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Traumatic events and meaning in life: exploring variations in three age cohorts

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ABSTRACT

The purpose of this study is to examine the relationship between traumatic events that arise across the lifecourse and a sense of meaning in later life. In the process, three important issues are evaluated. First, analyses are performed to see if traumatic events at six different points in the lifecourse are associated with a sense of meaning in life. Second, an effort is made to see if current emotional support helps reduce the deleterious effects of trauma on meaning, and whether current levels of negative inter-personal contacts exacerbate the effects of trauma on meaning in life. Third, the relationship between trauma and meaning is assessed in three age cohorts: the young-old, the old-old and oldest-old. Findings from a nationwide United States survey reveal that trauma arising between the ages of 18 and 30 years is associated with a diminished sense of meaning in life, and that current emotional support reduces the effects of trauma on meaning, whereas negative inter-personal contacts tend to intensify the pernicious effects of trauma on meaning in life. Further analyses suggest that the relationships among trauma, emotional support, and negative inter-personal contacts emerge primarily in the oldest-old cohort.

KEY WORDS – trauma, emotional support, negative inter-personal contacts, meaning in life.

Exposure to trauma and meaning in life

As the literature on the stress process continues to evolve, researchers devote more time to the study of traumatic events. Wheaton (1994: 90) defined trauma as events that are 'spectacular, horrifying, and just deeply disturbing experiences'. Traumas are distinguished from other types of stress (*e.g.* stressful life events) by their imputed seriousness. Included among traumatic events are sexual and physical abuse, witnessing a violent crime, the premature loss of a parent, and participation in combat. Several studies have suggested that trauma is associated with physical as

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well as mental health problems, especially post-traumatic stress disorder (Breslau *et al.* 1999). Unfortunately, relatively little research has focused on the effects of traumatic events in late life. Moreover, studies that involve older adults deal primarily with single traumatic events, such as the Holocaust (Shmotkin and Barilan 2002) or involvement in combat (McCranie and Hyer 2000). Although this research has made important contributions, the approach overlooks the fact that people may experience more than one traumatic event during their lifetime. By ignoring cumulative exposure to trauma over the lifecourse, these investigators run the risk of under-estimating the impact of the traumatic events that they evaluate (Turner and Lloyd 1995).

The purpose of this paper is to examine the effects of exposure to multiple traumatic events over the lifecourse. In the process, an effort is made to contribute to the literature in two ways. First, research on traumatic events in late life focuses on either mental health outcomes (*e.g.* Krause 2004*a*) or physical health status (*e.g.* Krause, Shaw and Cairney 2004). The present study aims to build on this work by exploring the effects of trauma on an outcome that has not been evaluated in studies of older adults' meaning in life. Second, as the discussion that follows will reveal, an effort is made to show how current positive and negative social relationships shape the way in which trauma arising over the lifecourse influences an older person's sense of meaning in life.

Social and behavioural gerontologists have devoted significant attention to the study of meaning among older adults. For example, Ryff and Singer (1998) provided a detailed discussion of the ways in which a sense of meaning bolsters the physical health of older people. In contrast, Reker (1997) presented evidence that meaning tends to lower depressive symptoms among older people. But we need to know more about the factors that influence a sense of meaning. Reker (1997: 710) defined meaning in life as 'having a sense of direction, a sense of order, and a reason for existence, a clear sense of personal identity, and a greater social consciousness'. It is hypothesised that older people who have been exposed to trauma will have greater difficulty finding a sense of meaning in life than older adults who have not encountered a traumatic event. But merely assessing the simple bivariate relationship between trauma and meaning in life does not go far enough. If research in this field is to be used to improve the quality of life for older people, then we need to know much more about the process. Consistent with this goal, the paper empirically evaluates a series of progressively more refined aspects of the relationship between trauma and meaning in life. It should be emphasised that the analyses follow an iterative sequence; the findings that emerge from the analysis of one issue shape the evaluation of subsequent issues.

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The first issue to be examined is the most straightforward. Trauma is measured in this study with a 22-item checklist of events. The purpose is to see if a simple count of the number of traumatic events arising at any point in the lifecourse is associated with life meaning. As Janoff-Bulman (1992) argued persuasively, traumatic events are especially noxious because they shatter people's sense of purpose and direction, leading them to question assumptions they have made about the world in which they live, and leaving them without goals and values to structure their daily activities. Simply put, exposure to traumatic events tends to erode a person's sense of meaning in life. It is for this reason that one of the goals of psychotherapy with trauma victims is to help them restore a sense of meaning in life (Herman 1992).

Age at exposure to trauma and meaning in life

Researchers have argued for some time that the impact of a traumatic event depends upon the age or developmental stage at which it is encountered (O'Connor 2003). For example, some investigators maintain that the loss of a parent through death or divorce has a more deleterious effect on mental health if it occurs before 16 years of age (Krause 1993). Other investigators argue that exposure to various traumatic events is especially harmful if encountered during early development (*e.g.* Wheaton, Roszell and Hall 1997). The second set of analyses that will be reported in this paper explore this issue. More specifically, the effects are examined of trauma arising in six age groups or developmental periods (before 6 years of age, and at 6–11, 12–17, 18–30, 31–64 and 65 or more years of age).

There are two reasons for focusing on trauma arising at age five years or younger. First, it is consistent with Sigmund Freud's basic developmental views, that successful adult development is largely a function of resolving key challenges that emerge before age five (for a review, see Goldhaber 2000). In addition, during the pre-school years, social activity is compressed into a relatively narrow sphere. Ages six through 11 years are the early school years prior to puberty, at which time the scope of social activity expands dramatically. Ages 12 to 17 years are those of puberty, and typically the final years of residence in the parents' home. Ages 18 through 30 are the early adult years, during which an individual typically assumes several major responsibilities, including a career and family. There are two reasons why the age threshold of 30 years was selected. First, as William James maintained, a good deal of development ceases at about this age. He argued that, 'in most of us, by the age of 30, the character has set like plaster, and will never soften again' (James 1892/1961: 11). Similar

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views were simply expressed more recently: 'personality traits do not appear to change much after age 30' (McCrae and Costa 2003: 206). If these observations are valid, trauma that arises before 30 years of age has the greatest potential to create lifelong deficits in adult development.

The age category 31–64 years represents midlife, a time when social engagement is at its height and many people's contributions to self and society peak. Trauma arising at this point in the lifecourse may cut down a person in their prime, thereby frustrating their full potential. Finally, a category for ages 65 years and older was designated because it signals entry into late-life. Several key developmental transitions take place at this time. Indeed, Levinson (1986) maintained that late-life is a key transitional period, during which people critically examine their satisfaction with their life and the relationships that they have developed, and whether there is anything missing. Trauma at this point in the lifecourse may cast a negative pall on these life reflections, and present undeniable evidence that things did not turn out as was hoped.

The influence of social relationships

Researchers have argued for decades that older people turn to various social and psychological resources in an effort to confront the difficult events that arise in life. One of the most widely investigated resources is social support (Krause 2001). It has been shown that older adults who are embedded in strong social support networks tend to cope more effectively with the pernicious effects of stress than older people who do not maintain close relationships with others. Consistent with this view, the goal of the third set of analyses presented in this paper is to see if support from family members and friends tends to reduce the deleterious effects of the traumatic events that arise earlier in the lifecourse.

A number of investigators have maintained that developing a sense of meaning in life is an inherently social process that is negotiated jointly by older people and their social-network members (Settersten 2002). This is one reason why Debats (1999) believed that 'significant others' are the most important source of meaning in life. Family members and close friends may help older people accomplish this task in various ways. For example, as Frankl (1963) pointed out, social-network members may help stress victims find a new sense of purpose, by helping them to see that adversity is often a prerequisite for personal growth. Moreover, and with particular reference to losses in later life, significant others may help stressed elders rediscover, renew and re-establish goals and plans, by helping them develop a clear sense of what needs to be done

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(Caplan 1981). Finally, by listening to an older person talk about their traumatic experiences, a provider of support may help him or her work through, process and reconcile the failures and disappointments that they have experienced and feel.

Although significant others can be an important source of support, they may also be a major source of distress. More specifically, several studies have shown that negative contacts with social network members are associated with more physical and mental health problems (*e.g.* Okun and Keith 1998). Negative contacts refer to unpleasant social encounters that bring criticism, rejection, competition, the violation of privacy and a lack of reciprocity (Rook 1984). Ineffective and excessive helping are subsumed in this construct. If support from significant others helps offset the noxious effects of trauma, then conflict with social-network members may have the opposite effect, and exacerbate the undesirable effects of lifetime trauma.

There are two closely related reasons why negative inter-personal contacts make it more difficult for older people to cope with traumatic life events. The first is implied in Carstensen's (1992) theory of socio-emotional selectivity. She maintained that as people grow older, they develop a greater preference for close emotional relationships and tend to extricate themselves from peripheral social relationships, leaving a smaller network of close, emotionally-focused social ties. Inter-personal conflicts within these core social networks may, however, have especially undesirable consequences, not least when dealing with the legacy of traumatic events, as 'expectancy theory' suggests (Olson, Roese and Zanna 1996). It proposes that human behaviour is guided by beliefs about the future state of affairs, *i.e.* expectations. These beliefs are formed from past experience and knowledge, and guide decisions about how to behave. As Olson and his colleagues demonstrated, the disconfirmation of expectancies is disorienting and distressful because it forcefully demonstrates that the premises upon which behaviour has been based are invalid. This, in turn, gives rise to a deep sense of uncertainty, insecurity and anxiety about what to expect. If as people grow older they expect to develop especially supportive social relationships but instead encounter negative interpersonal contacts, then the added burden may make it more difficult to cope with traumatic events.

Exploring variations by age-cohort

When researchers study the effects of stress in late life, they typically pool all study participants aged 65 years and older. The implied assumption is that everyone in the age group is alike, and that development, as well as

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the capacity to adapt to stressful experiences, is constant throughout late life. Yet it is clear that development continues well into the eighth decade of life (Baltes and Smith 1999), and that the physical and mental decline that becomes progressively more pronounced with advancing years stretches an older person's ability to deal with adversity (Nuland 1994). Given these age-related changes through later life, it is unlikely that traumatic events affect all older people in the same way.

The reported analyses address this issue by studying approximately equal numbers of people in the following age-cohorts: the 'young-old' (ages 65–74 years); the 'old-old' (ages 75–84 years); and the 'oldest-old' (ages 85 or more years). These age groups make it possible to examine age differences in the relationship between trauma and meaning in life, although because the data are cross-sectional, it is impossible to distinguish between age and cohort effects, although both may influence the way older people respond to traumatic events. Moreover, there is reason to believe that the effects of trauma on meaning in life should be greatest in the oldest-old cohort.

The influence of age

Research consistently shows that rates of cognitive impairment increase markedly in advanced old age. George *et al.* (1991) revealed that by 75 years of age, approximately 22 per cent of older adults have mild cognitive impairment, and that at older ages the rate escalates. This is important because many effective coping strategies require a good deal of insight and planning: those with cognitive deficits are likely to be at a disadvantage (Krause and Thompson 1998). But there may be more to it than this. Floyd, Rice and Black (2002) argued that age-related decline in attention control makes it increasingly difficult for older people to inhibit irrelevant information from entering the perceptual field, thereby making it hard for them to control ruminations about traumatic events. These problems, coupled with overall physical frailty, lack of energy and declines in perceptual speed (Baltes and Smith 1999), suggest that the oldest-old may have more difficulty coping with trauma than either the young-old or the old-old. The physical changes that they experience also suggest that the oldest-old become increasingly reliant on others for help with traumatic events. As a result, the beneficial effects of social support may be most evident among the oldest-old.

Cohort effects

As Elder (1999: 15) eloquently demonstrated, 'Each generation is distinguished by the historical logic and shared experience of growing up in

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a different time period … individuals are thought to acquire a distinct outlook and philosophy from the historical world, defined by their birth date, an outlook that reflects lives lived interdependently in a particular historical context'. Unfortunately, however, it is difficult to identify a valid and comprehensive overview of the historical experiences that were shared by the three birth cohorts examined in this study. One of the few available sources is market research that, through focus groups and other means, has developed detailed profiles of the people in each of the three birth cohorts examined in this study (Karner 2001; Meredith and Schewe 2002).

The profiles provide yet another reason for the proposition that the oldest-old age-cohort are especially at risk when faced with traumatic life events. Its members were born before 1919 and many entered young adulthood just as the Great Depression began. The experience was profoundly influential, and it is not surprising that the cohort members value safety and security highly, and are very value conscious and risk averse (Meredith and Schewe 2002). But aversion to risk is not always good because it can inhibit the pursuit of new solutions to problems and discourage the adoption of unfamiliar, yet effective, coping strategies. This may, in turn, make it more difficult for members of the oldest-old cohort to grapple with traumatic events. Karner (2001) also pointed out that members of the Depression cohort, today's oldest old, attained lower levels of education than the young-old or the old-old. This is important, as Mirowsky and Ross (2003) pointed out, because the cognitive abilities acquired through education are an important coping resource and, more specifically, 'education instills the habit of meeting problems with attention, thought, action, and persistence. Thus, education increases effort and ability, the fundamental components of problem-solving' (2003: 64–5).

Probing the dimensions of meaning in life

The last issue examined in this paper is what exactly is meant by 'meaning in life', which manifestly is a complex, multi-dimensional construct. Based largely on the classic work of Battista and Almond (1973), four main dimensions of meaning were identified in a previous paper: having values, a sense of purpose, goals, and the ability to reconcile the past (Krause 2004*b*). If trauma tends to erode an older person's sense of meaning in life, then it is important to know if its impact on the four dimensions can be differentiated. The nature of the four dimensions requires brief examination.

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Values

Values provide the basis for behavioural guidance. When the utility and worthiness of specific thoughts and actions are unclear, values provide the basis for selections from different options by giving the assurance that personal choices are, in the words of Baumeister (1991), 'right, good, and justifiable'. Traumatic events may lead a person to question the things that they have valued in the past, thereby severing the link between the individual and the principles that have previously guided their behaviour.

A sense of purpose

Although clearly linked to values, a sense of purpose is conceptually distinct. It has to do with believing that one's actions have a set place in the larger order of things, and that one's behaviour fits appropriately into a larger, more important social whole. Values are codes or standards that define which thoughts and actions are desirable, whereas a sense of purpose carries evaluative and affective connotations that arise from the successful implementation or execution of actions that comply with underlying values. Put another way, a sense of purpose cannot arise without action or effort, because these affirm the underlying worth of held values. Traumatic events may cause an older person to wonder whether the efforts they exert really make a difference, and whether they have a meaningful place in the wider social order that embraced them.

Goals

A sense of meaning also involves expectations for the future or goals for which to strive. Goals help a person organise current activities and provide a conduit for focusing and implementing energies, efforts and ambitions. But even though goals are oriented toward the future, they also provide immediate rewards, by giving rise to a sense of hope, and by reinforcing and building upon a sense of achievement. Lifetime trauma may make older people feel that the goals to which they aspire are unattainable or, at the very least, difficult to reach, thereby depriving them of the social compass that energises the present, fills them with hope, and illuminates the path into the future.

Reconciling the past

Most research has failed to consider the facets or dimensions of meaning that are distinctive to older people. As a previous paper argued, these include being able to reconcile past events (Krause 2004*b*). To understand why this is so, Erikson's (1959) widely-cited theory of adult development is

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helpful. He proposed that the life span has eight stages, each of which present a particular developmental challenge. The final stage, in late life, is characterised by the crisis of integrity *versus* despair. This is a time of deep introspection when the individual begins to accept 'the person' he or she has become. The challenge is to reconcile what one set out to do in life with one's accomplishment. If this crisis is resolved successfully, older people are hypothesised to develop a deep sense of meaning in life, but if it is not resolved successfully, they are likely to slip into despair. Simply put, the theory proposes that older adults derive a sense of meaning by reflecting upon the past, and by thinking about how their lives have unfolded and have been lived. The process of reconciling the past is likely to be complicated greatly if an older person has been exposed to a traumatic life event. In particular, it may be difficult to understand why the event happened, and especially hard to see how it fits into and contributes to the larger flow of one's life.

It is manifest that a sense of 'meaning in life' is complex and multidimensional but a critically important facet of successful ageing. As Bruner (1990: 56) noted, without a sense of meaning, 'we would be lost in a murk of chaotic experience and probably would not have survived as a species in any case'. Knowing which dimension is most likely to be influenced by the interplay between trauma, social relationships and age/cohort effects is an important first step in developing an understanding of what contributes to successful ageing.

Methods

The study sample

The data for the analyses are from a continuing longitudinal study by Krause (1994). The baseline study population was defined as all household residents in the United States who were not living in an institution, English-speaking, 65 or more years of age, and retired (*i.e.* not working for pay). The study population was restricted to residents of the coterminous United States (*i.e.* residents of Alaska and Hawaii were excluded). The sampling frame comprised all eligible persons in the *Health Care Financing Administration* 'Medicare Beneficiary Eligibility List' (MBEL).[1] Three waves of interviews were conducted between 1992 and 1999, with 1,103 successful interviews at baseline in 1992–3 (69.1% response). In 1996–7, 605 of the participants were successfully re-interviewed. A third wave of data was collected in 1998–9 from 530 subjects.

A fourth wave of interviews was conducted during 2002–3 with two groups of respondents using a complex sampling strategy. One group were

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older people who had participated in Waves 1–3, and the other a new sample. The MBEL files were again used as a sampling frame to identify the supplementary sample, which was constructed so that when combined with the earlier participants, there were approximately equal numbers in each of the following age groups: 65–74 years ($N=491$); 75–84 years ($N=515$); 85 or more years ($N=509$). The Wave 4 sample was 1,518 older people, from which the overall response rate was 54 per cent, lower than the rates normally obtained from similar surveys because relatively high non-response was encountered among the oldest age group (for a discussion of this issue, see Rodgers and Herzog 1992). Table 1 lists the measures used in this study, and the accompanying notes describe the coding of the responses.

Because measures of lifetime trauma were not obtained until the Wave 4 survey, all analyses in this study are based on only this round of interviews. After list-wise deletion of the cases with item non-response, the sample sizes ranged from 1,313 to 392 respondents (the smaller numbers applied to analyses for a specific age cohort). The average age of the sample of 1,313 older people was 78.5 years (standard deviation (s.d.) = 8.4 years), approximately 38 per cent were men, 49 per cent were married at the time of the interview, 90 per cent were white, and the average number of years of completed schooling was 12.0 years (s.d. = 3.5 years). These descriptive data, as well as the data presented below, have been weighted.

Traumatic life events

The study participants were asked if they had ever experienced any of 22 traumatic events. The list was assembled from several sources, including Wheaton, Roszell and Hall (1997) and Turner and Lloyd (1995), and those listed in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) (American Psychiatric Association 1994: 424). If a participant indicated that they had been exposed to an event, they were asked to report their age when it first occurred. Consistent with the work of Norris (1992), a preliminary analysis revealed that exposure to trauma was common; indeed the respondents had experienced on average 2.7 events (s.d. = 2.0).[2] Two types of trauma measures were created from the responses: unweighted sums of all events to which a person was exposed regardless of the age at which they were encountered; and age-group specific counts.

Meaning in life

As shown in Table 1, 14 indicators in the interview schedule measured meaning in life. The majority derived from the literature, including measures developed by Debats (1998) and by Wong (1998). These indicators

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TABLE 1. *Study measures*

1. Lifetime trauma
A. Has a spouse died?
B. Has a child ever died?
C. Have you ever had a child who died at or near birth?
D. Have you ever given up a child shortly after birth?
E. Not counting television or the movies, have you ever seen something very violent happen to someone or seen someone get killed?
F. Have you ever been in a major fire, flood, earthquake or other natural disaster?
G. Have you ever had a life-threatening illness?
H. Have you ever had a serious accident or injury that was life-threatening?
I. Has your spouse ever had a near-fatal accident or near-fatal, life-threatening illness?
J. Has one of your children ever had a near-fatal accident or near-fatal, life-threatening illness?
K. Have you ever fired a weapon in combat or been fired upon in combat?
L. Have you ever been sexually abused or sexually assaulted?
M. Have you ever been physically abused by your current spouse or a previous spouse or partner?
N. Has your spouse, partner or child ever been addicted to drugs or alcohol?
O. Have you ever been divorced?
P. Before you were 18 years old, did you ever have to do a year of school over again?
Q. Before you were 18 years old, did your father or mother not have a job for a long period of time when they wanted to be working?
R. Before you were 18 years old, were you sent away from home because you did something wrong?
S. Before you were 18 years old, did either of your parents drink or use drugs so often that it caused problems in your family?
T. Before you were 18 years old, were you ever physically abused by either of your parents?
U. Did one of your parents die before you were 18 years old?
V. Did your parents get divorced before you were 18 years old?

2. Meaning in life[1]
A. Values. 1. I have a system of values and beliefs that guide my daily activities. 2. I have a philosophy of life that helps me understand who I am. 3. I have really come to terms with what is important in life.
B. Sense of purpose. 1. In terms of my life, I see a reason for being here. 2. I feel like I am living fully. 3. I feel like I have found a really significant meaning in my life. 4. I have discovered a satisfying life purpose.
C. Goals. 1. In my life, I have clear goals and aims. 2. I have a sense of direction and purpose in life. 3. I have a good sense of what I am trying to accomplish in the rest of my life.
D. Reconciling the past. 1. I feel good when I think of what I have done in the past. 2. I find it satisfying to think about what I have accomplished in life. 3. I am able to make sense of the unpleasant things that have happened in the past. 4. I am at peace with my past.

3. Emotional support[2] Thinking back over the past year, how often has someone …
A. … been right there with you (physically) in a stressful situation?
B. … comforted you by showing you physical affection?
C. … listened to you talk about your private feelings?
D. … expressed interest and concern in your well-being?

4. Negative inter-personal contacts[2] Thinking back over the past year, how often …
A. … have others made too many demands on you?
B. … have others been critical of you and things you did?
C. … did others try to pry into your personal affairs?
D. … did others take advantage of you?
E. … did others do things that were thoughtless and inconsiderate?
F. … did others act angry or upset with you?
G. … have others questioned or doubted your decisions?

Notes: 1. These items were scaled as 'disagree strongly' (1); 'disagree somewhat' (2); 'agree somewhat' (3); and 'agree strongly' (4). 2. These items were scaled 'never' (1); 'once in a while' (2); 'fairly often' (3); and 'very often' (4).

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were scaled with high scores denoting a greater sense of meaning in life. A second-order factor analysis of these items revealed that it was appropriate to combine the 14 indicators into a single summary score (Krause 2004*b*). The internal consistency reliability estimate for this composite measure is good (0.93).

Independent and control measures

Four indicators assessed how often family members and close friends provided *emotional support* to the participants during the year before the interview. These items, developed by Krause (1995), are coded so that a high score stands for more emotional support. The reliability estimate for the scale formed by summing these items is 0.86. Negative inter-personal contacts during the year prior to the survey were measured with seven items developed by Krause (1995) and Newsom *et al.* (2003). A high score on these items represents more frequent negative contacts, and the internal consistency reliability estimate was 0.86. The relationships among lifetime trauma, emotional support, negative inter-personal contacts, and meaning in life were evaluated after the effects of the following demographic variables were controlled: age, sex, marital status, education and race.[3]

Findings

The findings from this study are presented in five sections, each of which is devoted to the analysis of one of the issues discussed sequentially above.

Trauma and meaning in life

All the analyses reported in this paper are ordinary least-squares (OLS) multiple regressions. The first set examines the relationship between meaning in late life and trauma at any point in the lifecourse. As the data in Table 2 (Panel A) reveal, greater exposure to trauma at any point in the lifecourse is associated with a diminished sense of meaning in life (Beta $= -0.098$; $p < 0.001$). The second set of analyses examines whether the age when a traumatic event was first encountered sheds light on the relationship between trauma and meaning. The findings in Panel B of Table 2 suggest that only traumatic events first encountered at ages 18–30 years were associated with meaning (Beta $= -0.091$; $p < 0.001$). Given that the youngest respondent in this study was aged 65 years, these results are particularly remarkable since they indicate the influence of traumatic events that occurred at least 35 years before the interview. This

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TABLE 2. *Trauma across the lifecourse and meaning in life*

Independent variables	Regression coefficients: Standardised	Regression coefficients: Unstandardised (metric)
A. Trauma at any point in the lifecourse and meaning in life		
Age	−0.031	−0.023
Sex	−0.027	−0.355
Education	0.080**	0.145
Marital status	0.015	0.188
Race	−0.046	−0.961
Lifetime trauma	−0.098***	−0.311
Multiple R^2	0.020	
Sample size	1,313	
B. Age at exposure to trauma and meaning in life		
Age	−0.036	−0.027
Sex	−0.017	−0.214
Education	0.077**	0.139
Marital status	0.031	0.385
Race	−0.048	−1.007
Trauma <age 6 years	0.003	0.054
Trauma ages 6–11 years	−0.028	−0.355
Trauma ages 12–17 years	−0.043	−0.486
Trauma ages 18–30 years	−0.091***	−0.703
Trauma ages 31–64 years	−0.031	−0.172
Trauma age 65+ years	−0.008	−0.048
Multiple R^2	0.024	
Sample size	1,313	

Significance levels: ** $p<0.01$; *** $p<0.001$.

underscores the importance of a lifecourse perspective and of studying events early in life. In the light of these findings, later analyses examined only trauma arising between the ages of 18 and 30 years.

The influence of social relationships

The third set of analyses evaluate two potentially important factors on meaning in life: first, the stress-buffering effects of emotional support, and second, if current negative social contacts (or personal interactions) exacerbate the deleterious effects of trauma at 18–30 years. Before turning to the results, it is important to explain the methodology. The hypothesis that emotional support buffers or offsets the effects of trauma on meaning implies that meaning is associated with the interaction between emotional support and trauma. This hypothesis is evaluated with a two-step hierarchical OLS regression. All the independent variables are centred at their means prior to the estimation of the model. At Step 1, the additive effects

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of trauma between 18–30 years, emotional support, negative interpersonal contacts, and the demographic control variables are added to the model. The interaction effect between emotional support and trauma is tested at Step 2, by adding a multiplicative term (for the emotional support and trauma scores) to the equation. If the regression coefficient associated with the multiplicative term is statistically significant, then it is important to see if the interaction effect is in the hypothesised direction.

If the hypothesis is valid, the effects of trauma on meaning should become progressively weaker at higher levels of emotional support. This can be determined with manual calculations using the formulae provided by Aiken and West (1991). Two estimates are derived: the first provides an unstandardised regression coefficient that represents the effects of trauma on meaning at given values of emotional support; the second uses a Student's t test to determine if the unstandardised regression coefficients differ significantly from zero. Then standardised estimates are computed in the usual manner. Identical procedures are used to evaluate the effect on meaning in life of the interaction between current negative social contacts and trauma.

Three important findings were obtained from Model 1 at Step 1 and are presented in Table 3. First, consistent with the findings already presented, greater exposure to traumatic events at ages 18–30 years was associated with a diminished sense of meaning in life (Beta $= -0.105$; $p < 0.001$). Second, more emotional support from family and friends was associated with a greater sense of meaning in life (Beta $= 0.122$; $p < 0.001$). Third, more negative social contacts during the past year eroded an older person's sense of meaning in life (Beta $= -0.153$; $p < 0.001$). Model 2 added the multiplicative terms and produced two other important findings (Table 3). First, there was a statistically significant relationship between meaning in life and the interaction between trauma at 18–30 years and current emotional support ($b = 0.186$; $p < 0.01$).[4] In contrast, the hypothesised statistical interaction effect between negative personal contacts and trauma on meaning was not significant at the five per cent level ($b = 0.032$).

As to the Aiken and West (1991) procedure estimates, the relationship between trauma and meaning was examined for the following values of emotional support: one standard deviation below the mean, the mean, and one standard deviation above the mean. The findings (not shown) suggest that trauma arising at 18–30 years tended to erode a sense of meaning in life when there was relatively little (-1 s.d.) emotional support from family and friends (Beta $= -0.193$; $b = -1.512$; $p < 0.001$). For the participants who received average levels of emotional support, trauma at 18–30 years eroded their sense of meaning in life, but to a lower extent than among those with below-average emotional support: the impact of

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TABLE 3. *Trauma, social relationships and meaning in life*

	Regression coefficients			
	Model 1		Model 2	
Independent variables	Standardised	Unstand'd[1]	Standardised	Unstand'd[1]
Age	−0.061*	−0.046	−0.057	−0.043
Sex	0.017	0.224	0.016	0.204
Education	0.079**	0.144	0.080**	0.146
Marital status	0.033	0.420	0.036	0.461
Race	−0.054	−1.149	−0.052	−1.100
Trauma at ages 18–30 years	−0.105***	−0.822	−0.107***	−0.841
Emotional support	0.122***	0.215	0.128***	0.227
Negative inter-personal contacts	−0.153***	−0.297	−0.156***	−0.302
Interaction terms				
(Trauma at 18–30 years of age *by* emotional support)	.....	.....	.....	0.186**
(Trauma at 18–30 years of age *by* negative inter-personal contacts)	.....	.....	.....	0.032
Multiple R^2	0.059		0.065	
Sample size	1,218		1,218	

Notes: 1. Unstandardised (metric) coefficient.
Significance levels: * = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.001$.

trauma was about 45 per cent less (Beta = −0.107; $b = -0.841$; $p < 0.001$). Finally, among those with above-average (+1 s.d.) emotional support, the deleterious effects of trauma on meaning appear to be completely negated and the relationship was insignificant (Beta = −0.022; $b = -0.170$).

Exploring variations by age cohort

The next set of analyses separately evaluated the effects on meaning in life of trauma arising at 18–30 years, emotional support and negative inter-personal contacts for the young-old, old-old and oldest old cohorts. To make the results easier to grasp, the coefficients are reported only for the core measures of trauma, emotional support and negative inter-personal contacts. It should be noted, however, that the effects of age, sex, education, marital status and race were controlled statistically. The highest panel of Table 4 presents the findings for the young-old cohort (aged 65–74 years).[5] As before, Model 1 estimated the additive effects of trauma, emotional support, and negative inter-personal contacts on meaning in life. Model 2 found no statistically significant relationships between meaning in life and the interaction between emotional support and trauma ($b = 0.070$) or the interaction between negative inter-personal contacts and trauma ($b = 0.067$).

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TABLE 4. *Trauma and meaning in life variations by age cohort*

Cohort and independent variables	Regression coefficients			
	Model 1		Model 2	
	Standardised	Unst'd[1]	Standardised	Unst'd[1]
Young-old cohort ($N=414$)				
Trauma at ages 18–30 years	−0.078	−0.607	−0.083	−0.645
Emotional support	0.117**	0.192	0.121**	0.200
Negative inter-personal contacts	−0.240***	−0.400	−0.245***	−0.409
(Trauma at 18–30 years of age *by* emotional support)	.....	.....	.....	0.070
(Trauma at 18–30 years of age *by* negative inter-personal contacts)	.....	.....	.....	0.067
Old-old cohort ($N=413$)				
Trauma at ages 18–30 years	−0.061	−0.410	−0.068	−0.454
Emotional support	0.067	0.112	0.072	0.121
Negative inter-personal contacts	−0.058	−0.111	−0.078	−0.149
(Trauma at 18–30 years of age *by* emotional support)	.....	.....	.....	0.178
(Trauma at 18–30 years of age *by* negative inter-personal contacts)	.....	.....	.....	0.187
Oldest-old cohort ($N=392$)				
Trauma at ages 18–30 years	−0.162***	−1.529	−0.116*	−1.096
Emotional support	0.187***	0.369	0.196***	0.386
Negative inter-personal contacts	−0.156***	−0.364	−0.160***	−0.373
(Trauma at 18–30 years of age *by* emotional support)	.....	.....	.....	0.306*
(Trauma at 18–30 years of age *by* negative inter-personal contacts)	.....	.....	.....	−0.317*

Notes: The estimates in the table were derived after the effects of age, sex, education, marital status and race were controlled statistically. 1. Unstandardised (metric) coefficient.
Significance levels: * = $p<0.05$; ** = $p<0.01$; *** = $p<0.001$.

The middle panel of Table 4 presents the equivalent results for the old-old age-cohort (aged 75–84 years). Once again, the hypothesised statistical interaction effect between trauma and emotional support on meaning was insignificant ($b=0.178$). Moreover, negative inter-personal contacts do not appear to have exacerbated the effects of trauma on meaning in life ($b=0.187$).[6] The lowest panel of Table 4 presents the results for the oldest-old cohort (aged 85 or more years). In contrast to the findings for the younger cohorts, Model 2 found that emotional support from family and friends reduced the pernicious effects of trauma on meaning in life ($b=0.306$; $p<0.05$), but the additional calculations (not shown) suggest that the stress-buffering effects of emotional support were modest. It is also shown that negative inter-personal contacts accentuated the deleterious effects of trauma on meaning in life ($b=-0.317$; $p<0.05$), although once again the additional calculations (not shown) indicate that the effect was modest.

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Taken as a whole, the analysis of the age-cohort specific effects suggests that *only* among the oldest-old age group does emotional support help reduce or offset the effects of trauma on meaning, and negative inter-personal contacts intensify the noxious effects, at levels that are statistically significant for the group. Viewed more broadly, the findings suggest that the effects of traumatic events are not uniform in late life and that the oldest-old are especially vulnerable.

Probing the dimensions of meaning in life

As discussed earlier, meaning in life was measured in four dimensions: values, purpose in life, goals, and reconciling the past. To raise further the understanding of why the oldest-old cohort are especially vulnerable to the effects of trauma, a final set of analyses examined whether trauma, emotional support, and negative inter-personal contacts were more strongly associated with any one dimension of meaning. The results (not tabulated) indeed revealed that their effects were not uniform across the four dimensions of meaning in life. More specifically, neither the interaction between emotional support and trauma, nor that between inter-personal conflict and trauma, had a statistically significant effect on having goals (or a purpose) in life. In addition, emotional support from family and friends offset the effects of trauma on values ($b = 0.051$; $p < 0.05$), although subsequent calculations (not shown) revealed that the effects were modest. In contrast, the hypothesised effect on values of the interaction between negative inter-personal contacts and trauma was insignificant.

A markedly different set of findings emerged when 'reconciling the past' was taken as the dependent variable. They suggest that emotional support significantly reduced the impact of trauma on reconciliation for the oldest-old ($b = 0.120$; $p < 0.001$). Additional calculations revealed that traumatic events arising between the ages of 18 and 30 years make it especially difficult for older people to come to terms with the past when they receive relatively little emotional support from family and friends, *i.e.* when their emotional support scores are at least one standard deviation below the mean (Beta $= -0.300$; $b = -0.892$; $p < 0.001$). On the other hand, when the oldest-old receive above-average (+1 s.d.) emotional support, traumatic events do not appear to interfere with their ability to reconcile the past (Beta $= -0.004$; $b = -0.012$; *not significant*).[3]

Although emotional support helps the oldest-old to reconcile the past in the face of traumatic events, the findings have shown that negative inter-personal contacts make this task more difficult. More specifically, it has been found that there is a significant interaction effect between unpleasant social encounters and trauma arising at 18–30 years of age on reconciling

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the past ($b = -0.165$; $p < 0.001$). Additional calculations revealed that when negative inter-personal contacts were low (< −1 s.d.), members of the oldest-old cohort who had encountered traumatic events did not appear to have much difficulty reconciling the past (Beta = 0.017; $b = 0.051$; *ns*). In contrast, the effects were especially evident when levels of negative inter-personal contacts were high (>1 s.d.). At this level, the oldest-old who encountered traumatic events at 18–30 years of age were much less successful at reconciling the past (Beta = −0.322; $b = -0.956$; $p < 0.001$).[4]

Discussion and conclusions

Limitations of the study

Several important limitations of this study should be borne in mind. First, the data were gathered at a single point in time, therefore it is not possible to determine whether traumatic events have a causal effect on meaning in life, or whether older people who initially have trouble finding a sense of meaning subsequently identify traumatic events in the past as a way of explaining their present difficulties. Current levels of depression may operate in much the same way. Clearly, these alternative explanations cannot be ruled out with the cross-sectional data at hand.

The second limitation arises from the fact that the data on traumatic events are based solely on self-report. There is considerable controversy in the literature over the reliability and validity of such information. Most of the debate concerns the recall of traumatic events during childhood. Some investigators maintain that such self-reports are seriously flawed (*e.g.* Maughan and Rutter 1997), but others disagree (*e.g.* Bernstein *et al.* 1994: 1136; Paivio 2001; Goodman *et al.* 2003). Similarly, some investigators propose that certain events, such as vivid memories and world events, tend to be remembered more accurately if they arise between the ages of 18 and 30 years (Rubin, Rahhal and Poon 1998). Finally, the relatively impersonal nature of the interview process may discourage some older people from disclosing information about sensitive traumatic events. There is no way to resolve these issues with the data in the present study. In fact, the only way of getting to the bottom of these problems is to carry out prospective studies that span the entire lifecourse, but as Kessler *et al.* (1997) have pointed out, such an undertaking would be very costly.

The third limitation is that the respondents were asked to report two specific pieces of information: whether they had encountered a traumatic event, and the age at which they first experienced each trauma. This raises the possibility that study participants may accurately report that they were exposed to a particular event, but fail to provide valid information on how

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old they were when the event took place. The fourth limitation also has to do with the way that the information on trauma was obtained. Respondents were asked to report the first time that they experienced a given event, but data were not obtained on subsequent exposures. Of course, a person may be sexually abused or physically assaulted more than once. If subsequent exposure to a trauma is overlooked, then its effects on meaning in life may be under-estimated (see Breslau *et al.* 1999).

The long-term effect of traumatic events

Despite the limitations, the findings have provided useful insights into the factors that shape whether an older person is able to find a sense of meaning in life. The initial results suggested that traumatic events make it more difficult for older people to find a sense of meaning in life, but subsequent analyses provided a more nuanced understanding, that only traumatic events arising between the ages of 18 and 30 years were consequential, and that only the oldest-old were at risk. In other words, the young-old and the old-old found a sense of meaning in life even when they had experienced traumatic events. Finally, it has been shown that among the oldest-old cohort, emotional support from family and friends tends to reduce the deleterious effects of trauma on meaning, whilst negative inter-personal contacts exacerbate the noxious effects.

Several of the findings are especially noteworthy. First, this study is one of the first to examine the effects of multiple traumatic events over the entire lifecourse with data provided by a nationwide sample of older adults. Second, this is one of the first empirical evaluations of the joint effects on meaning in life of traumatic events and social relationships. By bringing both positive and negative aspects of social relationships to the foreground, this is the first study to show that current social relationships shape the way that older adults react to events in the distant past. Finally, by showing that the oldest-old are especially vulnerable to traumatic events, the importance of variations in the stress process during late life have been shown. Members of the old-old and oldest-old cohorts were over-sampled in this study. Had this sampling strategy not been followed, the statistical power would have been insufficient to detect significant differences in the effects at the oldest ages. Those wishing to learn more about the heterogeneity of the older population should employ a similar sampling strategy.

Because the study has taken new paths, inevitably several questions remain unanswered. For example, we need to know why traumatic events that arose at 18–30 years of age are especially consequential. Previous studies suggested that the greatest vulnerability was at the earlier

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developmental periods (*i.e.* childhood), but most of those studies were of children and younger adults and so were unable to assess the impact of traumatic events across the entire lifecourse. The finding that midlife is the period of greatest risk is consistent with Vaillant's (2002: 94) observation that 'although we all "know" that childhood affects the well-being of adults, recent scientific reviews reveal that such explanations are rather less important than we thought'. Unfortunately, very little is known about the stress process in midlife. As Brim, Ryff and Kessler (2004: 1) pointed out, 'Midlife has been described as the "last uncharted territory" of the life course'. New theories are needed about the developmental tasks and resources that shape the way people in midlife grapple with the events that confront them.

We also need to know more about why the oldest-old are especially at risk. It is not clear why traumatic events arising at midlife make it especially difficult for members of this age-cohort to derive a sense of meaning. Some clues were provided by probing the effects of midlife trauma on the specific dimensions of meaning, namely that trauma in midlife makes it especially hard for the oldest-old to reconcile the past. This suggests that the life-review process may be most critical at this life-course stage, although some gerontologists would not agree. Lieberman and Tobin (1983: 290), for example, reported that, 'a low level of introspection characterizes the old-old because the majority of them have already accomplished a life review and show signs of resolution'. But their findings were based on four small non-random samples of older people, and they did not systematically probe the interface between exposure to multiple traumatic events over the lifecourse and emotional support from family and friends. Once again, the resolution lies in developing theories that speak more directly to people aged more than 80 years. Unfortunately, theory in this realm is especially undeveloped. As Baltes and Smith (1999: 167) concluded, 'In our view, understanding the nature of the fourth age, from about 80 years onward, constitutes the major new frontier for future research and theory in aging'.

Finally, more comparative research is needed on the relationship between traumatic events and meaning, because of the different trauma events that have been experienced in different countries. For example, many European older people experienced the bombing of their cities during World War II, unlike their American, Canadian or Australian counterparts. In addition, there may be significant variations in the resources that older people in different countries draw upon to cope with traumatic events. For example, research consistently shows that levels of religious involvement in the United Kingdom are lower than in the United States (Bruce 1995). This raises the possibility that when traumatic events

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arise, American older people are more likely to find meaning through religion than British older people.

Researchers have argued for decades that finding a deep sense of meaning in life is the ultimate stage in human development (Erikson 1959; Frankl 1963; Maslow 1971), but we know very little about the social forces that shape this construct, especially in late life. Perhaps the greatest contribution of the present study is that it shows how basic insights from research on the stress process can be used to illuminate the factors that shape one of the most important challenges in life.

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NOTES

1 The erstwhile HCFA is now called the *Centers for Medicare and Medicaid Services* (CMS). All waves of data were collected by Harris Interactive Inc.

2 The 'young-old' on average experienced 2.5 events (s.d. = 2.1), the 'old-old' 2.8 (s.d. = 2.1), and the 'oldest-old' 2.6 (s.d. = 1.8).

3 Age was scored continuously in years, and the education measure was the number of years of completed schooling. In contrast, sex (1 = men; 0 = women), marital status (1 = presently married; 0 = other); and race (1 = white; 0 = all other races) were binary.

4 Unstandardised estimates are presented when discussing statistical interaction effects because standardised estimates have no inherent meaning in this context.

5 Differences across age cohorts are examined in this section with a series of subgroup analyses. This analysis makes it difficult to establish whether the differences across age groups are statistically significant. A complete test would involve simultaneously evaluations of two three-way interaction effects: age *by* emotional support *by* trauma; and age *by* negative inter-personal contacts *by* trauma. As Aneshensel (2002) has pointed out, the use of multiple complex interaction terms creates multicolinearity problems, so subgroup analyses are preferred in these circumstances. Preliminary analyses were performed, however, into the nature of the age cohort differences by creating a multiplicative term that contrasted the effects of trauma at 18–30 years among the oldest-old as compared with all other study participants. Subsequent analysis (not shown here) suggested that trauma at 18–30 years is more likely to erode meaning in life for the oldest-old than for participants in the other age cohorts ($b = 1.199$; $p < 0.01$).

6 It is possible that traumatic events arising at different points in the lifecourse may be related significantly to meaning in life among members of the young-old and old-old cohorts. In an attempt to rule this out, two additional sets of analyses were performed. The first focused solely on the young-old. Meaning in life was regressed on the six measures that assess trauma encountered at different times in the lifecourse and on the demographic control variables. The findings suggest that meaning in life is not associated with trauma that arises in any of the six age categories. The second set of

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analyses examined the same relationships only among the old-old. Once again, trauma arising in each of the six age categories was insignificantly associated with meaning.

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