisals ($p < .01, d = .75$), and support appraisals ($p < .05, d = .50$).

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Table 1. (Continued)

Author(s)	Location/sample	Objective	Psychometric properties	Findings
Nel (2003)	No location Students and adults N = 384	Clarify the interpersonal components of psychological well-being	Fortitude = .85 Self-appraisals = .85 Family appraisals = .85 Support appraisals = .85	Self-, support-, and family appraisals loaded on one factor labelled 'comfortability in interpersonal relationships'. Self-appraisal loaded on one factor, labelled 'intra-personal well-being'. Support appraisals and family appraisals loaded on a second factor called 'comfortability and satisfaction in interpersonal relationships'. Fortitude and its subscales were significant predictors of compassion satisfaction ($\beta = .25-.34, p < .01$). Support- and family appraisals ($\beta = .81$ and $.48, p < .01$) were significant predictors of secondary traumatic stress. Support-, family-, self-appraisals, and fortitude ($\beta = .73, .25, -.41, -.28, p < .05$) were significant predictors of burnout. Self-appraisal correlated significantly with generativity ($r = .44, p < .05$), attentional switching ($r = .41, p < .05$), and other measures of well-being ($r = .45-.66, p < .05$).
Padmanabhanunni (2020)	Western Cape Lay counsellors N = 143	Investigate the role of fortitude among lay trauma counsellors	Fortitude = .89 Self-appraisals = .71 Family appraisals = .89 Support appraisals = .81	
Peters (2005)	North West African women N = 100	Determine whether capacity to switch attention and generativity is related to psychosocial well-being	Fortitude = .88 Self-appraisals = .63	
I. Pienaar (2002)	Eastern Cape, Gauteng Adolescents N = 1238	Investigate the relationship between hope and psychological well-being	Fortitude English = .86 Afrikaans = .84 African language = .82	Fortitude correlated significantly with each hope scale ($r = .23-.52, p < .01$). Hope ($F = 134.99, p < .01$) and demographic variables ($F = 8.27, p < .01$) predicted 42.1% and 2.29%, respectively, of the variance in fortitude.
J. M. Pienaar et al. (2006)	Eastern Cape, Gauteng. Adolescents N = 1238	Predict well-being by conservatism, gender, and home language	Not reported	Conservatism contributed 6.26% of R^2 , and gender and language contributed 2.29%, in predicting fortitude.
J. C. Potgieter (2002)	Free State and Gauteng Caregivers who had lost a spouse who suffered from Alzheimer's N = 40	Describe qualitatively and quantitatively the experiences of caregivers grieving the loss of a spouse who had Alzheimer's	Not reported	Caregivers with a spouse currently suffering from Alzheimer's ($M = 59.50$) and those who had lost their spouse to Alzheimer's ($M = 60.70$) had lower mean scores than participants with no Alzheimer's in the family ($M = 65.10$) or those who had lost their spouse to other causes ($M = 64.20$).
F. Potgieter (2004)	Bloemfontein, Pretoria Adults N = 150	Investigate wellness in early adulthood	Self-appraisals = .75 Family appraisals = .82 Support appraisals = .85	Women scored higher on family appraisals ($t = -2.62, p < .01$). All subscales correlated with a wellness scale ($r = .24-.62, p < .05$).
J. C. Potgieter & Heyns (2006)	Bloemfontein Caregivers of husbands with Alzheimer's N = 8	Quantitatively and qualitatively explore stressors and strengths of caregivers	Not reported	Caregivers reported low fortitude ($M = 52.25$).

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Table 1. (Continued)

Author(s)	Location/sample	Objective	Psychometric properties	Findings
C. Pretorius et al. (2009)	Free State Caregivers of wives with dementia N = 10	Explore the experiences caregivers	Not reported	FORQ scores ($M = 59.22$, $SD = 7.01$) suggested that participants had positive self-, family-, and support appraisals.
T. B. Pretorius et al. (2016)	Cape Town Adolescents in low-income communities N = 498	Explore the role of fortitude in the association between violence and trauma-related symptoms	Fortitude = .76	Adolescents with high levels of fortitude had lower levels of trauma symptoms related to exposure to violence (stress-buffering) ($\beta = -.11$, $p < .01$) and were able to maintain their well-being ($\beta = -.11$ to $-.19$, $p < 0.01$) regardless of the extent of such exposure (health-sustaining). Fortitude correlated positively with academic results ($r = .18$, $p < .01$). African language speakers: academic results correlated positively with fortitude ($r = .35$, $p < .01$), support- ($r = .34$, $p < .01$), and self-appraisals ($r = .33$, $p < .01$). Men scored significantly higher on self-appraisals ($p < .05$, $d = .14$).
Rahim (2007)	Western Cape Students N = 150	Investigate the link between fortitude and academic achievement	Not reported	
Roothman et al. (2003)	North West All ages N = 378	Determine whether men and women differ with regard to psychological well-being	Self-appraisals = .79 Family appraisals = .86 Support appraisals = .85	
Talbot (2012)	Kwazulu-Natal, Free State Children with life-threatening illness N = 44	Identify qualitatively and quantitatively factors that promote well-being	Self-appraisals = .47 Family appraisals = .81 Support appraisals = .78	Support appraisals correlated positively with satisfaction with life ($r = .49$, $p < .01$). Family- and support appraisals accounted for 11.6% of variance in life satisfaction ($F = 3.42$, $p < .05$). In qualitative findings, support appraisals emerged as a critical factor in coping. The three subscales correlated positively with satisfaction with life ($r = .28-.42$, $p < .01$). Support appraisal was a significant predictor of satisfaction with life ($F = 22.44$, $p < .01$).
Taylor (2002)	Free State Police officers N = 90	Determine the relationship between dispositional and contextual factors and the psychological well-being of police officials	Not reported	
Van den Berg et al. (2003)	Eastern Cape Grade 11 learners N = 302	Determine whether interpersonal and intrapersonal variables differ significantly between adolescents based on their non-use, use, or dependence on substances	Fortitude = .84	Significant differences were found between the three groups related to self- ($F = 8.13$, $p < .01$), family- ($F = 9.12$, $p < .01$), and support appraisals ($F = 5.62$, $p < .01$), with the low probability-of-use group obtaining higher mean scores.

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Table 1. (Continued)

Author(s)	Location/sample	Objective	Psychometric properties	Findings
Van Schalkwyk & Wissing (2013)	Western Cape Grade 10 learners N = 113	Evaluate a programme to enhance psychosocial well-being	Fortitude = .89	The experimental and control groups differed on support-appraisals posttest ($p < .01$, $d = .16$). The experimental group support-appraisal and fortitude scores increased posttest ($p < .01$, $d = .12$ and $.02$). The experimental group's fortitude scores increased at follow-up ($p < .01$, $d = .20$). The CSE correlated positively with fortitude ($r = .47$, $p < .01$), thus supporting criterion-related validity.
Van Wyk (2010)	Location not specified All age groups N = 2214	Validate the Coping Self-Efficacy Scale (CSE)	Fortitude = .86	
Venter (2004)	Free State and Mpumalanga Entrepreneurs N = 126	Investigate the role of fortigenic factors in burnout	Not reported	All subscales correlated negatively with emotional exhaustion ($r = -.23$ to $.53$, $p < .05$) and cynicism ($r = -.24$ to $-.38$, $p < .05$), and self-appraisal correlated with lower personal accomplishment ($r = .30$, $p < .01$). Self-appraisal contributed to the prediction of emotional exhaustion ($F = 13.73$, $p < .01$), personal accomplishment ($F = 7.09$, $p < .01$), and cynicism ($F = 6.35$, $p < .05$).
Vermaas (2010)	North West All ages N = 459	Investigate the role of social support in the stress-well-being relationship	Setswana version: Fortitude = .87 Self-appraisals = .74 Family appraisals = .84 Support appraisals = .72	Family appraisals moderated the anxiety-positive affect relationship ($\beta = -.11$, $p < .05$) and the depressive symptoms-positive affect ($\beta = -.12$, $p < .01$) relationship. Family- ($\beta = .09$, $p < .05$) and self-appraisals ($\beta = .09$, $p < .05$) moderated the anxiety-negative affect relationship. Self- ($\beta = .16$, $p < .01$) and support appraisals ($\beta = .10$, $p < .05$) moderated the depressive symptoms-negative affect relationship.
Viljoen (2003)	Gauteng, Free State Caregivers with spouses suffering from Alzheimer's N = 9	Qualitatively determine the value of wisdom as a potential fortigenic construct	Not reported	Caregivers had high scores on self- ($M = 19.77$), support- ($M = 20.67$), and family appraisals ($M = 20.33$). Qualitative analysis confirmed their positive appraisals.
Wild (2019)	Western Cape Students N = 218	Investigate the role of fortitude in relation to traumatic events	Fortitude = .88 Self-appraisals = .75 Family appraisals = .88 Support appraisals = .81	Fortitude ($\beta = -.27$, $p < .01$), self- ($\beta = -.27$, $p < .01$), family- ($\beta = -.27$, $p < .01$), and support appraisals ($\beta = -.19$, $p < .01$) had direct effects on PTSD.

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Table 1. (Continued)

Author(s)	Location/sample	Objective	Psychometric properties	Findings
Wissing et al. (2013)	North West All ages Data set related to FORQ: N = 477	Compare psychosocial well-being of African people in rural and urban areas	Not reported	Urban group had significantly higher mean fortitude scores ($t = 7.23, p < .01$).
Wissing & Temane (2008)	North West All age groups N = 2024	Explore whether an overlap exists in the empirical manifestations of constructs of psychological well-being	Reported range of indices for all scales used: .70-.94	Factor analyses indicated that constructs, including fortitude, operationalized to measure facets of psychological well-being, overlapped to a great extent on an empirical level.
Wissing & Temane (2013)	North West Different data sets (2007-2010) FET college and university students: N = 2789 Adults: N = 1194	Explore the prevalence of various degrees of psychosocial health in various South African samples	Not reported	FORQ correlated significantly with the MHC-SF ($r = .30-.65, p < .01$) among adult and student samples.
Wissing et al. (2008)	North West, Gauteng Students and adults N = 514	Examine psychometric properties of scales measuring psychological well-being	White/Black respondents Fortitude = .88/.78 Self-appraisals = .80/.50 Family appraisals = .85/.70 Support appraisals = .86/.75 CFA Concurrent validity Fortitude = .90 Self-appraisal = .76 Family appraisal = .83 Support appraisal = .86 EFA	FORQ demonstrated acceptable reliability for all sub-scales, with the exception of the self-appraisal subscale in the case of Black respondents. CFA showed a good fit for the hypothesized structure. Concurrent validity was demonstrated through significant correlations with other measures of well-being in White ($r = .36-.64, p < .01$) and Black samples ($r = .20-.53, p < .01$).
Yuwanto & Atmadji (2017)	Indonesia College students N = 249	Examine the psychometric properties of the FORQ in Indonesia Translated into Indonesian		The Indonesian version of FORQ demonstrated satisfactory reliabilities. EFA resulted in three factors that explained 55% of variance.

reliable and the self-appraisal subscale was the least reliable. Even in studies in which the self-appraisal subscale had low reliability, the total FORQ scale had high reliability (e.g., Wissing et al., 2008). The FORQ scale also demonstrated satisfactory reliability in Canadian ($\alpha = .89$; Beattie et al., 2016) and Indonesian ($\alpha = .76-.90$; Yuwanto & Atmadji, 2017) samples.

Researchers have used the structure of the FORQ in a variety of ways. For example, the FORQ has been used as a single scale (T. B. Pretorius et al., 2016), a total scale with subscales (Padmanabhanunni, 2020), only subscales (Laureano et al., 2014), and only selected subscales (Peters, 2005). Some studies (e.g., Botha et al., 2007) have used the family-appraisal subscale as a conceptual reflection of family support. Wissing et al. (2008) used exploratory (EFA) and confirmatory factor analyses (CFA) to examine the FORQ's structure. The CFA concluded that the three-factor structure best fit the data. However, the EFA resulted in a four-factor solution. In an Indonesian study, Yuwanto and Atmadji (2017) used an EFA to identify a three-factor solution.

The FORQ has a consistently significant relationship with other measures of well-being in a range of studies (e.g., Khumalo et al., 2011). Wissing et al. (2008) cited these concurrent relationships as evidence of the FORQ's validity. Further evidence of validity was found in a study that examined sources of strength among students with physical disabilities (Hundermark, 2004). Qualitative data analysis confirmed the dimensions of fortitude and the interconnectedness of the domains.

Applications of the FORQ

Demographic correlates of the FORQ. One study in which fortitude was a dependent variable (J. M. Pienaar et al., 2006) found that demographic variables predicted 2.29% of the variance in fortitude. Demographic variables, including gender (e.g., Roothman et al., 2003) and rural or urban setting (Wissing et al., 2013), have been linked to the FORQ. With respect to gender, studies have found that men (boys) reported higher self-appraisals.

Several studies have reported correlations between fortitude and outcome variables for respondents in different demographic categories. For example, gender differences have been observed in the relationships between fortitude and counselling concerns (Julius, 1999) and between fortitude and cognitive flexibility (Hill, 2003). Racial differences have been observed in the relationships between fortitude and obesity (Botha, 2006) and between fortitude and teacher stress (Kok, 2013).

FORQ as a criterion in validity studies. The FORQ has been used in validity studies of other instruments, including the Values-in-Action Inventory of Strengths (Khumalo et al., 2008), General Psychological Well-being Scale, the Mental Health Continuum Short Form (Khumalo et al., 2011), and the Coping Self-Efficacy Scale (Van Wyk, 2010). The FORQ correlated positively with each of these instruments, confirming criterion-related validity.

Intervention studies. The FORQ has been used as an outcome variable to assess the effect of interventions, including a resilience programme (De Villiers & Van den Berg, 2012), an experiential-learning programme (Laureano et al., 2014), and a programme intended to enhance well-being (Van Schalkwyk & Wissing, 2013). Participants exposed to these interventions reported higher fortitude, self-, and support appraisals.

Positive and negative psychological well-being. The majority of research has focused on the FORQ's link to well-being. Some studies have conceptualized it as part of psychological well-being (Botha, 2006; Nel, 2003), rather than as a variable that might impact well-being.

Fortitude has been positively related to indices of positive well-being, including satisfaction with life (Edwards, 2003a) and happiness (Gibson, 1999). It has been negatively related to indices of negative well-being, such as psychological distress and mental health symptoms (Beattie et al., 2016), physical symptoms and depression (Gibson, 1999), emotional exhaustion (Venter, 2004), burnout (Padmanabhanunni, 2020), and trauma-related symptoms (Wiid, 2019).

Some studies have investigated the potential role of fortitude as a mediator or moderator. Fortitude has been found to moderate the relationship between age and academic adjustment (Barends, 2004), locus of control and motivation (Hameed et al., 2016), violence and trauma symptoms (T. B. Pretorius et al., 2016), and the anxiety–negative affect and depressive symptoms–negative affect relationships (Vermaas, 2010).

Other related variables. Fortitude has been linked to quality of childhood experiences (Botha, 2006), regular physical exercise (Edwards, 2006), parent–adolescent relationships (Koen, 2009), attentional switching and generativity (Peters, 2005), academic performance (Hamid & Singaram, 2016; Rahim, 2007), and academic adjustment (Barends, 2004). It has also been found to differentiate between adolescents with a low probability of substance use, those who abuse, or those who are dependent on substances (Van den Berg et al., 2003).

It has also been linked to attitudinal and behavioural variables such as help-seeking attitudes, help-seeking behaviour (Beattie et al., 2016), and conservatism (J. M. Pienaar et al., 2006). Several studies have used the FORQ to examine work-related variables such as career commitment (Adejuwon et al., 2015) and work-related consequences, such as compassion satisfaction (Padmanabhanunni, 2020).

Discussion

The FORQ is a versatile instrument that has been used for different purposes, in different contexts, and in multiple languages among samples across the lifespan, including under-researched and vulnerable groups. It has been applied in cross-sectional, quasi-experimental, qualitative, and triangulation studies as a dependent, independent, and intervening variable.

The FORQ has demonstrated favourable reliability across studies but there were a few exceptions. Laureano et al. (2014), explaining the low reliability found in that study, stated that it is realistic to expect a reliability coefficient below .70 for psychological constructs, while Wissing et al. (2008) attributed the low reliability on the self-appraisal subscale to a more collectivistic as opposed to an individualistic worldview among Black respondents. However, measurement aspects such as factor structure and reliability are characteristics of scores and not of tests; therefore, these characteristics may differ between sets of scores generated by the same instrument.

Several studies confirmed the conceptualization of the FORQ as a total scale and three subscales, through EFA and CFA. One study provided evidence of the FORQ's concurrent validity by demonstrating its consistency with indices of well-being. However, variation in FORQ structure use (as a single scale, as three subscales, or even selected subscales) does not always correspond to the conceptualization of fortitude as an interplay between three sets of appraisals, a conceptualization supported by Hundermark's (2004) qualitative study, which confirmed the interconnectedness of domains.

Furthermore, some studies used the family-appraisal subscale as a measure of support from family. However, both in terms of the original conceptualization, as well as item content, the family-appraisal subscale reflects more than just support from family. Instead, it reflects an evaluative appraisal of the family environment, including level of cohesion, conflict and family values, and thus is not the equivalent of family support.

Fortitude can play health-sustaining and stress-buffering roles, as has been demonstrated in some studies (Beattie et al., 2016; T. B. Pretorius et al., 2016). The health-sustaining model proposes that high fortitude is associated with high-positive well-being and low-negative well-being. The stress-buffering model indicates that fortitude plays a moderating or mediating role in the relationship between stressors and psychological outcomes.

A promising line of research has been the use of the FORQ in intervention studies. These studies demonstrated that the FORQ measures a construct that is changeable. Therefore, modification of fortigenic appraisals, including through cognitive restructuring interventions, could affect an individual's well-being and adjustment.

The FORQ has displayed sound psychometric properties among varying samples; however, further investigation is needed to evaluate its metric equivalence in different populations. Longitudinal studies with a developmental approach could identify critical psychosocial stages in the development of fortigenic appraisals.

Further quantitative and qualitative study of interactions between the dimensions of fortitude is recommended. For example, a compensatory model might propose that low appraisal in one domain could be compensated for by high appraisal in another.

One of the major limitations of a scoping review methodology is that it does not include a process of quality assessment of primary studies. In other words, the methodology of the identified studies was not evaluated and it is recommended that future research focus on assessing the rigour of the included studies.

Conclusion

Available evidence has demonstrated that the FORQ has sound psychometric properties. Originally conceptualized as a coping resource, fortitude has demonstrated wide applicability across a range of studies. The scale holds great promise for further research into determinants of well-being, but also as a potential assessment tool for evaluating interventions aimed at modifying appraisals.

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