Examination of a Theoretical Model of the Psychological Resilience in Older Age

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Examination of a theoretical model of psychological resilience in older age

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Objective: This article integrates a number of theoretical perspectives and examines the concept of psychological resilience in older age. Drawing on the literature it is hypothesised that an overarching construct – resilience – accounts for the functioning of a number of psychological resources (self-esteem, personal competence and control).
Method: The factorial validity of the resources as indicators of resilience is tested using confirmatory factor analysis. The analyses focus on previously unexplored survey data drawn from a representative sample of people aged between 50 and 90 in England, Wales and Scotland ($N = 1847$).
Results: The results find a common factor (a higher-order model) provides the best explanation of the relationships between the resources, demonstrating an important first account for developing further work on this concept.
Conclusion: Exploring what might form the basis of resilience from a psychological perspective enables a deeper understanding of why some individuals can remain positive in difficult circumstances, particularly some of the challenges of ageing.

Keywords: aging; resilience; personality; mental health; factor structure

Introduction

This article integrates a number of theoretical perspectives and examines the concept of psychological resilience in older age. Drawing on the literature it is hypothesised that an overarching construct – resilience – represents a common core and accounts for the functioning of a number of psychological resources.

Resilience has been described as being 'able to recover from or adjust to misfortune or change' (The Penguin English Dictionary, 2001). It can be seen as the opposite to vulnerability and encompasses personal competences across cognitive, emotional and social domains (Tizard & Clarke, 1992). It was derived from observations that although exposed to substantial stressors and risks, people can still function positively and recover quickly from set-backs (Rutter, 1995). Consequently resilient individuals flourish when challenged (Ryff & Singer, 2003). Psychological resilience is thought to be important in late life as a component of successful psychosocial adjustment (Wagnild & Young, 1993) and is associated with mental health (Nygren et al., 2005).

Although there may be a general agreement of the definition of resilience, it tends to have been measured indirectly, being assumed more as a hypothetical construct, as indicated from research, which finds successful outcomes despite set-backs. This has been observed mainly from much of the initial research into resilience undertaken on children. Many children across a range of diverse settings, particularly negative family environments, e.g. mentally ill parents (Garmezey, 1974; Rutter, 1985) and poor socio-economic status (Garmezey, 1991) do not display maladaptive behaviours or become mentally ill themselves. They are able to function positively despite their circumstances.

More recently it has been proposed that in older people, a positive response to a stressful life event is indicative of a resilient process (Hardy, Concato, & Gill, 2004). These authors found that independence in instrumental activities of daily living, positive self-ratings of health and few depressive symptoms were independently associated with high resilience. However, they acknowledge that the conceptualisation of resilience as the response to a stressful event has limitations as it cannot be measured in the absence of a significant stressful event.

On the other hand, the examination of resilience as an internal personality resource provides the opportunity to address this limitation and examine the psychological basis of why people are resilient. This is of central interest in understanding resilience (Ryff & Singer, 2003). Consequently, exploring what might form the basis of resilience from a psychological perspective could subsequently enable a deeper understanding of why some individuals can remain resilient in difficult circumstances, particularly some of the challenges of ageing.

In considering the inner psychological qualities people possess; Rutter (1987) described resilient individuals as possessing self-efficacy, self-esteem and

a range of problem solving skills. Others describe resilient individuals as possessing self-confidence, curiosity, self-discipline, self-esteem and control over the environment, intellectual functioning and self-perceptions such as self-efficacy (Beardslee, 1989; Masten, 1999) and personal competence and acceptance of self and life (Wagnild & Young, 1993). The latter authors developed a 25-item scale to assess resilience, however, to date very little research has incorporated this measure nor undertaken any psychometric assessment of its factor structure. Given the wider scope for the range of psychological resources that could be considered indicators of resilience, this article aims to take a broader perspective to the concept by examining additional personality resources.

Personality resources are suggested to protect individuals in the face of adversity and lead to positive adaptive behaviour by acting as a 'buffer' (Rutter, 1987) or as compensatory factors which directly influence outcomes (Masten, 1989). In this context, resilience could be viewed as an 'umbrella' term for such psychological resources which are central to the self. Other research that has examined resources such as mastery, self-esteem and optimism has conceptualised them as part of the core of the reserve capacity that provides a resilient basis in older age (Gallo, Bogart, Vranceanu, & Mathews, 2005). Given the theoretical basis for the role of psychological resources to provide a sense of resilience, this article takes a novel approach and examines the relationship between number of psychological resources, testing their factorial validity as indicators of psychological resilience. The following section outlines the rationale for the proposed methodology for the model of resilience.

Do the psychological resources share a common source?

Within psychology numerous measures exist which are assumed to capture distinct aspects of the self, and the development of specific literatures around constructs such as self-esteem, self-efficacy and control is substantial. Within personality research, such constructs are often examined in isolation, and little attention has been given to the possibility that they might share a common basis (Judge, Erez, Bono & Thoresen, 2002). Whilst acknowledging that not all specific traits might indicate an overarching construct, these authors state that 'new and existing measures must be evaluated on the basis of a possible common core when there is reason (on empirical and/or theoretical grounds) to believe that such a commonality exists' (Judge et al., 2002, p. 693).

The theoretical basis for the common core 'resilience' has been outlined previously. There it was described how resilient individuals possessed a range of psychological resources. In addition, there are further aspects in terms of the way the resources operate, indicating that there is some conceptual similarity.

The multi-dimensional approach to control (Paulus, 1983) acknowledges that different aspects of control are drawn upon for interacting with the wider environment. The concept of self-esteem is often used interchangeably with efficacy, although they refer to conceptually separate entities. The mixing of the two concepts may relate to the cognitive process, which influences self-esteem. As an important part of the self-concept, efficacy may determine the choice of behaviour, and the feedback from others may influence whether that behaviour will be chosen again due to the effects on self-esteem (Osborne, 1996). Thus from a conceptual perspective, there are grounds to consider that aspects of these resources may be measuring the same thing. This section aims to test the hypothesis that an overarching construct may account for these resources.

Justification for proposed model of psychological resilience

A previous study has taken a similar approach, examining the possibility of conceptual overlap between four widely studied personality measures (generalised self-efficacy, neuroticism, locus of control and self-esteem) (Judge et al., 2002). Arguing that there are theoretical similarities in the way that these resources operate, they examined the extent to which more measures than necessary are often used in research to account for such psychological constructs. Previous empirical work (Judge, Erez, & Bono, 1998) found high correlations between the constructs, and a factor analysis found that the four measures are loaded onto one single factor. The authors state such findings provide some support for the argument that more measures are being used than is necessary to account for a common psychological construct (Judge et al., 1998).

Expanding this reasoning further, they undertook a meta-analysis of research that had examined the relationships between any two of the four constructs. Of the 258 articles identified, 75 were included that had reported correlations. The results indicated that the constructs were substantially related, ranging from 0.40 to 0.85 with an average correlation of 0.60 (Judge et al., 2002).

Further work by Judge et al. (2002) using confirmatory factor analysis tested the underlying structure of the scales. Two models were compared; a first-order factor model in which the factors were not allowed to correlate and a second-order factor model. It has been argued that second-order factors would account for correlated errors that are common between first-order factors (Gerbing & Anderson, 1984). A second-order factor is mathematically equivalent to a first-order correlated factor model (Bollen, 1989). However, Judge et al. (2002) reasoned that a second-order factor is preferable as it explicitly considers the structural relationships of the individual scales. They found that a single second-order factor – the common

core – explained the relationships amongst the four measures.

In discussing their work they recommend that 'researchers who study these traits should consider the possibility that the uniqueness of measures of these traits is overwhelmed by their commonality' (Judge et al., 2002, p. 707). They state that similarities amongst traits should be acknowledged and the measures considered as indicators of a common construct (Judge et al., 2002).

However, there is a problem with some of their methodology and reasoning. Whilst providing evidence that the measures are related, the confirmatory factor analysis does not demonstrate that the traits measure the same construct. A single latent factor would better represent this approach. Rather the analysis shows that they might share conceptual overlap in that they measure aspects of the same construct. Thus their methodology, whilst informative, has some flaws.

However, in relation to the measures used in this article, with the exception of neuroticism they are conceptually very similar to those examined by Judge et al. (2002). Consequently there is some empirical basis, despite limitations to support the hypothesis that the measures in this study may also share a common source. However, a stronger aspect of this hypothesis is derived from the theoretical basis.

The following analysis follows one of the approaches taken by Judge and co-workers and examines the extent to which the measures of self-esteem, competence, socio-political control and interpersonal control converge using the method of confirmatory factor analysis. Three models are tested: (1) a single factor model, (2) an uncorrelated higher-order model, (3) a higher-order model where the factors are allowed to correlate.

Method

Design

This article is based on secondary data analyses. The data were collected during 2002 as part of the European Study of Adult Well-Being (ESAW), a cross-sectional survey of people aged 50–90 in six countries (Austria, Italy, Luxembourg, the Netherlands, Sweden and the UK). This article analyses the UK data (England, Scotland and Wales).

Sampling procedure

The initial target sample for the UK was set at 2000. In order to develop a sample that represented as equally as possible residents from England, Scotland and Wales the sample was divided equally between the three countries. Population statistics for each age group were used to generate a proportionate stratified probability sample of the national population aged between 50 and 90. The national sample was controlled across four age groups (of 10 year each) and sex

(combining to eight groups) and for urban/rural distinction.

Data collection

In order to locate respondents, a door-to-door census was conducted in each of the districts using post code generated addresses. Interviewers recorded whether anyone within the target age range (50–90) lived there. These were used to generate a randomly selected sample for subsequent interviews. The questionnaire was administered to respondents by interviewers face-to-face, in their own home, in the first language of the respondent. Interviewers were recruited and trained by the research team. The project funders did not require clinical ethical approval to be obtained. However, this project ensured that clear ethical and professional conduct guidelines were adopted by all involved. Guidelines for professional conduct and guidelines for ethical considerations were circulated to the interviewers prior to the meeting and were reiterated at the training sessions. After training, interviewers understood the necessity of obtaining consent from interviewees, issues regarding confidentiality and contact with respondents. The final number of completed questionnaires was 1853, yielding a total response rate of 49%. The mean age was 65.86 (SD = 9.32) and 55% were female. A decision was taken by the project co-ordinator not to record for analyses of the reasons for non-response, as an examination of these factors was not possible.

Measures

Self-esteem was assessed with the 10-item Rosenberg Self Esteem Scale (Rosenberg, 1965) $\alpha = 84$. Respondents answered on a five-point scale ranging from strongly agree (1) to strongly disagree (5). It should be noted that the original 1965 Rosenberg scale was developed to use a four-point scale, however there are a number of studies that have used differing response scales for the same concept (e.g. Ranzijn, Keyes, Luszcz, & Feather, 1998; Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995; Shahini, Dipboye, & Phillips, 1990).

Interpersonal control and socio-political control are distinct dimensions of the Spheres of Control scales (Paulus & Christie, 1981) consisting of 10 questions for each 'sphere'. Each question is rated on a seven-point Likert scale that ranges from strongly agree to strongly disagree, with the number of positive and negative items balanced in each sphere. Cronbach's alpha was 0.80 for interpersonal control (seven items) and 0.73 for socio-political control (six items). This scale also consists of a third sphere, personal efficacy. However, this 10-item scale did not fit the data well and the final items did not meet the minimum criteria for internal consistency.

Personal competence was derived from the Resilience Scale (Wagnild & Young, 1993). The scale contains 25 questions and answers are scored on a Likert scale ranging from 1 = strongly disagree to 7 = strongly agree. The scale has been found to have a two-factor structure – personal competence and acceptance of self and life (Wagnild & Young, 1993). However, within the ESAW UK sample the alpha coefficient for acceptance of self and life was too small (0.48) and this dimension is not used. Cronbach's alpha for the personal competence dimension was 0.80 (10 items).

Data analysis

Prior to the analyses presented here, the factor structure of each of the scales was subjected to an in-depth psychometric investigation using exploratory and confirmatory factor analysis in order to derive the most robust measures for the resilience model. For the sake of brevity, the results for this preliminary stage are not presented here. The items representing each of the measures were summed into their respective scale scores for the purpose of correlation analysis, giving independent measures of self-esteem, personal competence, interpersonal control and socio-political control. The relationships were firstly examined using Pearson's r. The strength of the zero-order correlations was determined by the criteria of Cohen (1992), where large correlations are described as being > 0.50, medium correlations range between 0.30 and 0.49 and small correlations range between 0.10 and 0.29.

Confirmatory factor analysis using LISREL 8.54 was used to test the underlying structure of the individual scales. Asymptotic and covariance matrices were used as input, and the model estimated by maximum likelihood. The sample was randomly split in half using SPSS random selection yielding two datasets for development and validation. The analyses follow the rationale of Judge et al. (2002) and examine three models. In the first, the items are all estimated to load onto a single latent factor. In the second, the factors were not allowed to correlate. In this model all scale items were loaded onto their respective construct. The third examines whether a common factor (a second-order factor) explains the relationships between the distinct measures. In this model, all items are fixed to load onto their respective constructs, and these latent constructs are specified to load onto a second-order latent factor.

Model fit was assessed by a number of indices. The scaled chi-square test statistic (Satorra & Bentler, 1988) has been found to closely estimate the uncorrected chi-square when distributional assumptions are violated. However, this test is sensitive to departures from the assumption of normality and sample size (Bentler & Bonnet, 1980). Given the large sample size of this research, it was highly likely that the chi-square statistic will not be a very useful indicator.

Other tests of model fit were used to provide a more comprehensive picture of model fit. The Comparative Fit Index (CFI) shows how much better the specified target model fits in comparison to the null model, in which there are no relationships among the observed variables (Diamantopoulos & Sigaw, 2000). The test statistic ranges between 0 and 1.0. Hu and Bentler (1999) recommend a cut-off value close to 0.95. The standardised root mean square residual (SRMR) is a summary measure of the standardised residuals (the fitted residuals divided by their estimated SEs). Values of 0.08 or less suggest an acceptable fit (Hu & Bentler, 1999). The root mean square error of approximation (RMSEA) determines how well the model would fit a population covariance matrix (Brown & Cudeck, 1993). Values of 0.06 or less are recommended (Hu & Bentler, 1999).

Results

With the exception of the socio-political dimension where correlations were low, medium-sized correlations were found between the measures suggesting that these may represent a common construct as found in the work of Judge et al. (2002). (Self-esteem and personal competence $r = 0.45$, $p < 0.001$; self-esteem and interpersonal control $r = 0.46$, $p < 0.001$; interpersonal control and personal competence $r = 0.39$, $p < 0.001$).

The extent to which personal competence, self-esteem and interpersonal control represent a common higher order construct, hypothesised here as 'resilience' was tested on one half of the sample. Socio-political control was dropped from further analysis due to its lack of convergence.

The results in Table 1 show that all three models have a large and significant chi-square although the RMSEA is similar in both groups. However, the CFI in the higher-order model was larger and the SRMR much lower, suggesting that although this model was initially misspecified, it was the better of the three and that further examination may result in improvement. Subsequent analyses with this model aimed to eliminate items that were poor indicators. These were removed one at a time on the basis of low loadings and high residuals across other items. Each subsequent model was re-estimated. This resulted in the sequential removal of eight items, which were validated in the second half of the sample. The final model is presented in Figure 1. All factor loadings were significant at $p < 0.01$. The reliability (Cronbach's alpha) was 0.83.

Discussion

With the exception of socio-political control, the correlations between the scales of self-esteem, interpersonal control and personal competence suggested that further investigation was warranted

Table 1. Results of model testing.

Model	Chi-square	*p*-Value	*df*	RMSEA	*p*-Value	CFI	SRMR
Development							
Single factor	3366.55	0.00	324	0.10	0.00	0.85	0.09
Uncorrelated	1397.10	0.00	324	0.06	0.00	0.92	0.15
Higher-order 1	1131.50	0.00	321	0.06	0.00	0.94	0.06
Higher-order 2	893.36	0.00	296	0.05	0.22	0.94	0.05
Higher-order 3	706.55	0.00	272	0.04	0.98	0.95	0.05
Higher-order 4	635.89	0.00	249	0.04	0.98	0.95	0.05
Higher-order 5	555.37	0.00	227	0.04	0.99	0.96	0.05
Higher-order 6	481.34	0.00	206	0.04	0.99	0.96	0.04
Higher-order 7	427.23	0.00	186	0.04	0.99	0.96	0.04
Higher-order 8	401.75	0.00	167	0.04	0.99	0.96	0.04
Higher-order 9	346.29	0.00	149	0.04	0.99	0.97	0.04
Validation							
Higher-order 9	384.78	0.00	149	0.04	0.99	0.97	0.04

(socio-political control did not correlate enough with any of the other dimensions to be considered as an indicator of the same construct). The possibility for this overlap between constructs was tested in the confirmatory factor analyses where a second-order factor was found to account for the three scales.

Consequently, it has been demonstrated that there is some overlap between the measures and that this is consistent with the hypothesis that they share some commonality and measure aspects of the same common construct. Drawing on previous research that had suggested the types of internal characteristics possessed by resilient individuals, it was hypothesised that the psychological resources measured in this research were the basis of psychological resilience. However, the conclusion for a common factor whilst plausible gives rise to a number of issues that question the extent to which it is fully supported empirically. This in turn has implications for its subsequent validity. These are now addressed in turn.

Kline (1998) states that in order for a measure to be valid, it must be reliable. In this research, the reliability of the final scale was very good with $\alpha = 0.83$. However, this alone is not enough for claiming validity of the construct, and other approaches are required.

The overlap found between the measures of control, competence and self-esteem provides some evidence for convergent validity, however the model tested here demonstrated elements of misspecification as the chi-square statistic was significant. Other researchers have advocated that because of the effect of large samples on this statistic, it is likely that such models will be rejected as the chi-square will be significant. As a consequence, in this research other fit indices were drawn upon to provide an assessment of fit. In this instance, these were found to be acceptable as they all fell into the 'rule of thumb' ranges (Hu & Bentler, 1999) and support the final model.

Nevertheless in the process of examining the hypothesis for a common core some of the items

from each scale had to be removed as the residuals indicated that there was some clear ambiguity, leaving a total of 19 items. Then this moves the process of model testing away from a strictly confirmatory one. However, the validation of the final model in the second half of the sample provides some evidence for its replication and concurrent validity.

Construct validation is lacking in this research in terms of discriminant and criterion related validity. Due to the cross-sectional nature of the data, it was not possible to undertake analyses using methods such as the multi-trait multi-method technique to test the discriminant functioning of the resilience variable. Also, the development of the resilience variable is an approach that is now arising from the work within this thesis. Although driven by theory, as yet there is no other external aspect to validate this with. However, in terms of the theoretical aspect and the conceptualisation of psychological resilience it could be argued that the measure goes some way to reflect the validity of its contents.

From the theoretical perspective, Erikson's theory of the life cycle (Erikson, 1963) states that the continuing developments of the self across the life span and the ultimate achievement of wisdom provide a basis for a resilient self. The notion of a resilient self in older age is also proposed by Baltes and Baltes (1990). Other researches examining the self in older age describe how individuals scoring high on a dimension referring to 'inner self' referred to the presence of positive aspects of their lives, such as taking interest in others or keeping independent (Coleman, Ivani-Chalian, & Robinson, 1993). Such positive statements or themes are described as 'building blocks of identity' (Kaufman, 1986). As long as a person perceives that such statements still reflect their personality, the self will be preserved despite loss and change in other areas (Coleman et al., 1993). It could be argued that many of the items which comprise the resilience variable (e.g. able to do things as well as others, keep interested in things) could also be
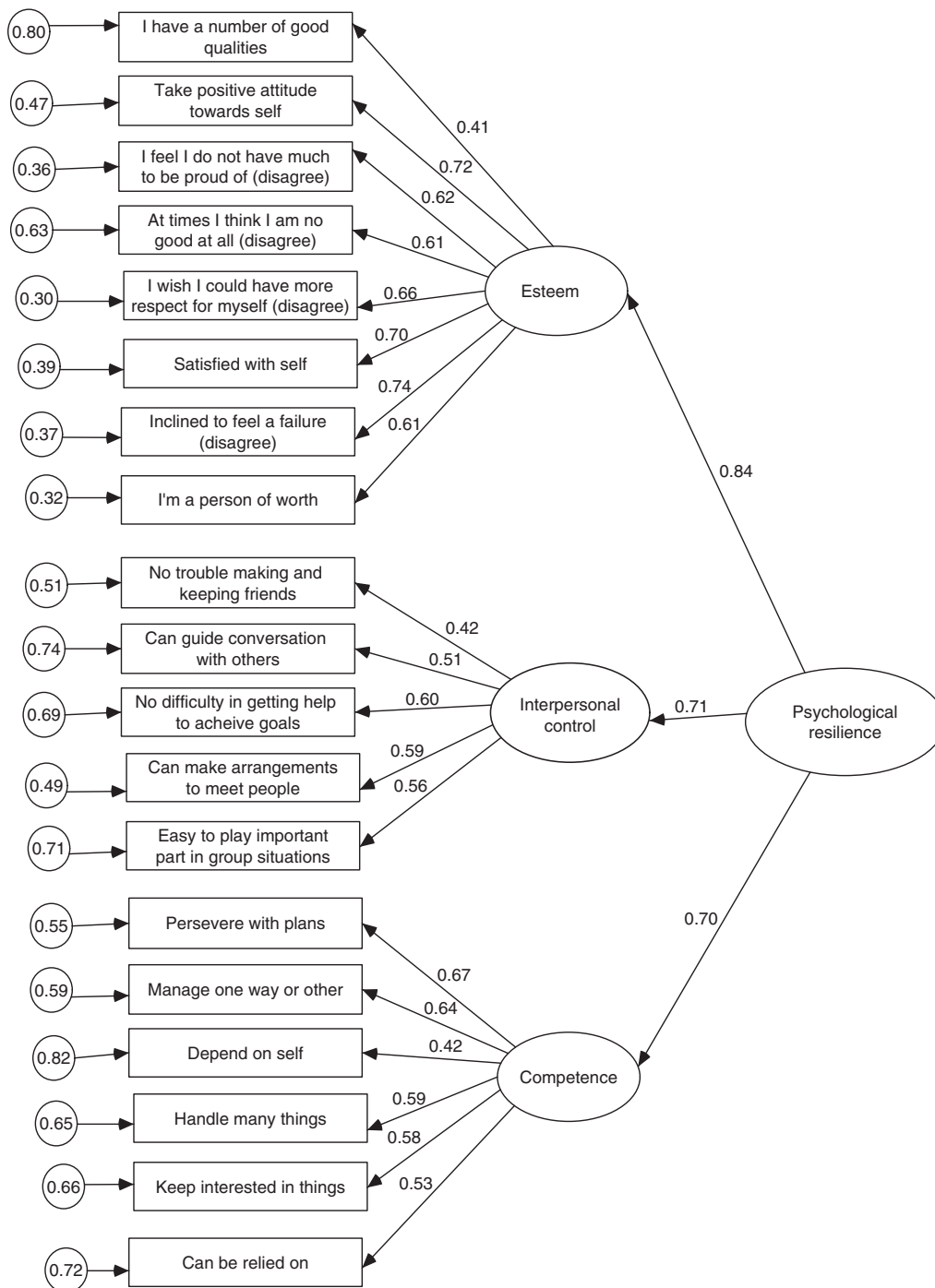
Figure 1. Relationships between interpersonal control, self-esteem and personal competence.

described as referring to the positive aspects of self-preservation.

The items of the final model also represent a composite of self-referent statements and personality traits that reflect aspects of the self-concept outlined by Bengston, Reedy, and Gordon (1985). The items could also be viewed as the packages of self knowledge derived from experience (e.g. 'I am someone people can rely on' or 'I feel I have a number of good qualities'). These provide the interpretative aspect of the self concept referred to as 'self-schema' by Markus and Herzog (1991, p. 113). These 'help the individual interpret and integrate self-referential experience, promote and defend the self, and develop motivation and a sense of developmental direction' (Atchley, 1999, p. 10). Compiling such self-schema across the lifespan enables feelings of mastery, competence and control (Gurin & Brim, 1984). Consequently, there is also some theoretical validation to suggest that the items that are represented empirically by the higher-order factor reflect the characteristics of resilient individuals and are firmly placed within the self concept.

A conclusion of this article is that based on the theoretical and empirical assessment, it would be

incorrect to state that the construct of psychological resilience has been fully validated. In addition, the model of resilience presented here, whilst underpinned by theory and other research cannot be assumed to be an all-encompassing one. Some consideration needs to be given to the use of secondary data analysis and the advantages or constraints it holds. In the context of this research, the availability of an underutilised, large data base provided the opportunity to test a theoretical approach to the concept of resilience that has not been previously explored. As such the results provide an important first baseline for developing further work on this concept. On the other hand, the constraints of the data present limitations around the measures that were used, and what other aspects could potentially be considered as indicators of resilience.

The measure of self-esteem used in this research is a well used and validated measure with older people, however the Spheres of Control and Resilience scales have received far less attention and as such their initial validity was questionable. To counter this aspect, preliminary psychometric analyses were undertaken that resulted in the most robust measures being considered for further analyses. From that perspective, the negative side of what could be achieved with the available measures was overcome.

A further limitation arising from the constraints of the data is that there are other factors that might also be considered as indicators of psychological resilience. Over the last decade the impact of spirituality and religion has become a focus of increasing attention (Gatz & Smyer, 2001, p. 534). Religion and spirituality enable a sense of meaning to be attributed to challenging situations that are experienced in older age (Coleman & O'Hanlon, 2004). As such is it possible that this aspect of quality of life is also a source of resilience, in addition to the other psychological resources. Unfortunately this domain was not considered by the original questionnaire developers.

Other research suggests that factors such as self acceptance become more prominent with age and can be a key dimension of positive psychological functioning (Ryff & Singer, 1996). It is regarded as a characteristic of self-actualisation, maturity and optimal functioning which emphasises the acceptance of current and past life (Ryff & Singer, 1996). Acceptance of limitations is part of the accommodative process of adaptation to potential negative aspects of ageing. The adjustment of aspirations in relation to losses and functional impairments can subsequently maintain a positive self-identity in older age (Brandstädter & Greve, 1994). In relation to age, self-acceptance has been found to remain consistent across young, mid-life and older aged cohorts (Ryff & Singer, 1996). Another study found no age differences across average self acceptance scores (Capara, Capara, & Steca, 2003). Consequently, as people age they may become more accepting and comfortable with themselves.

In one respect, the model was then limited by the constraints of the available data. As such it could be

suggested that the model tested here, although theoretically plausible, represents just one of many approaches to resilience in older age. Consequently there are a number of theoretical issues regarding the conceptualisation of psychological resilience that require further investigation. On the other hand despite the potential shortcomings, this work has taken a novel approach to the topic exploring a theoretical perspective that is important to understand the psychological aspects of older age. It has attempted rigorous analyses to further the understanding of psychological resilience. Indeed, it is possible that despite some of the limitations, the model might adequately capture the essential psychological resources that are important for mental health and well-being in older age.

Further work aims to examine this position. It will focus on the role of psychological resilience, testing whether the resilient self intervenes in the relationship between risk factors and well-being. This is an important next step as it has been highlighted by Bowling (2004) that the examination of intervening psychological variables is under-researched in relation to quality of life in older age. As such further analyses using psychological resilience will make a unique contribution to the knowledge of how such inner capabilities enable a positive interpretation of older age.

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