

Psychological wellbeing and the diathesis-stress hypothesis model: The role of psychological functioning and quality of relations in promoting subjective well-being in a life events study.

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Negative life events are associated with poor wellbeing and mental health outcomes. Following a diathesis-stress model, we tested whether psychological functioning and quality of interpersonal relationships moderated the effect of life events on subjective wellbeing. This study comprised data from a young and middle-aged adult sample (n = 364) drawn from an Australian university-student population. Results indicated that life events were associated with negative but not positive wellbeing outcomes. Perceived impact of life events was a stronger predictor of wellbeing than was the number of life events. Psychological functioning and quality of interpersonal relationships were associated with both wellbeing dimensions but only quality of interpersonal relationships moderated the effect of life events on wellbeing. In conclusion, perceived impact of life events was more strongly related to wellbeing than number of life events. Interpersonal relationships moderate the effect of life events with those reporting higher levels of quality of interpersonal relationships reporting less decrement in negative affect following stressful life events.

Keywords: Life Events; Psychological Wellbeing; Subjective Wellbeing; Psychological Functioning; Personal Relations;

1.Introduction

The association between life events and health is well established (Sarason, Sarason, Potter, & Antoni, 1985). Stressful life events are implicated in the aetiology of common mental disorders (Bebbington, Hurry, & Tennant, 1988; Brown, Harris, & Eales, 1993; Newman & Bland, 1994; Spinhoven et al., 2011). Differences in how individuals respond and adapt to stressful life events can be accounted for by a number of psycho-social factors. In one longitudinal study (Whisman & Kwon, 1993), the impact of life stress on longitudinal change in dysphoria was moderated by self-esteem and mediated by change in hopelessness. Higher self-esteem and lower hopelessness were associated with better wellbeing outcomes. Similarly, decreased neuroticism and increased extraversion have been indicated as moderating the long-term course of depressive and anxiety symptomology in a positive way (Spinhoven et al., 2011). Social and environmental factors can also moderate the association between stressful life events and mental health outcomes. Social support is consistently identified as buffering the effects of life events on wellbeing outcomes in clinical samples (Ames & Roitzsch, 2000) and the general population (Falcon, Todorova, & Tucker, 2009). In a recent Dutch study (van den Berg, Maas, Verheij, & Groenewegen, 2010), environment was a significant moderator of the degree to which participants were affected by stressful life events. The authors concluded that the amount of green space, within 3km of residents' homes, buffered against the negative health impact of stressful life events.

Although one's vulnerability to poor mental health outcomes is purported to be diathetic (Zubin & Spring, 1977), the level of risk in developing poor mental health outcomes is clearly associated with the availability of those psycho-social resources with which an individual may utilise and cope with the occurrence of negative stressful events. Given the role of individuals' resources in moderating the effect of life events on well-being outcomes, we believe that there is a strong theoretical basis on which to focus the examination of life

events on the appraised impact that an event may have. The diathesis-stress hypothesis (Coyne & Downey, 1991) proposes that personal dispositions and social context moderate the effect of stressful life events on health and well-being (see Figure 1). When psychological and social resources which aid adjustment to life events are absent or limited, then individuals are vulnerable to an increased likelihood of reporting a decrement in a range of health outcomes.

INSERT FIGURE 1

Typically, investigations of the effect of life events associate the occurrence of a life event, or the number of life events that occurred in a preceding period, with subsequent mental health outcomes. Evidence for the perceived degree of impact of life events remains relatively unexplored. That is, the association between perceived impact of life events on health and wellbeing is less clear. In a similar vein, Horowitz, Wilner and Alvarez (1979) proposed the Impact of Event Scale (IES) as a method of describing subjective distress in relation to specific life events, determining the extent to which participants reported degrees of intrusive thinking and avoidance. However, most utilisation of the IES has been restricted to clinical samples, particularly in relation to posttraumatic stress disorder (Sundin & Horowitz, 2003).

We propose that the deleterious effect of a life event is associated more with its degree of impact on one's life than its occurrence alone. For example, the negative impact of job-loss may be less damaging on the individual who is in a financial position to deal with job-loss, or for the individual who had the foresight that job-loss was impending and had begun to take steps to find alternative employment. Similarly, for one individual, the end of a difficult acrimonious relationship may impact less negatively than for an individual whose

perceived nurturing and fulfilling relationship ends unexpectedly. In this study, we amend a common measure of significant life events to determine the degree of impact of a life event, such that when a life event has occurred, a participant describes the extent to which the event impacted on their life. Finally, we test the effects of stressful life events on individual wellbeing, following a model of wellbeing (Huppert et al., 2009), that combines psychological function and feeling. There is considerable evidence for the independence of related wellbeing constructs that are either affective or cognitive-behavioural in basis (Burns & Machin, 2009, 2010; Gallagher, Lopez, & Preacher, 2009), with stronger evidence for the role of psychological functioning in determining feeling components of wellbeing and mental health outcomes (Burns, Anstey, & Windsor, 2011; Burns & Machin, 2012). We posit that quality of social relations and psychological function moderate the effect of perceived impact of life event individual wellbeing.

1.1 Aims:

Our aims are to:

1. To compare the association between number of life events and the perceived impact of life events on wellbeing; and
2. To examine whether components of psychological functioning and social relations moderate the association between perceived impact of life events and wellbeing.

2. Methods

2.1 Participants and Procedure

Participants (n = 364) were recruited from the student population from the Department of Psychology at the University of Southern Queensland (USQ). Socio-demographic characteristics are detailed in Table 1. Of particular note, participants were predominantly female (82.4%) and over half of the sample were aged over 25 years of age (53.5%). Also, the majority of participants were studying through distance education (56.3%) and part-time

(53.6%), often several years post-completion of high school. These sampling characteristics can be attributed to the provision of unique educational services by several universities in Australia, like USQ, which recognise that many do not necessarily follow the traditional route of entering university subsequent to their completion of their high school qualification. With the impediments (e.g. family and work responsibilities) associated with entering higher education later in life, USQ provides opportunities for students to undertake most of their courses on a part-time and external basis, in addition to the traditional full-time and on-campus modes. Participation in departmental projects is a requirement of enrolment in some psychology courses, but voluntary for others. Participants accessed the survey through a secure web facility which is run and monitored by the technical services staff within the Department of Psychology. In order to limit ordering effects from the assessment of affect items which can be primed by questions relating to stressful life events, the survey elicited responses to subjective wellbeing first, followed by questions about life events and then psychological wellbeing. Socio-demographic questions were then dispersed throughout the survey between the main survey questions. The University's Human Research Ethics Committee provided approval for the study.

INSERT TABLE 1

2.2 Measures

2.2.1 Significant Life Events

Significant Life Events were assessed using the List of Threatening Experiences (LTE; (Brugha, Bebbington, Tennant, & Hurry, 1985). This survey comprises questions relating to the incidence of Significant Life Events. Participants indicated whether they had experienced any of 12 life events in the preceding 6 months. In addition, for each event that occurred, participants were asked to rate the impact of each event on a 5-point Likert scale that ranged

from ‘did not affect my life at all’ to ‘did affect my life extremely’. This way, a measure of an event’s perceived impact could be created in addition to the number of events. Two life events variables were computed. First, a raw score was calculated to reflect the number of events reported by each participant and is typical of the LTE. Second, the authors calculated a score to reflect the perceived degree of impact reported for each life event. In order to adjust for the different numbers of life events and different level of impacts reported between participants, we first averaged the degree of impact of all events reported for each participant, and then adjusted for the number of life events reported by each participant by dividing by the number of events that were reported.

2.2.2 Subjective Wellbeing

Subjective Wellbeing was assessed with the Positive and Negative Affect Schedule (PANAS) which comprises 20-items relating to positive ($\alpha = .867$) and negative affect ($\alpha = .882$) (Watson, Clark, & Tellegen, 1988). Individuals indicated the extent to which they had experienced each symptom or feeling on a 5-point Likert-type scale, ranging from ‘1’ ‘Very Slightly or Not At All’ to ‘5’ ‘Extremely’ over the previous four week period. Higher scores on each scale indicate higher levels of affect on each dimension.

2.2.3 Psychological Functioning and Quality of Interpersonal Relations

Psychological functioning and interpersonal relations were assessed with the 84-item version of Ryff’s (1989) Psychological Wellbeing Scales (PWB) scales which assessed six dimensions of PWB: environmental mastery (E; e.g. *In general, I feel I am in charge of the situation in which I live*), personal growth (G; e.g. *I am not interested in activities that will expand my horizons*), purpose in life (P; e.g. *I have a sense of direction and purpose in life*), self-acceptance (S; e.g. *When I look at the story of my life, I am pleased with how things have turned out*); autonomy (e.g. *My decisions are not usually influenced by what everyone else is doing*); and positive relations with others (e.g. *I have not experienced many warm and trusting relationships*

with others). Participants indicated their agreement with each statement on a 6-point Likert-type scale, ranging from '1' 'Strongly Disagree' to '6' 'Strongly Agree'. Higher scores indicated greater well-being on each dimension. Prior factor analysis of the PWB items in this life events study (Burns & Machin, 2009), indicated that items from four of the PWB variables E, G, P, S are best reflected by a super-ordinate first-order PWB factor, EGPS ($\alpha = .794$) with two other first-order factors reflecting Autonomy ($\alpha = .774$) and Positive Relations ($\alpha = .722$). Similar findings have been reported in other studies (Abbott et al., 2006; Burns & Machin, 2010). Consequently we utilised the amended 3 factor PWB structure.

2.2.4 Covariates

Our analyses adjusted for a number of covariates, including gender, age, current education level being studied for (Certificate, Diploma, Bachelor, Post-Graduate Diploma, Masters and Doctorate), English as first language, study load (full-time, part-time), mode of instruction (on-campus, distance, combination), and living location (hall of residence, rental property, parental home, own home).

2.3 Statistical Analysis

A series of regression models were undertaken in STATA v.10. Model 1 tested the effect of the number of life events on negative affect. Model 2 extended Model 1 by including the perceived impact of life events; Model 3 extended Model 2 by including the PWB variables; Model 4 extended Model 3 with the inclusion of interaction terms between PWB and both number of life events and perceived impact of life events. Models 1a thru 4a reflected analyses on positive affect. Except the number of life events variable, all continuous variables were z scored. Standard errors were computed from a bootstrap analysis of each model with a bootstrap sample of 200. As an alternative hypothesis we then utilised a Structural Equation Models in Mplus v.5 to estimate whether perceived impact of life events mediates the effect of PWB on SWB (Model 5).

3. Results

Bivariate correlations indicate that overall, there is considerable variance in subjective wellbeing that remains unexplained (Table 2). Of particular emphasis, correlations between subjective wellbeing and perceived impact of life events indicates that the assessment of the impact was mostly unrelated to affect. One significant issue relates to the strong correlation ($r = .65$) between the superordinate EGPS factor and positive affect; this consistent finding (Burns & Machin, 2009, 2010; Burns & Machin, 2012) has been previously identified and suggests up to 42% shared variance between these constructs. That saying, it needs to be emphasised that these factors have been derived from factor analytical procedures that show that that the items from these respective well-being variables can discriminate their parent factors despite the strong correlations between factors.

INSERT TABLE 2

INSERT TABLE 3

Hierarchical regression analyses tested the effects of significant life events and PWB on both positive and negative affect (Table 3). Overall, the reported number of life events was only weakly associated with negative affect and its effect was explained by the inclusion of the PWB variables. In contrast, the perceived impact of life events was consistently positively associated with negative affect; those reporting higher impact of life events also reported higher levels of negative affect. Main effects for all three PWB factors were reported in Model 3, with significant negative associations between PWB and negative affect. However, when adjusting for the interaction between PWB and both number of life events and perceived impact of life events, most of the main PWB effects were no longer significant.

One exception was for Positive Relations which reported a significant negative association with negative affect. One higher order interaction on negative affect was reported; an interaction between perceived impact of life events and positive relations. Plotting this interaction indicated high positive relations as protective of increased negative affect with increased perceived impact of life events (Figure 2). Both the reported number of life events and perceived impact of life events were consistently unrelated to positive affect.

Associations between the three PWB measures and positive affect were mixed. Autonomy was consistently unrelated with positive affect. Increased positive relations were strongly associated with positive affect (Model 3a) but not in the model adjusted for interactions between PWB and impact of life events (Model 4a). In contrast, EGPS, the super-ordinate PWB factor was consistently positively related with positive affect in both unadjusted and adjusted models. No higher order interactions between PWB and life events were reported. Inspection of Goodness of Fit indices suggest that for negative affect, Model 4 is the better fitting model. This was confirmed with a LL test of difference between Model 4 and 3 (χ^2 LR = 26.08 (df = 6); $p < .001$). For positive affect, fit indices indicated comparable fit between Models 3a and 4a which was confirmed with a LL test of difference between Model 4a and 3a (χ^2 LR = 7.15 (df = 6); $p = .307$).

Finally, we supplemented our analyses to determine whether perceived impact of life events mediated the effects of psychological functioning and quality of interpersonal relationships on subjective wellbeing. Model 5 tested whether the perceived impact of life events mediated the effects of psychological function and quality of interpersonal relationships on subjective wellbeing. Results (Table 4) indicated that only a small amount of variance (9%) in perceived impact of life events was explained. Also, comparison of model fit with fit models for Model 4 indicated that the mediation model (Model) reported poorer model fit. Along with the bivariate correlations, these results suggest that the perceived

impacts of life events are mostly independent of the socio-demographic, psychological functioning and quality of interpersonal relationships variables.

INSERT TABLE 4

4. Discussion

This study compared the association between number of life events and the perceived impact of life events on wellbeing and examined whether components of psychological functioning and quality of interpersonal relations moderate the association between perceived impact of life events and wellbeing. In comparison with the number of life events, our findings suggest that the perceived impact of a life event was more strongly associated with negative wellbeing. Specifically, an increase in the perceived impact of a life event was positively associated with negative affect; the lack of converse finding with positive affect supports the utility in distinguishing between positive and negative affect. We postulate that following the model of conservation of resources, which suggests that people strive to build and protect their resource-base (Hobfoll, 1989), it may be that those occurrences perceived as impacting negatively may be so indicated as they present as a threat to the potential loss of one's valued resource-base.

In line with previous findings (Dirkzwager, Bramsen, & van der Ploeg, 2003; Haden, Scarpa, Jones, & Ollendick, 2007), quality of interpersonal relationships was a significant moderator of negative stressful events and individual wellbeing. A buffer theory of social support (Alloway & Bebbington, 1987) proposes that the presence of social relations or support networks, moderates effect of adverse environmental stressors that precipitate illness and disease. Also, a significant literature highlights the role of positive psychological

function on wellbeing in organisational, epidemiological and clinical contexts across the lifespan (Burns & Machin, in press; Burns et al., 2011; Fava, 1999; Huppert & Whittington, 2003; Ruini, Belaise, Brombin, Caffo, & Fava, 2006). The results of this study confirm the role of psychological functioning in promoting positive and reducing negative wellbeing outcomes. In particular is the association between the higher order PWB factor, EGPS, and its association with positive subjective wellbeing which have been identified previously in three organisational studies (Burns & Machin, 2010). Finally, perceived impact of life events was found to be independent of individual characteristics; only a small amount of variance in the perceived impact of life events was accounted for.

There are a number of limitations with our findings. First, the study is by design retrospective as participants reported life events in the preceding six months. In contrast, measurements of psychological functioning and social contexts reflect current status. A prospective design may more accurately capture the role of psychological functioning in moderating the effect of stressful life events on individual wellbeing. Also, to extend our findings further, we would strongly recommend that future research should explicitly determine whether the perceived impact of an event on one's life was a positive or negative experience since our negative life event schedule was associated only with negative affect. The life events measure should be expanded to consider further life event occurrences that may be associated with increased likelihood of positive experiences such as birth of a child, marriage, graduation, job promotion. Due to our sampling frame, our sample is heavily represented by females. However, results (not reported here), indicate that differences between gender are typically accounted for by the individual psychological functioning variables. Also, in contrast to most university samples, our sample comprised sufficient numbers of adults from late teens to mid-life such that we are confident that results are generalizable to educated adults of similar ages.

In conclusion, we demonstrate that the number of life events is of secondary importance to the perceived impact of a life event. That is, the greater the perceived impact the more deleterious the effect on negative wellbeing. Further, we demonstrate that psychological functioning and quality of interpersonal relationships is related to optimal subjective wellbeing outcomes, increased positive and decrease negative affective wellbeing. Perceived quality of interpersonal relationships, but not psychological functioning moderated the effects of perceived impact of life events on negative wellbeing only.

Table 1: Descriptive summary of participant characteristics

		N	%	M	SD
Sex	Male	64	17.6		
	Female	300	82.4		
Age	Under 20 years	95	26.1		
	20 to 25 years	74	20.3		
	26 to 29 years	40	11.0		
	30 to 39 years	98	26.9		
	40 to 49 years	42	11.5		
	50 years and over	15	4.1		
Education	Certificate	7	1.9		
	Diploma	4	1.1		
	Bachelor Degree	327	89.8		
	Post-Graduate Diploma	22	6.0		
	Masters	2	.5		
	Doctorate	2	.5		
English First Language	Yes	337	92.6		
	No	27	7.4		
Study Load	Full-Time	169	46.4		
	Part-Time	195	53.6		
Mode of Education	On-Campus	126	34.6		
	Distance	205	56.3		

	On-Line	2	.5	
	A combination	31	8.5	
Living Location	Hall of Residence	17	4.7	
	Rental Property	127	34.9	
	Parental Home	101	27.7	
	Own Home	119	32.7	
Positive Affect			3.54	.83
Negative Affect			2.39	.81
# of Life Events			4.46	2.79
Perceived impact of LE			3.28	.96

Note. LE: Life Events; EGPS: super ordinate factor derived from 4 of the PWB scales;

Table 2. Correlations between Psychological Wellbeing, Subjective Wellbeing, number and perceived impact of life events,

	PA	NA	# of LE	Impact of LE	EGPS	PR	AU
PA	-	-.24***	-.06	.07	.65***	.30***	.22***
NA		-	.21***	.32***	-.38***	-.44***	-.35***
# of LE			-	.04	-.19***	-.21***	-.01
Impact of LE				-	.14**	-.13*	-.06
EGPS					-	.29***	.30**
PR						-	.18**

Note. PA: Positive Affect; NA: Negative Affect; LE: Life Events; EGPS: super ordinate

factor derived from 4 of the PWB scales; PR: Positive Relations With Others; AU:

Autonomy. * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 3: Results of two series of hierarchical regressions to test the effects of PWB, life events and the perceived impact of life events on subjective wellbeing

	Negative Affect				Positive Affect			
	Model 1	Model 2	Model 3	Model 4	Model 1a	Model 2a	Model 3a	Model 4a
	R ² = .062	R ² = .157	R ² = .416	R ² = .457	R ² = .072	R ² = .074	R ² = .470	R ² = .481
	B (SE ^a)	B (SE ^a)	B (SE ^a)	B (SE ^a)	B (SE ^a)	B (SE ^a)	B (SE ^a)	B (SE ^a)
Intercept	2.15 (.10)**	2.19 (.09)**	2.24 (.09)**	2.26 (.09)**	3.42 (.11)**	3.43 (.10)**	3.37 (.09)**	3.39 (.10)**
# of LE	0.07 (.02)**	.06 (.01)**	.03 (.01)	.02 (.01)	-.02 (.02)	-.02 (.02)	.02 (.01)	.02 (.01)
Impact of LE		.26 (.03)**	.24 (.03)**	.26 (.03)**		.04 (.04)	.01 (.03)	.01 (.04)
EGPS			-.23 (.04)**	-.18 (.08)			.53 (.04)**	.61 (.08)**
PR			-.22 (.04)**	-.21 (.07)*			.11 (.03)**	.12 (.08)**
AU			-.16 (.04)**	-.01 (.07)			-.01 (.04)	-.00 (.07)
# of events* EGPS				-.01 (.01)				-.01 (.01)
# of events* PR				.00 (.01)				.00 (.01)
# of events* AU				-.03 (.01)				.00 (.01)
Impact of LE* EGPS				-.04 (.04)				.06 (.04)

Table 4: Results of structural equation model to test the mediation effect of perceived impact of life events on subjective wellbeing

	Model 5					
	Positive Affect		Negative Affect		Impact of Life Events	
	$R^2 = .476$		$R^2 = .474$		$R^2 = .090$	
	B	SE ^a	B	SE ^a	B	SE ^a
# of LE	.02	.01	.02	.01	.01	.02
Impact of LE	.02	.04	.26***	.03		
EGPS	.59***	.08	-.17*	.08	.17**	.06
PR	.14*	.07	-.17*	.07	-.16**	.05
AU	.01	.07	.01	.07	-.08	.05

Model Fit Indices

AIC	8793.50
BIC	8826.11
LL	-4351.75

Note. LE: Life Events; EGPS: super ordinate factor derived from 4 of the PWB scales; PR: Positive Relations With Others; AU: Autonomy; AIC: Akikake Information Criteria; BIC: Bayesian Information Criteria; LL: Log-Likelihood. ^aStandard errors derived from Bootstrapped sample of 200. Estimates residualised for gender, age, education level currently studying for (Certificate, Diploma, Bachelor, Post-Graduate Diploma, Masters and Doctorate), English as first language, study load (full-time, part-time), mode of instruction (on-campus, distance, combination), and living location (hall of residence, rental property, parental home, own home). *p < .01 **p < .001.

Figure 1: Diathesis-Stress model: Psychological disposition and social context moderate the effects of stressful life events on mental and physical health

Figure 2: Positive relations with others moderates the effect of perceived impact of life events on negative affect

Acknowledgements

The authors thank the participants from both studies, Mr Ross Bool and the Technical Services staff with the Department of Psychology at the University of Southern Queensland for organizing the online questionnaires.

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Figure 1

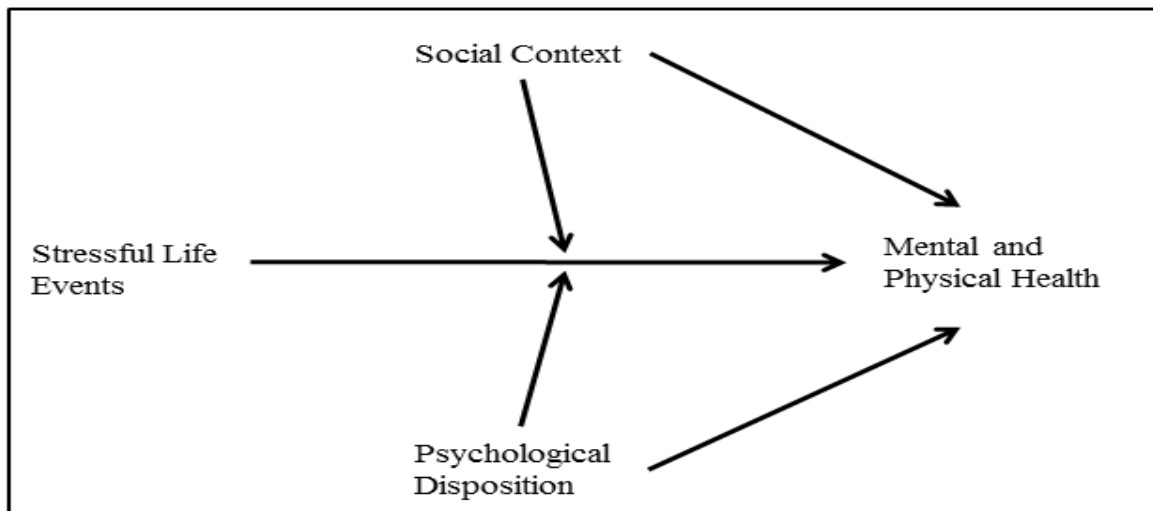


Figure 2

