

Employee Resilience in Organizations: Development of a New Scale

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ABSTRACT

Resilience as a psychological capacity of employees has recently come into focus with the rise of Positive Psychology. A critical element of a positive view of resilience involves viewing adverse events as an opportunity to develop and become a better person. A review of previous measures and theories of resilience shows this perspective is largely missing and suggests possible dimensions of it. A new measurement scale was developed and tested on 178 participants from large organizations in Indonesia. Exploratory factor analysis of the underlying structure revealed two main dimensions: Developmental Persistency, a combination of perseverance and commitment to growth, and Positive Emotion. Implications of this improved construct for future research and the practical development of employees' resilience are discussed.

Keywords: resilience, developmental persistency, positive emotion

Research on resilience was originally focused on clinical and child development applications but has now expanded rapidly into new domains including organizational studies (Youssef, 2004). The focus has correspondingly shifted from emphasizing pathology and developmental problems to health promotion and well-being (Luthans, Avey, Clapp-Smith, & Li, 2008), particularly self-developmental strategies that build on existing personal capabilities. In this view, resilience is seen less as a relatively static personality trait than a capacity that can be developed (Bonanno, 2004; Masten & Reed, 2002).

These expansions of the concept of resilience have required extended definitions, dimensions and indicators (Ahern, Kiehl, Sole, & Byers, 2006; Luthar, Cichetti, & Becker, 2000). Survival, high tolerance, adaptation and “bounce back” are amongst the synonyms for resilience adopted in recent psychological and organizational studies (Youssef, 2004; Yu & Zhang, 2007). New scales for measuring resilience have been proposed in which adaptability, agility, perseverance, morale and optimism are important qualities underlying resilient attitudes and behaviours (Yu & Zhang, 2007).

Recently resilience has become a central theme of Positive Organizational Behavior (POB) and Positive Organizational Scholarship (POS), two major strands of Positive Psychology which focus on building employee strength, fostering high performance and establishing a thriving working environment (Cameron, Dutton, & Quinn, 2003; Luthans, 2002; Nelson & Cooper, 2007; Wright, 2003). For example, resilience is seen to improve performance in the face of significant change and transformation (Luthans, Avolio, Walumbwa, & Li, 2005). Resilience in leaders has been shown to affect subordinates' and the organization's performance (Youssef, 2004).

A limitation in most previous research, including the POB/POS studies, lies in the stated or implied view of resilience as the capacity to regain "normality" after experiencing an adverse event. A less-recognised perspective is that adversity helps individuals grow *beyond* their previous condition, becoming strengthened and more resourceful (Sutcliffe & Vogus, 2003). When individuals effectively manage adverse situations they transform themselves into even more resilient persons, growing rather than preserving their self. Studies of positive emotion as a primary component of resilience support this view in predicting an upward spiraling effect of people's positive reaction to difficulties (Fredrickson & Joiner, 2002). The intention to become an improved person is therefore worth examining as a fundamental dimension of resilience. It appears especially relevant in large organizations, where the complexity and uncertainty of organizational life are likely to increase the possibility that individuals will meet adversity (Luthans, Vogelgesang, & Lester, 2006).

Although resilience is theoretically and practically a very promising concept for organizational studies, constructs and scales developed for this context are limited by their assumptions of a homeostatic rather than growth basis to personality, as well as some specific problems discussed below. The range of organizational measures is narrow compared to the variety in clinical and child development domains (Ahern et al., 2006). This paper therefore aims to enrich understanding of resilience in organizations by examining a growth-based construct and measure.

Below we review existing perspectives and identify criteria for the new construct. We then evaluate measures previously used in organizational studies and propose a new definition and dimensional structure. Finally, scale development and validation procedures are summarized and lessons for future research identified.

RESEARCH ON RESILIENCE IN ORGANIZATIONS

Organizational and individual-level concepts

Organizational researchers have conceptualized resilience in various ways. The *systems-level* approach describes resilience as performance free from accumulation of frequent, routine or novel difficulties in organizational systems (Rudolph & Repenning, 2002). Similarly, Denhart & Denhart (2010) view organizational resilience as an issue of systems functioning and capacity rather than merely the collective use of individual capabilities.

The present construct has the more common *individual-level* focus. While most authors take a “recovery” perspective a few emphasize individual growth. Waterman and Collard’s view of “career-resilience” in employees “who are not only dedicated to the idea of continuous learning, but also stand ready to reinvent themselves to keep pace with change, take responsibility for their own career management and commit to the company’s success” (1994, p. 88), is an example. In POS leadership theory authentic leaders emphasize the growth of their staff (Avolio, Walumbwa, Gardner, Luthans & May 2004) while trying to develop their resilience and other positive qualities. However resilience is not often connected to growth in POS and POB studies.

Resilience in the POB/POS framework

POB and POS grew from the Positive Psychology movement, described by Seligman and colleagues as the science of positive subjective experience (Seligman & Csikszentmihalyi, 2000). They suggest psychology focus less on fixing what is wrong, weak or bad and more on identifying and nurturing what is right, strong and good. In line with this, POS and POB aim to enhance organizational effectiveness by emphasizing positive human strengths (Luthans, 2002; Nelson & Cooper, 2007).

POS/POB studies have examined resilience at both organizational and individual levels. An organizational-level example is Luthans et al.’s (2007b) adoption of Masten and Reed’s (2002) concepts of “*assets*” and “*risk*”. *Assets* refers to resources contributing to a unit’s capacity to absorb strain, such as knowledge, skill, trust, heedfulness, positive emotion and commitment. *Risk* refers to negative future outcomes, which can be managed through organizational practices such as downsizing, re-engineering, restructuring, outsourcing, and discriminating. When assets are managed as a buffer against potential adversities or risks, the organisation becomes resilient.

At the individual level, Vogus (2003, p. 96) views resilience as the ability to absorb strain and preserve or improve functioning during adversities such a leadership crisis, major change, production pressures or external demands by stakeholders. POS/POB studies view resilience as both “statelike” and developable in individuals (Luthans, Youssef, & Avolio, 2007a). Luthans,(Luthans, Avey, Avolio, Norman, & Combs, 2006) found individual resilience significantly increased in experimental groups after a training program, while a control group showed no increase. Viewing resilience as a capacity that *develops* in response to adversity presents a different picture from studies where it is merely adaptability or recovery (Luthans, Youssef et al., 2007a): individuals build their internal and external resources to increase their potential to meet future challenges (Richardson, 2002).

Measures of Resilience in Organizational Studies

A systematic search of organizational studies using “resilience” as a key word in the last 12 years identified fifteen papers using two scales: Ego-Resilience (ER-89) developed by Block and Kremen (1996, p. 167), and PsyCap (resilience subscale) developed by Luthans et al (2007) primarily using items from Wagnild and Young’s (1993) non-organizational Resilience Scale (WYRS).

ER-89 draws on Block and Block’s (1980) construct of a personality trait found in resourceful and adaptive persons, involving “the capacity of the individuals to effectively modulate and monitor an ever-changing complex of desires and reality constraints” (1996, p. 359). Resilient individuals have psychological resources of adaptability or flexibility that help deal with adversity and persist over time. Sample items are: “I quickly get over and recover from being startled” and “I enjoy dealing with new and unusual situations”.

Wagnild & Young’s Resilience Scale also measures a positive personality characteristic underlying adaptation (Wagnild & Young, 1990, 1993, p. 167). Their review of the psychological literature and qualitative study of older women suggested five dimensions:

- *Equanimity*, a balanced perspective of one’s life and experiences, the ability to consider a broader perspective and to “sit loose” and take what comes;
- *Perseverance*, persistence despite adversity or discouragement, a willingness to continue the struggle of one’s life purpose and to remain being involved, to practice self-discipline

- *Self-Reliance*, believing on one's inherent capabilities, the ability to depend on oneself and to recognize personal strengths but also one's limitations;
- *Meaningfulness*, the belief that life has a purpose and one's contributions have value
- *Existentiality*, a feeling of freedom and a sense of uniqueness as a human being.

However exploratory factor analysis suggested these dimensions may comprise only two distinct factors, *Personal Competence* and *Acceptance of Self and Life* (Wagnild & Young, 1993).

Resilience is part of Luthans' (2002) construct of Psychological Capital, along with self-efficacy, hope and optimism. Resilience is defined as "the positive psychological capacity to rebound, to 'bounce-back' from adversity, uncertainty, conflict, failure or even positive change, progress and increased responsibility" (Luthans, 2002, p. 702). Luthans adapted items from the WYRS dimensions of Perseverance and Self-Reliance to the work context, for example "I usually manage difficulties one way or another" had "at work" appended.

The definitions and dimensions in these scales cover broad aspects of resilience in adults but overlook the ability to grow or improve as a person. Therefore we define resilience as *an individual's capacity to respond to adversities at work in ways that strengthen and develop himself or herself as a better person*. Four potential dimensions relevant to this perspective from the three scales above were selected: *Perseverance*, *Commitment to Growth*, *Positive Emotion*, and *Meaning Making*.

Perseverance describes the quality of not giving up when facing difficulties. It implies self-reliance, a belief that by keeping going one's goals will eventually be reached and one's self will benefit. Therefore, perseverance involves beliefs, thoughts, attitudes and behavioral persistence. Persevering individuals tend to endure in the face of adversity (Markman, Baron, & Balkin, 2005). They exert a high level of effort and endurance in the face of setbacks and failures, and always look for a solution. They have a strong belief in their ability to overcome challenges. Perseverance is defined here as *willingness to face adversity by continual struggle and self-discipline*.

Commitment to growth recognizes that resilience is not so much reactive as proactive. Resilient individuals see difficulties as challenges or opportunities to strengthen and improve themselves (Richardson, 2002; Sutcliffe & Vogus, 2003) by growing and increasing their capabilities (Reivich & Shatte, 2003). They face difficulties with the intention to learn more about themselves

(Sutcliffe and Vogus (2003), and are resourceful and determined (Blatt (2009). *Commitment to growth* differentiates this construct from concepts of resilience based on self-preservation. *Commitment to growth* is defined here as *facing adversity by becoming a stronger person*.

Positive emotion has a critical role in difficult situations (Fredrickson, 2001, 2003; Fredrickson & Joiner, 2002). In general, positive emotion arises from experiencing desirable outcomes. It includes joy, happiness, elation or pleasure, courage, hope, love and interest (Lucas, Diener, & Larsen, 2002). In adversity positive emotions help individuals broaden the scope of their cognition and attention (Fredrickson & Branigan, 2005) and become more creative, viewing problems or difficulties from a wider perspective and generating better solutions without panic or stress (Fredrickson, 2001; Fredrickson & Branigan, 2005; Luthans, Youssef, & Rawski, 2011).

Baron (2008) observed these effects in a study of entrepreneurs interpreting situations and making decisions. Where others see a threat or danger, an entrepreneur with positive emotion perceives a manageable situation and maintains a realistic view of it. Greater creativity, problem-solving skill and recall of mental “shortcuts” and past knowledge were also found (Baron, 2006, 2008). Positive emotion is therefore expected to be an important element of resilience, bringing calmness, creativity and quick decision-making to a difficult situation. Positive emotion is defined here as *maintaining a positive outlook when facing adversity*.

In *meaning making* employees *actively* seek to understand the nature and value of work in their lives through continuous sense-making. In Huevel et al’s (2009) model, meaning making involves integrating challenging or ambiguous situations into a framework of personal meaning using conscious, value-based reflection (Heuvel et al., 2009, p. 509). When work is seen as meaningful and valuable, an individual will approach it with more energy (Wrzesniewski, 2003).

Meaning making is differentiated here from elements of resilience that in others studies involve *automatic* processes of sense-making or finding meaning (Connor & Davidson, 2003; Wagnild & Young, 1993) In *active* meaning making individuals consciously reflect on ambiguous or challenging events to determine their personal meanings, values and goals, helping them face setbacks with a growth focus. Instead of giving up they see difficulties as a personal calling, in which they are deeply involved and which is consequently in some sense enjoyable (Wagnild & Young, 1993;

Wrzesniewski, 2003). Meaning making is therefore defined here as *actively reflecting on and affirming personal values when facing problems*.

METHOD

Thirty-eight items reflecting attitudes and behaviours underlying the proposed dimensions were selected from studies of adult samples conceptualizing resilience as a developable capacity (Blatt (2009) Friborg et al (2003) Connor & Davidson (2003); Heuvel et al (2009); Wagnild & Young (1993) Marsick & Watkins (2003). Some adjustment to the wording was necessary. Sample items are “I am not easily discouraged by failure” (perseverance), “I actively look for ways to overcome the challenges I encounter” (commitment to growth), “I am interested in facing and solving the problems” (positive emotion) and “I actively take the time to reflect on events that happen in my life” (meaning making).

Content validity was then assessed by a panel (Davis, 1992; DeVellis, 2003; Hardesty & Bearden, 2004) of five academics with expertise in resilience and scale construction. Nine items were deleted, leaving twenty-seven which were translated into Indonesian and back-translated in English using certified translators.

To assess construct validity three additional variables were included: *proactive coping* (Greenglass & Schwarzer, 1998), *self-esteem* (Reynolds, 1982) and *psychological vulnerability* (Sinclair & Wallston, 1999). Resilience is hypothesized to correlate positively with proactive coping and self-esteem and negatively correlated with psychological vulnerability.

Participants were managerial employees of twelve large organizations in Jakarta, Indonesia. Managerial level was defined as any position with two or more direct reports. The organizations came from a variety of industry sectors but fifty percent of respondents worked in mining and infrastructure industries. Seventy-six percent were male. A total of 275 questionnaires were hand delivered to organizations and collected by a research assistant on a return visit. 178 were returned, a response rate of 64%. Of these, 11 contained invalid data leaving 167 cases for analysis, a sample size considered sufficient for factor analysis (Hinkin, 1998; MacCallum, Widaman, Zhang, & Hong, 1999).

RESULTS

Exploratory factor analysis (EFA) was conducted using PASW 18 to examine the dimensions of the latent construct of resilience (Costello & Osborne, 2005; Fabrigar, Wegener, MacCallum, & Strahan, 1999; Field, 2009). The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.855, above the generally recommended value of 0.6, and Bartlett's test of sphericity was significant ($p < 0.005$) indicating sufficient "factorability" and no multicollinearity. Over six runs of the EFA Nine items were eliminated because they did not contribute to a simple factor structure or failed to reach a primary factor loading 0.4 or cross-loading of 0.3. This included all *Meaning Making* items. It appears this dimension does not adequately fit the present construct of resilience, as explained below.

Principle axis factoring with oblimin rotation revealed three factors with eigenvalues exceeding 1, explaining 36.2%, 14.1% and 8.4% of the variance (Appendix, Table 1). A scree plot also showed a clear break after the third factor. These factors explained 58% of the variance, close to the 60% often recommended (Hair, Anderson, Tatham, & Black, 1998; Tabachnick & Fidell, 2007).

The pattern matrix suggested Factor 1 represented both the hypothesized *Perseverance* dimension (with 6 items) and the *Commitment to Growth* dimensions (4 items). Factor 2 was quite easily interpreted, as all 6 items reflected the *Positive Emotion* dimension. Factor 3 with only 4 items was considered unusable following Costello and Osborne's (2005, p. 5) view that a factor with fewer than three items is weak and unstable.

Factor 1 was labeled "*Developmental Persistency*" to represent the theoretical emphasis on both individual perseverance and commitment to growth in facing hardship. This factor reflects the theoretical view of resilience proposed above, having the traditional focus on maintaining effort amid difficulties but also conveying a view of adversity as an opportunity strengthen one's psychological capability and grow as a person.

The correlation between *Developmental Persistency* and *Positive Emotion* was moderate ($r = .41$), suggesting resilience comprises related but separable factors and justifying the use of oblique rotation. A moderate relationship is theoretically predicted since high levels of positive emotion would help individuals persist and grow in facing challenges.

Cronbach's alpha was 0.87 for *Developmental Persistency* and 0.86 for *Positive Emotion*. Dropping any item lowered these values. The item-to-total correlations were greater than 0.5 for both factors, and the inter-item correlations were both greater than 0.3. The scale is therefore considered reliable and consistent with its theoretically-predicted structure. Construct validity was suggested by positive correlations between *Resilience* and both *Proactive Coping* (.67) and *Self-Esteem* (.74), and a negative correlation with *Psychological Vulnerability* (-.64) (see Appendix Table 2).

DISCUSSION

Previous studies of resilience in organizations have generally used variables that reflect the notion of recovery but not the role of adversity in fostering growth. To capture this critical theoretical element we selected items from a wide range of previous studies and added new ones, addressing four dimensions: *Commitment to Growth*, *Perseverance*, *Positive Emotion*, and *Meaning Making*. The results show resilience comprises only two dimensions, *Developmental Persistency* and *Positive Emotion*. The former is consistent with the prediction that a growth orientation is central, suggesting an effortful or persistent attempt to not merely recover but to thrive through transcending setbacks. The latter suggests resilience has a fundamental emotional quality, similar to hope or optimism but more general, and does not just involve cognitive efforts to overcome adversity such as strategizing or goal-setting. Advantages of this structure over previous constructs of resilience are now addressed.

Developmental persistency is a philosophy of facing adversity with the intention to grow. Minimising or avoiding difficulties, blaming one's lot on "fate" or others, and merely aiming for self-preservation are essentially negative goals that do not necessarily improve one's capacity for living in an uncertain world. While POB and POS studies consider resilience valuable in facing difficulties, so far they stop short of embracing them as opportunities to grow as a person, unlike their humanistic antecedents who saw growth as a *central* human motivation (e.g., Rogers 1958; (Maslow, 1970). For example, Luthans et al (2006) suggests resilience can be developed by *risk-focused* and *process-focused* strategies. *Risk focused* strategies emphasise management rather than avoidance of risk factors arising in adverse events. From the present perspective this also involves viewing them as a challenge or developmental opportunity. A *process focus* involves one's psychological inventory of self-regulatory and self-awareness capabilities for managing difficulties. These help the individual bounce

back and in the short term (Luthans, Youssef et al., 2007a), but do not address long-term development – thriving rather than surviving.

Developmental persistency is related to Maddy and Khosabha's (2005) notion of positive attitude towards challenges, or looking to what one can learn from adverse situations helps retain motivation. However *Developmental Persistency* goes beyond this in emphasizing the discovery of one's capabilities and purpose in life.

Recently Luthans et al. (2011) have come close to implying growth by incorporating Mueller & Dweck's (1998) construct of mastery orientation in the Psycap construct, which includes a resilience dimension. A mastery orientation gives individuals additional motivation when facing challenges. However, where Luthans et al. focus on learning goals related to the specific problems involved, *Developmental Persistency* has a broader focus on growth as a person: a higher-level process of integrating one's capabilities and enlarging one's sense of self.

Positive emotion is implied by some elements of previous studies. The *Equanimity* scale of the WYRS involves accepting difficulties without excessive regret (Wagnild & Young, 1993). Klohnen (1996) found resilience, as measured by ER-89, correlated with a measure of *Positive Emotionality* encompassing behavioral and temperamental characteristics conducive to joy, excitement, and vigor. However, these studies have not given positive emotion the centrality suggested by the present results.

The present construct also invites consideration of how positive emotion contributes to long-term growth and self-development. For example Frederickson's (2003) "build and broaden" theory predicts several benefits of positive emotion in adverse situations. It broadens one's outlook, helping to understand one's challenges and call on more inner resources, including growth-related skills. Positive emotion helps recall previous experiences as resources for survival and long-term learning. By reducing negative emotion it helps avoid long-term mental and physical health consequences. Finally, PE helps individuals gain self-control and confidence. It therefore offers not just a short-term, reactive advantage but contributes to developmental persistency by increasing inner resources and promoting healthy functioning. As this *mix* of emotional positivity and growth focus, resilience "inoculates" individuals against future problems. By facilitating each other these two qualities may combine to bring an interactive effect greater than the sum of their individual contributions.

The *Meaning Making* dimension was deleted in the EFA due to poor factor loadings. Aside from statistical explanations or incorrect theoretical formulation, two possible item-wording explanations are suggested. First, participants may have interpreted items as referring broadly to life rather than just work, a possibility less likely on other dimensions due to the wording of items modeled on prior scales. Three of the six items referred to “my life”, which might cause respondents to rate aspects of life not relevant to other dimensions.

Second participants may have related “meaning” or “meaningful” only to *significantly* adverse events, a less likely consequence of the wordings in other dimensions. Luthans et al. (2000), amongst others, suggest resilience is only invoked in significantly adverse events: perhaps difficulties faced in participants’ working life were not significant enough to require meaning making. Respondents were middle or lower level managers and may also have had less general need for meaning making than higher level managers (Heuvel et al., 2009; Wrzesniewski, Dutton, & Debebe, 2003). It is also, of course, possible that meaning making is a psychological phenomenon distinct from resilience. The status of this dimension should be examined in future studies.

Construct validity of the new measure is shown in positive correlations between both new dimensions and measures of proactive coping and self-esteem, addressing calls in the POB/POS literature for constructs that influence employees’ performance and well-being. Proactive coping involves psychological resources for improving well-being such as personal control and self-regulation capabilities (Greenglass, 2002). These are future-oriented - directed towards challenging goals and personal growth rather than merely coping with current stresses. Developmental persistency and positive emotion are hypothesized as central components of proactive coping, but go beyond merely coping. They may better relate the concept of resilience to self-esteem, as predicted by POB/POS studies (Dutton & Brown, 1997; Lyubomirsky, Tkach, & DiMatteo, 2006), as growth is a central condition of self-esteem (Rogers 1958; (Maslow, 1970).

Negative correlations between these dimensions and psychological vulnerability are consistent with results showing a negative correlation with measure of positive coping resources such as self-efficacy and dispositional optimism and positive correlation with negative affect (Sinclair & Wallston (1999). The belief set underlying developmental persistency and positive emotion is expected to

reduce vulnerability in facing challenges. Finally, composite scores on the Marlowe and Crowne (Reynolds, 1982) Social Desirability scale ($M=6$, $SD=1.08$) showed a negligible correlation (Kendal's $Tau=-.13$) with resilience, suggesting responses were not strongly influenced by desirability.

These results are qualified by certain methodological limitations. First, the sample is limited to six industries, which may not appropriately represent general characteristics of large established companies. Second, the resilience scale must be considered preliminary: further study of its reliability and validity in other contexts should be considered. Third, applicability of the Indonesian sample to other countries and cultures is presently unknown. Finally, translation of the questionnaire is a potential limitation although back translation should have minimized distortion of items.

CONCLUSION

In today's rapidly-changing environment employees' resilience is a critical resource for organizations. To develop resilience, researchers and organizational development professionals need a construct valid for the demands of this environment. We suggest a growth focus is central to this. Cognitive, emotional and behavioral interventions have been suggested (Luthans, Avey et al., 2006), but so far developmental persistency or growth has not been intrinsic to constructs of resilience. A second dimension reflecting positive emotionality is suggested by connecting specific emotions to resilience, but has so far not been central. The present results suggest these are primary dimensions of resilience.

Prior studies suggest developing resilience by focusing on individuals' knowledge and adaptability (Sutcliffe & Vogus, 2003), self-enhancement skills and attachment style (Bonanno, Field, Kovacevic, & Kaltman, 2002). These strategies mostly involve short-term reactions to adverse events rather than broader development of one's inner resources. The present construct extends previous perspectives by emphasizing proactivity and viewing adversity as an opportunity to grow and become a better person. Maintaining a positive outlook appears fundamental to this. With these perspectives we predict individuals will develop resilience without excessive concern with short-term losses. While replication of our results is needed, it appears interventions focused on developmental persistency and positive emotion have a better chance of improving employees' resilience and organizational performance under adversity.

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APPENDIX

Table 1 : Pattern Matrix

Variables	Factors			Communality
	1	2	3	
Grow5 (I actively look for ways to overcome the challenges I encounter)	.577			.579
Per2 (I look for creative ways to alter difficult situation)	.648			.619
Per3 (I tend to bounce back after illness or hardship)	.731			.536
Grow4 (I can grow in positive ways by dealing with difficult situation)	.541			.418
Grow1 (I see difficult as challenges and opportunities to learn)	.554			.363
Per1 (I am able to adapt to change)	.606			.440
Grow7 (I often seek feedback on my work from others)			.571	.453
Per7(I am not easily discouraged by failure)	.668			.554
Pos4(I am usually confident in doing whatever I choose)		.787		.596
Pos6(I am enthusiastic in facing problems rather than avoiding them)		.789		.674
Pos5 (I am usually optimistic and hopeful)		.790		.639
Pos3 (I am interested in facing and solving problems)		.711		.483
Pos7(I can see the humorous side of a problem)		.687		.444
Pos2 (I can get through difficult times at work because I've experienced difficulty before)		.623		.473
Grow2 (I think about my mistakes and learn from them)	.666			.414
Grow3 (I think how I could have prevented unforeseen problems when they occur)			.660	.440
Per4 (I don't give up when things look helpless)	.834			.545
Per5 (I tend to recover quickly from stressful events)	.669			.410

Note: Factor loadings <.4 are suppressed

Table 2. Descriptive statistics and correlation matrix between variables

Variable	Mean	SD	1	2	3	4	5
1 Resilience	67.6	7.5	(0.88)				
2 Dev.Persistency	42.7	5.1	0.88	(.87)			
3 Positive emotion	24.8	3.9	0.78	0.41	(0.86)		
4 Proactive coping	43.7	4.5	0.67	0.6	0.51		
5 Self-esteem	21.7	2	0.74	0.59	0.67	0.59	
6 Vulnerability	0.92	0.14	-0.64*	-0.56*	-0.47*	-0.45*	-0.47*

Note: n=167, Reliabilities of each measure displayed on the diagonal of the matrix (in parentheses), p<.01 (two-tailed). *Kendals-Tau correlation, P<.01