

**Coping resources and resilience
characteristics among
war-affected and non-war-affected
Sudanese female university students:
A comparative study**

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Abstract

This study explored and compared external coping resources and internal resilience characteristics among two ethno-geographically different Sudanese female undergraduate populations. War-traumatized, internally displaced, rural Darfuri students were compared with Omdurmani non-war traumatised, urban host students to investigate differences in effective coping to daily stressors in term of academic, social and financial matters. Implementing both internationally-used and culturally-grounded assessment tools a cross-sectional study of 116 Darfuri and 299 Omdurmani students were presented with an eight item checklist of external coping resources and five internal resilience characteristics to manage academic, financial and social/relationship stressors. Darfuris were more likely to use people of the same tribe and ethnicity as coping resource, while Omdurmanis were more likely to use friends and leisure activities as coping resources. Regarding internal resilience characteristics, the Darfuris relied more on making meaning as a way to cope with daily stressors. Darfuris were more anxious in comparison with Omdurmanis when resilience characteristics were taken into account. The Omdurmanis relied more on themselves for academic and financial/economical stressors and on equanimity and existential aloneness for social stressors. Each group of students used different external coping resources and possessed different resilience characteristics with regards to managing academic, financial and social/relationship stressors. In-house mental health services can benefit from this study when designing counselor training or intervention programs with regards to encouraging undergraduates to use their effective resilience characteristics and coping resources in their attempts to adapt and manage stressors.

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Introduction

Given the unique setting of on-going war in the western province of Darfur the Sudan provides a distinctive context in which to appraise mental health disorders, stress sources, coping resource utilization and resilience characteristics. In earlier studies among Darfuri internally displaced persons (IDPs) the prevalence of major depression ranged between 31% - 70% and post-traumatic stress syndrome (PTSD) ranged between 45% - 75% (Kim, Torbay, & Lawry, 2007; Morgos, Worden & Gupta, 2007; Rasmussen & Annan, 2009; Hamid & Musa, 2010). More recently, Darfuri female university students exposed to traumatic war events and post-war social stressors were found to exhibit high levels of PTSD, anxiety, and depression; 81%, 56%, 51% respectively (Badri et al., submitted).

With the persistent insecurity and unrest in Darfur a considerable spill over of IDPs has reached as far east as Omdurman city, some 1,200 kilometres away from the conflict area. Omdurman is home to Ahfad University for Women (AUW), an all female private university, with students from all parts of the Sudan, including Darfuris. A recent qualitative study identified war-related traumatic exposures, current on-going life stressors and coping strategies for Darfuri students (Badri et al., in press). Daily life stressors and urban-cultural challenges increased the students' distress levels while prayer, religious beliefs, the use of available social support networks and making meaning of life asserted their ability to cope.

Furthermore, a previous comparative study among Darfuri war affected and Omdurmani non-war affected AUW students indicated small variations and no significant differences in estimations of anxiety and depression prevalence between these two groups (Badri et al., submitted). Resilience scores were also quite similar, verging between moderate – moderately low levels (Badri et al., submitted). While anxiety, depression and resilience levels were comparable between war-affected Darfuris and non war-affected Omdurmanis, the process of meeting the challenges imposed by academic hurdles, the need to form new relationships and friendships, and for many the adjustment imposed by living away from home and family posits a myriad set of stressors on their undergraduate current lives (Vaz, Mbajjorgu, Acuda, 1998). Research has shown that the onset of depressive episodes (Dahlin, Joneborg, and Runeson, 2005) may be triggered by academic performance pressures, the lack of learning materials (Kelly et al., 1993; Rice et al., 1993; Seidman et al., 1994, 1995), self-expectation and expectation from their significant 'others' (Moffat et al., 2004; Sherina et al., 2004) and test anxiety (Hamid, 1974; Sharma, Parnian, and Spielberger, 1983) among students from low to medium socio-economic status (SES) urban backgrounds, much like the current sample of Omdurmani female student.

Challenges associated with rural students, such as those coming from the villages of Darfur, have demonstrated a plethora of psychological distress (Gillespie & Noble, 1992). Navigating large ethnically and culturally diverse university campuses (Maltzan, 2006), the lack of exposure to technology such as photocopy machines, overhead projectors, computers (Pearson & Sutton, 1999), and steering through busy city streets (Parsons, 1992), overwhelms a rural undergraduate, causing an exacerbation of stress reactions (Swift, 1988).

African studies have associated student daily life stressors with low to medium SES demographic variables and have suggested that family financial strains (inability to pay tuition fees), and quality of life (overcrowded accommodation, inadequate infrastructure (water and electricity supply), transportation problems) were significantly related to the stress levels of Zimbabwean university students (Joseph et al., 2007). Hamad (1974) found that family death, parental divorce or illness within the family, level of father's education, and past history of family mental illness were associated with levels of distress among Sudanese university students from low to medium SES. Effective coping is achieved when stressful situations are accurately appraised and specific behavioral and psychological efforts are

employed to manage, reduce, or tolerate stressful events (Folkman and Moskowitz, 2004; Saipanish, 2003; Sreeramareddy et al., 2007).

The mobilization of strong protective external resources, such as social support networks (e.g., family and extrafamilial networks) can buffer against stressors (Waltz 1994) and subsequent maladaptive responses (Benson and Deeter, 1992; Cohen, 1991; DuBois et al., 1992; Licitra-Kleckler and Waas, 1993) including depression (Dalgard, Dowrick, Lehtinen et al., 2006). Early studies have reported that rural residence utilized significantly more social support networks, than the urban residence when faced with both minor life stressors and daily hassles (Arotz-Badenan and Olvin, 1986). Furthermore, students possessing a rich repertoire of coping resources such as emotional, social, physical, and financial are likely to cope more successfully with stressors (Gan et al., 2006), while practising hobbies, participating in social and recreational activities, having future aspirations, and having more free time to practise these activities reduced stress substantially among students (Masten et al., 2009).

The ability to deal with life's stressors, cope effectively, and promote positive mental health outcomes suggests a process whereby internal resilience characteristics such as perseverance, self-reliance, meaning, equanimity, and existential aloneness (Wagnild and Young, 1998) intertwines in multiple pathways with external social support networks (Masten, Best, and Garmezy, 1990).

Research conducted to investigate the variables that promote resilience, enhance perseverance, and improve positive self-concepts among students from low SES families and racial/ethnic minorities, underscore the importance of, peer support as buffers against depression and anxiety (Luthar, 1991), having at least one caring relationship from extended family members (Werner and Gordon, 1995), and the ability to actively seek social support from parents, peers and teachers (Driscoll, 2006). Furthermore, factors that promote academic resilience among urban poor students suggested that the personal attributes of persistency (inclination to stay on target to complete a task or chosen goal), responsibility, and attentiveness were related to academically successful low SES undergraduates (Valencia, 1994). A study on the role of parents in the development of educational resilience of their daughters showed that despite parents' low levels of educational and occupational attainment, they were able to foster a sense of resilience in their children and play an important role in their educational success and aspirations (Ceja, 2004).

Notwithstanding, the evidence that undergraduates can bounce back and achieve academic accomplishment in spite of vulnerability to emotional distress and possible psychological disorders such as anxiety and depression (Badri et al., submitted), published research of Sudanese university students stressors, coping resources and resilience characteristics, is rare. Moreover, the study of women as an entity of their own with their atypical characteristics: traditionally marginalized; war-traumatized; displaced; resettled; and coming from low-income communities, are virtually undocumented. In light of this paucity in research, the present study sought to assess the coping resources and resilience characteristics for two ethno-geographical diverse female ethnicities. Academic, social/interpersonal, and financial strain were investigated in relation to coping resources habitually used and resilience characteristics, as well as to determine the relationship between and as well as determining the relationship with anxiety and depression scores.

Methods

Participant Selection

AUW has an estimated 6839 students from all parts of the Sudan; these include students from conflict and post-conflict areas of the west and south. Subsequent to ethical approval by the AUW ethics committee in February 2010, student lists were made available from the

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registrar's office, which contained contact information including year group, school allocation, class locations and course timetables, and showed a total of 209 registered students originating from the state of Darfur and 511 Omdurmani registered students. In accordance with research objectives, a set of inclusion criteria were established: to be selected, students needed to be born and raised in their respective place of origin; all members of her extended family must be of Darfuri/Omdurmani origin; and parents, siblings and extended family must still reside in the place of geographical origin. As for the Darfuri students, they must have been in Darfur up to at least 2003 (war broke out in 2003; massive destruction and displacement followed); and they had no prior visits to Omdurman (her first visit to Omdurman was to continue her education). As for the Omdurmani students, they could not have left Omdurman city for any length of time. In total, 176 Darfuri and 310 Omdurmani students fit the inclusion criteria and were invited to participate in this study. Thirty-four Darfuri students were unavailable at the allocated time because of conflict with their study schedules, and twenty-six questionnaires were discredited for incomplete data: actual participants from Darfuri were 116 students. Eleven of the Omdurmani questionnaires were discredited because of incompleteness, resulting in a total of 299 Omdurmani students.

Instruments

The questionnaire was comprised of three sections. It included an ethno-socio-economic demographic section in which data were collected on participants characteristics, such as place and date of birth, familial geographical origin, ethnicity and tribe name, name of catchment (Omdurmani students) and village (Darfuri students), composition of the family, parental death, parental occupation, parental property ownership and source for payment of university tuition fees. Place of geographical origin was set as a proxy indicator to determine urban-rural upbringing and socioeconomic status was based on parental occupation (blue/white collar jobs; and, according to Sudanese societal norms were characterized 'high-middle' representing occupations requiring higher education, relatively more economically rewarding and associated with higher prestige, e.g. engineers, teachers, nurses, businessmen, civil servants; and 'middle/low' representing farmers, unskilled workers, self-employed, or unemployed).

Coping resources

An eight item checklist of coping resources was developed to determine student's habitual use of resources when faced with acute stressors defined as major life events and transition such as war exposures or chronic stressors such as daily hassles and minor lifestyle changes. The resources were: family; tribe/ethnicity; friends; students union; role models; and the AUW counseling service; religion (spirituality); and leisure activities (recreation and hobbies). These resources were based on a previous qualitative exploratory study on coping with current daily life stressors (Badri et al., in press). These habitual coping resources were then coded into eight categories, to construct a coping resource scale. Participants were asked to mark from 0 (not used) to 3 (mostly used) for each coping resource. The sum scores were then computed ranging from 0-24.

Resilience characteristics

Based on the theoretical definition of resilience, five resilience characteristics were derived from the Resilience Scale developed by Wagnild and Young (1993): self reliance; meaning; equanimity; perseverance; and existential aloneness. Self-reliance is identified as the most important characteristic which lays the foundation for the other four (Wagnild, 2009). Meaning connotes making meaning of life experiences and a purpose in life; perseverance, self-reliance, equanimity and existential aloneness confer with the concept of inner strength

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promoting effective coping and a 'coming home to yourself' (Wagnild, 2009). In three open-ended questions, participants had to describe how they cope with academic (e.g. level of difficulty and volume of course requirements, availability of learning materials, examination anxiety); financial (e.g. lack of material resources/possessions/utilities, poor living conditions/hostels, tuition fees, living expenses, and budgeting allowances); and social/relationship stressors (university campus community/ethnic-cultural diversity, alienated/estranged, family quarrels, and friendship misunderstandings). Their answers were then coded by two researchers into the five resilience characteristics classification according to Wagnild (1993). Discrepancies regarding coding were resolved by means of discussion.

Procedure

The registrar's office submitted participants' names, departments and timetables for both Darfuri and Omdurmani participants. These participants were then contacted by the research field team and initial discussion for questionnaire administration time was organised. A brief explanation of the study and its components was given at the beginning of the administration session. Participants were advised that names were not to be recorded and that the information received was strictly confidential. Once written consent was obtained participants were invited to complete the questionnaire. Depending on the actual volume of students within a particular school, on average there was a show of 7 students per session, with each session taking approximately 45 minutes to an hour to complete. Data collection concluded on April 17, 2010.

Analyses

Differences in coping resources items between Darfuri and Omdurmani participants were tested by means of independent samples t-tests. Subsequently, principal component analyses (PCA) were conducted for coping resource items and used to construct a coping resource scale. Independent samples t-tests and χ^2 -tests were used to assess differences between Darfuri and Omdurmani participants in terms of the coping resource scale and resilience characteristics respectively. These differences were taken into account as predictors in linear regression models upon place of origin. Separate analyses were run using anxiety and depression scores as dependent variables. Backward procedures were used to create final parsimonious models. All analyses were conducted using SPSS 17.

Results

A total of 415 participants completed the measurements; 116 (28%) of them were Darfuri and 299 (72%) were Omdurmani. Sixty-one percent ranged between 15-20 years of age and 37% percent between 21-25 years. Twenty-one percent had one deceased parent. Tuition fees were paid by parents (74%), relatives (17%) or by means of a scholarship (9%). Seventy-two percent of the fathers were blue-collar workers, ten percent were white-collar workers and the remaining eighteen percent were retired or unemployed. In their place of origin, 57% of parents owned property.

Table 1 shows the differences in coping resource items between Darfuri and Omdurmani participants. Darfuri were more likely to use people of the same tribe and ethnicity as coping resource, while Omdurmani were more likely to use friends and leisure activities as coping resources. There were no differences with regard to the other coping resources (e.g. family, counseling service). PCA regarding coping resource items revealed one factor ($\alpha = .83$) underlying these items which explained 46.4% of the total variance. All items had factors loadings $> .55$.

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Table 2 shows that there were no differences between students from Darfur and from Omdurman on the coping resource scale. Darfuri and Omdurmani participants did differ, however, in terms of the resilience characteristics they possessed, for academic, financial and social/relationship stressors. For all of these, the Darfuri relied more on making meaning as a way to cope with daily stressors. The Omdurmani relied more on themselves for academic and financial stressors and on equanimity and existential aloneness for social/relationship stressors.

Table 3 shows the predictors in linear regression analysis between Darfuri and Omdurmanis in relation to the two dependent variables of anxiety and depression scores. Darfuri students were more anxious in comparison with Omdurmanis when resilience characteristics were taken into account. The use of meaning as a resilience characteristic for financial stressors reduced anxiety scores, which was used more often by Darfuri (Table 2). Participants who were self reliant regarding social/relationship stressors had decreased depression scores.

Discussion

In line with the study aims, there are differences between how Darfuris and Omdurmanis utilize external coping resources and possess internal resilience characteristics to manage, cope and adapt to academic, financial and social/relationship stressors. While acknowledging that the participants of the current study are of Sudanese origin, and that clearly coping resources and resilience characteristics had an ameliorating effect on measures of anxiety and depression there are, nevertheless, striking differences between the ‘extra-ordinary’ major life stressors experienced by the Darfuri participants (war-affected) and those ‘normal’ tertiary stressors (non-war-affected) experienced by the Omdurmanis.

In the shadows of their war-related experiences and post-displacement stressors (Badri et al., in press), Darfuris’ resilience levels (Badri et al., submitted) demonstrate an ability of altering extreme emotional negativity to thinking positively by a process of continuous reappraisal and reinterpretation (Wortman, Battle and Lemkau, 1997). The ability to engage in meaning as an internal resilient characteristic when faced with social/relationship, academic and financial stressors reflects a capability to address future difficulties more assertively (Knight, 2006). Furthermore, the high endorsement of this resilience characteristic within the Darfuri group signifies an interaction that draws from their repertoire of spirituality, religious practice, sense of appreciation, gratitude and thankfulness of being alive (Badri et al., in press) in an attempt to make meaning not only of the psychological effect of war exposure but also the context of the experience in their current lives indicating an urgency to adjust to university life, and an importance to successfully accomplish current goals; notwithstanding the pursuit of educational opportunity.

Incongruent cultural/ethnic mannerisms, differences in language patterns, the challenges of navigating academic hurdles, and financial worries exemplify social/relationship, academic and financial stressors among the Darfuri-rural ethnic minority (Badri et al., in press), which may have had the potential of increasing anxiety and depressive symptoms (Badri, et al., submitted). The coping resource of seeking contact with other Darfuris from the same ethnicity or tribal background emphasizes the importance of group cohesion and positive ethnic identity (Holleran & Waller, 2003; Werner, 1995) that buffers against stressors much like other rural student communities (McIntire, Marion, & Quaglia, 1990) and is paramount within the Darfuri culture (Badri et al., in press). Moreover, financial stressors are somewhat alleviated by the fact that all Darfuri students are provided with a tuition scholarship from AUW (Badri et al., in press) and seems to act as a protective buffer against psychological distress (Timmins and Kaliszer, 2002). Finally, social support networks

and their interpersonal relationships with ‘significant others’ (Cope, 1972; Swift, 1988; Duru & Poyrazli, 2007) continuously affirm their resilience characteristic of meaning and tends to determine how Darfuris cope with their new urban and student life at AUW.

Resilience characteristics endorsed by the Omdurmani non-war-affected students that help them cope with social/relationship, academic, and financial stressors were mainly their ability to rely on themselves, equanimity, and existential aloneness. The group has also reported that largely due to the effects of a chronic disadvantaged environment, being categorized within a low socio-economic status, faced with family financial pressures, and a pervasive lack of resources (Badri et al., submitted), they still have the capacity for self-reliance by taking on jobs optimizing their income, and spending wisely only on pertinent possessions, boosts competence and self-worth (Werner and Smith, 1992).

Although the most salient familial and extrafamilial protective coping resources may be a strong force in promoting resilience and encouragement (Ceja, 2004), they may themselves be compromised by a chronically disadvantaged environment, availability of economic opportunities and resources (Dubow et al., 1997), and the debilitating effects of poverty may serve an additive function to mental distress levels (Seidman et al., 1994, 1995), including depression (Badri et al., submitted; Assimeng, 1981; Nagase, et al., 2009), and may lose their protective impact (Wyman et al, 1991).

Academic stressors are eased by communicating and seeking information, guidance, and support from significant others, such as university staff, including counsellors. Their familiarity with environmental surroundings, people, and cultural mannerisms, function as alleviators of daily life stressors by interacting with fellow Omdurmani students and pursuing leisure activities as a coping resource. Their active participation in extra-curricular activities including AUW’s team sports, and choir and music bands as recreational activities suggests the multiple pathways to resilience (Masten, Best, and Garmezy, 1990). Committing to these activities recognizes their resilience characteristic of equanimity, ‘taking things in their stride’, ‘finding something to laugh about’ and ‘taking things one day at a time’, and fosters a practice of commitment in future aspirations (Masten et al., 2009).

On the other hand, Omdurmanis also indicated that they would rather be alone (i.e., ‘existential aloneness’) as a resilience characteristic and had lower needs for social relationships (Iwasaki, 2003) than Darfuri students. It is important to highlight the significance of this resilience characteristic as a ‘coming home to yourself’ (Wagnild, 2009), a preferred coping strategy to moderate Omdurmanis academic, social/relationship and financial stressors (Abela et al, 2009).

Several limitations of the current study should be noted. First, as the current study was cross-sectional in nature, conclusions about the directions of the reported associations cannot be drawn. Longitudinal research designs are needed to determine whether coping resources and resilience characteristics influence the subsequent development of anxiety and depressive symptoms, and stressors or whether the onset of symptoms and stressors negatively impacts the types of coping strategies students employ. The differences between Darfuri and Omdurmani participants in terms of coping resources and resilience strategies, however, are independent of the cross-sectional design. Secondly, although studying coping in university students is a topic of great significance, the current findings cannot be generalized to, for example, male undergraduate students. However, the premise for this particular research was to target female university students, characteristically an understudied and marginalized group in Sudanese society. Further research is thus needed to examine whether the current findings replicate in other university samples. Thirdly, there are countless ways of measuring stressor variables for example, acculturative stress and peer pressure. However, based on previous studies among these samples, academic, social/relationship and financial stressors were the most pertinent. Additional research may discover other relevant stressor variables.

Coping resources and resilience characteristics

This study provides valuable insights reflecting the trends by which two distinctly diverse groups of students utilize coping resources and exhibit resilience characteristics in the face of academic, financial and social/relationship stressors. According to the results, Darfuris were more anxious in comparison with Omdurmani students when resilience characteristics were taken into account. Their minority representation as an ethnic-culture within a larger Omdurmani dominated ethnic-culture at AUW prompted them to identify with those who are ethno-culturally similar and hence endorse a high level of social support and solidarity. Also, their individual capacity for meaning as an inner resilience characteristic endorses their flexibility in the face of academic, financial and social/relationship stressors and challenges. Omdurmani students, more pragmatic, 'whatever it takes', tendency of self reliance protects them against academic and financial stressors, as they feel they can 'handle', 'manage', and 'get through difficult times' on their own. Also, Omdurmanis were more likely to use friends and leisure activities as coping resources, and relied on a more urban-type equanimity and existential aloneness for social stressors. Recognizing that undergraduate students have a reservoir of potential positive responses despite experiencing adversity, including war-related exposures and low SES, suggests the importance of establishing a framework within which to develop an effective counseling service that identifies existing resilience characteristics and effective coping resources as those found within this sample of Darfuri and Omdurmani students. The implications for trauma counselors may be a need to re-train in essential differential paradigms, including, re-conceptualizing traumatic reactions as reactions to adversity, rather than on the limiting conceptualization of PTSD, generalized anxiety disorder and major depression symptoms; attributing meaning, equanimity and existential aloneness, as resilience characteristics; disempowering helplessness in the therapeutic relationship; and focusing on the eudemonic (meaning and purpose) of well-being (Papadopoulos, 2002).

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Table 1. Means, standard deviations, and t-tests for differences in coping resource items for students from Darfur and Omdurman.

Coping resource	Darfuri	Omdurmani	Test
	(n = 116)	(n = 299)	
	M (SD)	M (SD)	
Family	2.41 (1.08)	2.47 (0.86)	$t = 0.55, p = .59$
Tribe/ethnicity	1.34 (1.06)	1.01 (0.65)	$t = -3.13, p = .002$
Friends	1.97 (1.13)	2.31 (0.84)	$t = 2.91, p = .004$
Student union	0.99 (0.90)	0.98 (0.67)	$t = -0.09, p = .93$
Role models	1.86 (1.32)	1.94 (1.16)	$t = 0.56, p = .58$
Religion	1.22 (1.07)	1.17 (0.87)	$t = -0.34, p = .73$
Counseling service	1.41 (1.13)	1.26 (0.94)	$t = -1.29, p = .20$
Leisure activities	1.60 (1.10)	1.93 (1.01)	$t = 2.83, p = .005$

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Table 2. Independent samples t-tests and χ^2 –tests differences between Darfuris and Omdurmanis stressors in relation to coping resources and resilience characteristics.

Measure	Total (N = 415)	Darfuri (n = 116)	Omdurmani (n = 299)	Test
Coping resource scale [M (SD)]	13.0 (5.2)	12.8 (6.6)	13.1 (4.5)	$t = 0.42, p = .68$
Academic stressors				$\chi^2 = 17.92, p < .001$
Self reliance [%]	33.9	20.3	37.7	
Meaning [%]	12.0	23.2	8.9	
Equanimity [%]	3.2	2.8	4.3	
Perseverance [%]	50.6	50.6	50.7	
Existential aloneness [%]	0.3	0.0	1.4	
Financial stressors				$\chi^2 = 11.28, p = .02$
Self reliance [%]	37.4	23.1	40.6	
Meaning [%]	16.7	30.8	13.5	
Equanimity [%]	33.5	34.6	33.2	
Perseverance [%]	12.1	11.5	12.2	
Existential aloneness [%]	0.4	0.0	0.4	
Social/relationship stressors				$\chi^2 = 20.91, p < .001$
Self reliance [%]	23.4	26.1	22.8	
Meaning [%]	34.7	58.7	29.7	
Equanimity [%]	21.5	4.3	25.1	
Perseverance [%]	6.0	6.5	5.9	
Existential aloneness [%]	14.3	4.3	16.4	

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Table 3. Standardized betas in final regression models for anxiety and depression scores.

Measure	Anxiety	Depression
Place of origin	.32*	
Academic stressors		
Self reliance		
Meaning		
Equanimity		
Perseverance		
Financial stressors		
Self reliance		
Meaning	-.21*	
Equanimity		
Perseverance		
Social/relationship stressors		
Self reliance		-.18*
Meaning		
Equanimity		
Perseverance		
R ²	.11	.03

**p*-values smaller than .05.

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