Celebrating Human Resilience

Carol Ryff
Director, UW Institute on Aging

24th Annual Colloquium on Aging
Monona Terrace
Madison, WI, October 2, 2012
Plan of Talk

What is resilience? Why is it interesting?
- my scientific path to resilience

Examples from MIDUS (U.S. adults)
- Resilience among the disadvantaged
- Resilience among the aged
- Resilience in the face of specific challenges

Implications for practice/interventions
Working definition of resilience: prevailing in the face of adversity
RESILIENCE ACROSS CONTEXTS
Family, Work, Culture, and Community

RESILIENT ADULTS
Overcoming a Cruel Past

Posttraumatic Growth

Vulnerability and Resilience in Human Development

Trauma and Transformation:
Growing in the Aftermath of Suffering
• Dimensions of resilience (biological, emotional, social)
• Resilience across the life span
• Policy implications
MAN'S SEARCH FOR MEANING

VIKTOR E. FRANKL

WITH A NEW FOREWORD BY
HAROLD S. KUSHNER

MORE THAN 12 MILLION COPIES IN PRINT WORLDWIDE
Ben Mattlin (2012)

- born with spinal muscular atrophy
- one of the first wheelchair students to attend Harvard
- went on to marry, have two children, write books, and contribute to NPR.
Why is Resilience Important?

- Most health research examines pathways to illness and disease
  - We need to understand pathways to good health

- Brings into high relief volitional aspects of human adaptation
  - Engaged organism working hard to function effectively
My Road to Resilience

Psychological well-being (Ryff, 1989)
“Happiness is everything, or is it?”

Six components of psychological well-being

Who has them even when the going gets rough?

Does it matter for health?
Autonomy: marching to one’s own drummer

Kjeragbolten, Norway
Environmental Mastery: managing your external world
Personal Growth: making the most of your talents and capacities

Imagerie Pellerin d’Epinal (19th century)
Positive Relations with Others: taking care of your social ties
Purpose in Life: finding meaning and direction in your life

Raphael's "School of Athens" Stanza della Segnatura (1508-11)

Apollo, the Sun God, leader of the Nine Muses. His attributes are the lyre and the bow

Plato holding his theoretical treatise "Timaeus". Plato = Leonardo da Vinci

Aristotle holding The Nicomachean Ethics

Minerva (Athena), the goddess of wisdom

Socrates Group

Geometry Group

Pythagoras, mathematician and philosopher

Hypatia of Alexandria, female philosopher, mathematician and astronomer. Exact likeness of Francesco Maria della Rovere, Duke of Urbino

The pessimist philosopher and astronomer Heraclitus = Michelangelo

Diogenes, "the Cynic", with his bowl

Euclid with his collapsible compass. Euclid = Bramante

Ptolemy, astronomer, mathematician and geographer, with a globe/the universe, he is wearing a special crown
Self-Acceptance: recognizing and accepting your strengths and weaknesses

Self-portrait by Kseniya Beliaeva, woman artist from Belarus
Psychological Well-Being and Inequality
MIDUS (Midlife in the U.S.) is a national longitudinal study of how many factors (behavioral, social, psychological, biological, neurological) come together to influence health and well-being as people age from early adulthood into midlife and old age. It was conceived by a multidisciplinary team of scholars interested in understanding aging as an integrative process.

In 1995, MIDUS survey data were collected from a total of 7,108 participants. The baseline sample was comprised of individuals from four subsamples: (1) a national RDD (random digit dialing) sample (n=3,487); (2) oversamples from...
MIDUS... Improving Our Understanding of How Americans Age

Mental abilities tend to decline with age, but older adults who stay mentally active (use computers, read newspapers, do crosswords) decline less.

Featured Publications

Zimprich, D., ... , 2011. Factorial structure and age-related psychometrics of the MIDUS personality... Psychological Assessment. Advance online publication.


Mock, S., ... , 2011. Aging attitudes moderate the effect of subjective age on... Psychology and Aging. 26(4), 979-986.


Hether, S., ... , 2010. The relative risk and...

In The News

- The New York Times - A Sharper Mind, Middle Age and Beyond
  (Oct. 19, 2012)

- The New York Times - Get a Midlife
  (Oct. 7, 2011)

- The Cap Times - Q&A: Midlife in the U.S. researcher to delve into reactions to recession
  (Nov. 12, 2011)

- UW Madison News - Major study returns to probe mid-life, recession-related harm
  (Nov. 9, 2011)

- Association for Psychological Science (APS) - How Devoted Moms Buffer Kids in Poverty

Quick Links

Pages of Interest
- MIDUS Repository
  - Contains interactive codebooks
- MIDUS Data Access
  - Through ICPSR
- MIDUS Findings
  - A searchable publication database
- MIDUS Newsletters
- MIDJA (Midlife in Japan)
- Institute on Aging Website
- National Institute on Aging Website

www.midus.wisc.edu

MIDUS Data are publicly available, no permissions required. Please use them!
Women

- Self-Acceptance
- Purpose in Life
- Environ. Mastery
- Positive Relations
- Personal Growth
- Autonomy

Source: MIDUS I
Psychological Well-Being and Education

Five Number Summary

<table>
<thead>
<tr>
<th>Educational Level</th>
<th>Purpose in Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;12 (HS)</td>
<td>12 (HS)</td>
</tr>
<tr>
<td>N= 293</td>
<td>878</td>
</tr>
</tbody>
</table>

Source: MIDUS
Psychological Well-Being and Aging
Longitudinal Decline (9-10 years) in **Purpose in Life**

![Graph showing decline in purpose in life over age at Time 2.](image)

**Average total score**

<table>
<thead>
<tr>
<th>Age at Time 2</th>
<th>T1</th>
<th>T2</th>
</tr>
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<tbody>
<tr>
<td>35-44</td>
<td>18</td>
<td>17</td>
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<tr>
<td>45-54</td>
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<td>16</td>
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<td>55-64</td>
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<td>15</td>
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<tr>
<td>65-74</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>75-84</td>
<td>14</td>
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</tbody>
</table>
Longitudinal Decline (9-10 years) in *Personal Growth*

Age at Time 2

<table>
<thead>
<tr>
<th>T1</th>
<th>T2</th>
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</tbody>
</table>

Average total score
Varieties of Resilience in MIDUS:

- Prevailing in the face of inequality (low education/income)
Pathways to Resilience: Maternal Nurturance as a Buffer Against the Effects of Childhood Poverty on Metabolic Syndrome at Midlife

Gregory E. Miller¹, Margie E. Lachman², Edith Chen¹, Tara L. Gruenewald³, Arun S. Karlamangla⁴, and Teresa E. Seeman³

¹Department of Psychology, University of British Columbia; ²Department of Psychology, Brandeis University; and ³Department of Medicine/Geriatrics, University of California, Los Angeles

Abstract
Children raised in families with low socioeconomic status (SES) go on to have high rates of chronic illness in adulthood. However, a sizable minority of low-SES children remain healthy across the life course, which raises questions about the factors associated with, and potentially responsible for, such resilience. Using a sample of 1,205 middle-aged Americans, we explored whether two characteristics—upward socioeconomic mobility and early parental nurturance—were associated with resilience to the health effects of childhood disadvantage. The primary outcome in our analyses was the presence of metabolic syndrome in adulthood. Results revealed that low childhood SES was associated with higher prevalence of metabolic syndrome at midlife, independently of traditional risk factors. Despite this pattern, half the participants raised in low-SES households were free of metabolic syndrome at midlife. Upward social mobility was not associated with resilience to metabolic syndrome. However, results were consistent with a buffering scenario, in which high levels of maternal nurturance offset the metabolic consequences of childhood disadvantage.

Miller et al., 2011
Psychological Science

Childhood poverty $\rightarrow$ higher prevalence of metabolic syndrome in adulthood BUT not among those with high levels of maternal nurturance
Metabolic Syndrome
- high blood pressure
- impaired glucose control
- central adiposity (waist circumference)
- lipid dysregulation (HDL/LDL cholesterol, triglycerides)

Fig. 1. Metabolic-syndrome outcomes as a function of childhood socio-economic status (indexed by parents’ highest level of education). Results are shown for (a) the mean number of metabolic-syndrome components and (b) the prevalence of diagnosable metabolic syndrome. In both cases, estimates have been adjusted for demographic and biobehavioral covariates. Parental educational attainment was divided into four categories: less than high school education (< HS), high school graduate or equivalent (HS), some college education or associate’s degree (some college), and bachelor’s degree or higher (bachelor’s). Error bars show ±1 SEM.
High maternal nurturance protects against Metabolic Syndrome among the less educated.

**Fig. 3.** Metabolic-syndrome components as a function of childhood socioeconomic status (SES: indexed by parents’ level of education) and maternal nurturance. The top panel shows the estimated number of metabolic-syndrome components at three levels of maternal nurturance: low (1 SD below the mean), typical (mean), and high (1 SD above the mean). Values have been adjusted for demographic and biobehavioral covariates. The bottom panel displays results for covariate-adjusted counts of metabolic-syndrome components for three groups of participants, stratified according to whether they fell into the highest, middle, or lowest tertile of the sample distribution of maternal nurturance. Each graph shows the distributions for individual subjects, as well as a best-fitting regression line. Parental educational attainment was divided into four categories: less than high school education (< HS), high school graduate or equivalent (HS), some college education or associate’s degree (some college), and bachelor’s degree or higher (bachelor’s).
Lower educational status → higher levels of IL-6
BUT effect is buffered by high psychological well-being

Socioeconomic and Psychosocial Predictors of Interleukin-6 in the MIDUS National Sample

Jennifer A. Morozink, Elliot M. Friedman, Christopher L. Coe, and Carol D. Ryff
University of Wisconsin-Madison

Objective: To investigate whether psychosocial factors (i.e., depression, anxiety, and well-being) moderated educational gradients in interleukin-6 (IL-6) levels using data from the Survey of Midlife Development in the U.S. (MIDUS). The influences of educational attainment and psychosocial factors on IL-6 in middle aged and older adults were also examined. Design: Telephone interviews and mail surveys were utilized to collect educational attainment and psychosocial information from respondents (N = 1028). Respondents also participated in an overnight clinic visit, during which health information and a fasting blood sample were obtained. Main Outcome Measures: Serum levels of IL-6. Results: Greater educa-
Lower educational attainment predicts higher levels of interleukin-6 (IL-6)

Interleukin-6
- marker of inflammation
- involved in etiology of numerous diseases (cardiovascular, cancer, rheumatological, osteoporosis, Alzheimer’s)

Figure 1. Mean levels of IL-6 (+SE) by educational attainment in three categories: (1) individuals with a high school education, GED, or less; (2) individuals with some college education, but no degree; and (3) individuals with a bachelor’s degree or higher.
BUT the effect is **moderated** by levels of psychological well-being:

- purpose in life
- positive relations
- environmental mastery
- self-acceptance
- positive affect

*(protective buffers)*

*Figure 1.* Mean levels of IL-6 (+SE) by educational attainment in three categories: (1) individuals with a high school education, GED, or less; (2) individuals with some college education, but no degree; and (3) individuals with a bachelor’s degree or higher.
Serum IL-6 (pg/mL) vs. Environmental Mastery

- High School, GED, or Less Education
- Some College Education
- Bachelor’s Degree or Higher

* p < .05

Morozink et al., 2010
Health Psychology
High School, GED, or Less Education
Some College Education
Bachelor’s Degree or Higher

Purpose in Life

Serum IL-6 (pg/mL)

* p < .05

Morozink et al., 2010
Health Psychology
High psychological well-being **protects** against high IL-6 among the less educated.

Figure 2. Well-being moderated the effect of education on IL-6. Lines represent simple effects of psychosocial factors on IL-6 for categories according to educational attainment, controlling for age, gender, smoking status, alcohol consumption, caffeine consumption, physical activity, medication usage, BMI, WHR, and chronic health conditions. The inverse relationship between IL-6 and well-being for individuals with a high school education or less is significant in all panels, with the exception of panel d, where the simple effect was marginally significant. The positive relationship between positive affect and IL-6 for individuals with a college degree or higher was also significant (panel a). Figure 2a. With education interpreted as a continuous variable, the simple effect of positive affect at one standard deviation below the mean on education was not significant. Figure 2b. With education interpreted as a continuous variable, the simple effect of environmental mastery at one standard deviation below the mean on education was marginally significant. Figure 2c. With education interpreted as a continuous variable, the simple effect of positive relations with others at one standard deviation below the mean on education was not significant.
Varieties of Resilience in MIDUS:

- *Prevailing in the face of the challenges of aging*
Longitudinal Decline (9-10 years) in **Purpose in Life**

![Graph showing the averaged summed score over different age groups at T1 and T2.](image)
Purpose in life is protective against Alzheimer’s and mild cognitive impairment.

(Boyle et al., Archives Gen Psychiatry, 2010)

Effect of a Purpose in Life on Risk of Incident Alzheimer Disease and Mild Cognitive Impairment in Community-Dwelling Older Persons

Patricia A. Boyle, PhD; Ann S. Buchman, MD; Lisa L. Barnes, PhD; David A. Bennett, MD

Context: Emerging data suggest that psychological and experiential factors are associated with risk of Alzheimer disease (AD), but the association of purpose in life with incident AD is unknown.

Objectives: To test the hypothesis that greater purpose in life is associated with a reduced risk of AD.

Design: Prospective, longitudinal epidemiologic study of aging.

Setting: Senior housing facilities and residences across the greater Chicago metropolitan area.

Participants: More than 900 community-dwelling older persons without dementia from the Rush Memory and Aging Project.

Main Outcome Measures: Participants underwent baseline evaluations of purpose in life and up to 7 years of detailed annual follow-up clinical evaluations to document incident AD. In subsequent analyses, we examined the association of purpose in life with the precursor to AD, mild cognitive impairment (MCI), and the rate of change in cognitive function.

Results: During up to 7 years of follow-up (years), 155 of 951 persons (16.3%) developed incident MCI. Proportional hazards model adjusting for age, education, greater purpose in life was associated with substantially reduced risk of AD (hazard ratio, 0.34; 95% confidence interval, 0.33-0.69; P < .001). Thus, a high score on the purpose in life measure (90th percentile) was approximately 2.4 times more likely to remain free of AD than was a person with a low score (50th percentile). This association, along with other variables and persistent associations of terms for depressive symptoms, neuropsychiatric symptoms, and number of chronic conditions. In subsequent models, purpose in life was associated with a reduced risk of MCI (hazard ratio, 0.59; 95% confidence interval, 0.33-0.95; P = .02) and a lower rate of cognitive decline (mean [SE] global estimate, 0.03 [0.01], P < .01).

Conclusion: Greater purpose in life is associated with a reduced risk of AD and MCI in community-dwelling persons.

Arch Gen Psychiatry. 2010;67(3):304-310

Figure 1. Cumulative hazard of Alzheimer disease (AD) for participants with high (90th percentile) vs low (10th percentile) purpose in life scores.
Those with higher purpose in life live longer.
(Boyle et al., *Psychosom Med, 2009*)

Purpose in Life Is Associated With Mortality Among Community-Dwelling Older Persons

PATRICIA A. BOYLE, PhD, LISA L. BARNES, PhD, ARON S. BUCHMAN, MD, AND DAVID A. BENNETT, MD

Objective: To assess the association between purpose in life and all-cause mortality in community-dwelling elderly persons.

Methods: We used data from 1238 older persons without dementia from two longitudinal cohort studies (Rush Memory and Aging Project and Minority Aging Research Study) with baseline evaluations of purpose in life and up to 5 years of follow-up to test the hypothesis that greater purpose in life is associated with a reduced risk of mortality among community-dwelling older persons.

Results: The mean ± standard deviation score on the purpose in life measure at baseline was 24.6 ± 5.9, indicating greater purpose in life. During the 5-year follow-up (mean = 2.7 years), a proportional hazards model adjusted for age, sex, education, and race, a higher level of substantial risk of mortality (hazard ratio = 0.60, 95% Confidence Interval = 0.43–0.84). A person with a high score on the purpose in life measure (score = 4.2, 90th percentile) was at risk with a low score (score = 3.1, 10th percentile). The association of purpose in life with mortality was driven by white males. Further, the finding persisted after the addition of terms for depressive symptoms, disability, neuroticism, the number of chronic medical conditions, and in life is associated with a reduced risk of all-cause mortality among community-dwelling older persons.

![Cumulative hazard of death](image-url)

Figure 1. Cumulative hazard of mortality for participants with high versus low purpose in life.
Aging brings increased risk for poor sleep. **But older women with higher PWB have reduced risk of disrupted sleep.**

Phelan et al., *Psych and Aging*, 2010
Aging bring increased risk for chronic conditions
*comorbidity fuels inflammation
(Friedman & Ryff, J of Geront, 2012)

Living Well With Medical Comorbidities: A Biopsychosocial Perspective

Elliot M. Friedman¹,² and Carol D. Ryff¹,³

¹Institute on Aging.
²Department of Population Health Sciences and
³Department of Psychology, University of Wisconsin, Madison.

Objectives. We take a biopsychosocial perspective on age-related diseases by examining psychological correlates of having multiple chronic conditions and determining whether positive psychological functioning predicts advantageous profiles of biological risk factors.

Method. Respondents to the national survey of Midlife in the United States who participated in clinical assessments of health and biological processes (n = 998) provided information on chronic medical conditions and multiple domains of psychological functioning. Serum concentrations of interleukin-6 (IL-6) and C-reactive protein (CRP) were determined from fasting blood samples.

Results. Life satisfaction declined with increasing comorbidity while negative affect increased. In contrast, positive affect, purpose in life, and positive relations with others were unrelated to comorbidity status. Significant interactions showed that although IL-6 and CRP increased with increasing number of chronic conditions, respondents with higher levels of purpose in life, positive relations with others, and (in the case of CRP) positive affect had lower levels of inflammation compared with those with lower well-being scores.
As chronic conditions increase, higher PWB mitigates against elevated IL-6 and CRP.

Figure 1. Scatter plots of statistically significant interactions (raw values). Scores on hedonic and eudaimonic well-being measures ±1 SD from their respective means are shown. (A) Interaction of positive relations with others and number of chronic conditions predicting interleukin-6 (IL-6; p < .05). (B) Interaction of purpose in life and number of chronic conditions predicting IL-6 (p < .05). (C) Interaction of positive relations with others and number of chronic conditions predicting C-reactive protein (CRP; p < .05). (D) Interaction of purpose in life and number of chronic conditions predicting CRP (p < .05). (E) Interaction of PANAS positive affect and number of chronic conditions predicting CRP (p < .05). PANAS = Positive and Negative Affect Scale.
<table>
<thead>
<tr>
<th>Tasks</th>
<th>Theoretical Construct(s)</th>
<th>Test Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word List Recall</td>
<td>Episodic verbal memory</td>
<td>Free recall of a list of 15 words drawn from the Rey Auditory-Verbal Learning Test (Rey, 1964; Lezak, 1995)</td>
</tr>
<tr>
<td>(immediate and delayed)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Backward Digit Span</td>
<td>Working memory span</td>
<td>Highest span achieved in repeating strings of digits backwards (Wechsler, 1997)</td>
</tr>
<tr>
<td>Category Fluency</td>
<td>Verbal fluency: Executive function, semantic memory retrieval</td>
<td>Number of animal names produced in one minute (after Borkowski, Benton &amp; Spreen, 1967; see also Tombaugh, Kozak, &amp; Rees, 1999)</td>
</tr>
<tr>
<td>Number Series</td>
<td>Inductive reasoning</td>
<td>Complete the pattern in a series of 5 numbers with a final number (e.g., 2, 4, 6, 8, 10...12). Five problems include 3 types of patterns. (after Schaie, 1996; Salthouse &amp; Prill, 1987)</td>
</tr>
<tr>
<td>Backward Counting</td>
<td>Processing speed</td>
<td>Maximum number of items produced counting backwards from 100 in 30 seconds (after AHEAD study: Herzog &amp; Wallace, 1997)</td>
</tr>
<tr>
<td>Attention Switching</td>
<td>Reaction time, attention, task-switching</td>
<td>Speeded two-choice response, either: 1. blocked (in baseline), or 2. alternating tasks (task-switching) (after Cepeda, Kramer, &amp; Gonzalez de Sather, 2001)</td>
</tr>
</tbody>
</table>
BTACT Scores by Age

![Graph showing mean Z-scores for different tasks across age groups.](image-url)
Frequent computer activity → better executive function, net of confounds (including cognitive ability)

The Association Between Computer Use and Cognition Across Adulthood: Use It So You Won’t Lose It?

Patricia A. Tun and Margie E. Lachman
Brandeis University

Understanding the association between computer use and adult cognition has been limited until now by self-selected samples with restricted ranges of age and education. Here we studied effects of computer use in a large national sample (N = 2,671) of adults aged 32–84, assessing cognition with the Brief Test of Adult Cognition by Telephone (Tun & Lachman, 2005) and executive function with the Stop and Go Switch Task (Tun & Lachman, 2008). Frequency of computer activity was associated with cognitive performance after controlling for age, sex, education, and health status: That is, individuals who used the computer frequently scored significantly higher than those who seldom used the computer. Greater computer use was also associated with better executive function on a task-switching test, even after controlling for basic cognitive ability as well as demographic variables. These findings suggest that frequent computer activity is associated with good cognitive function, particularly executive control, across adulthood into old age, especially for those with lower intellectual ability.

Keywords: cognition, computer use, cognitive activity, executive function, task switching

Tun & Lachman, 2010
Psychology & Aging
 Histories of Social Engagement and Adult Cognition: Midlife in the U.S. Study

Teresa E. Seeman,1 Dana M. Miller-Martinez,1 Sharon Stein Merkin,1 Margie E. Lachman,2 Patricia A. Tun,2 and Arun S. Karlamangla1

1Department of Medicine, Division of Geriatrics, David Geffen School of Medicine at UCLA, Los Angeles.
2Department of Psychology, Brandeis University, Waltham, Massachusetts.

Objectives. To evaluate whether social contacts, support, and social strain/conflict are related to executive function and memory abilities in middle-age and older adults.

Methods. Longitudinal data on social contacts, support, and strain/conflict were examined in relation to executive function and memory at ages 35–85 years using data from the national Midlife in the U.S. (MIDUS) study. Age-related differences in patterns of association were also examined.

Seeman et al., 2010
J of Gerontology
Functional health declines with aging BUT not among those with high social support, sense of control and frequent exercise

Promoting Functional Health in Midlife and Old Age: Long-Term Protective Effects of Control Beliefs, Social Support, and Physical Exercise

Margie E. Lachman*, Stefan Agrigoroaei
Psychology Department, Brandeis University, Waltham, Massachusetts, United States of America

Abstract

Background: Previous studies have examined physical risk factors in relation to functional health, but less work has focused on the protective role of psychological and social factors. We examined the individual and joint protective contribution of control beliefs, social support and physical exercise to changes in functional health, beyond the influence of health status and physical risk factors in middle-aged and older adults. Given that functional health typically declines throughout adulthood, it is important to identify modifiable factors that can be implemented to maintain functioning, improve quality of life, and reduce disability.

Methodology/Principal Findings: We conducted a national longitudinal study, Midlife in the United States (MIDUS), with assessments in 1995–1996 and 2004–2006, and 3,626 community-residing adults, aged 32 to 84, were included in the analyses. Functional health (Physical Functioning subscale of the SF-36) and protective factors were measured at both occasions. While controlling for socio-demographic, health status, and physical risk factors (large waist circumference, smoking, and alcohol or drug problems), a composite of the three protective variables (control beliefs, social support, and physical exercise) at Time 1 was significantly related to functional health change. The more of these factors at Time 1, the better the health maintenance over 10 years. Among middle-aged and older adults, declines in health were significantly reduced with an increased number of protective factors.
Varieties of Resilience in MIDUS:

- cancer survivors (matched control groups)
Personal growth after cancer (age and cohort differences)

What Makes You Stronger: Age and Cohort Differences in Personal Growth after Cancer

Tetyana Pudrovska

Abstract
Using two waves of the National Survey of Midlife Development in the United States, I compare changes in personal growth over a 10 year period among cancer survivors and individuals without cancer. Moreover, I examine joint effects of age and cohort on personal growth after a cancer diagnosis. The theoretical
Psychosocial Adjustment Among Cancer Survivors: Findings From a National Survey of Health and Well-Being

Erin S. Costanzo and Carol D. Ryff
University of Wisconsin-Madison

Burton H. Singer
University of Wisconsin-Madison and Princeton University

Objective: The current study examined whether cancer survivors showed impairment, resilience, or growth responses relative to a sociodemographically matched sample in four domains: mental health and mood, psychological well-being, social well-being, and spirituality. The impact of aging on psychosocial adjustment was also investigated. Design: Participants were 398 cancer survivors who were participants in the MIDUS survey (Midlife in the United States) and 796 matched respondents with no cancer history. Psychosocial assessments were completed in 1995–1996 and 2004–2006. Main Outcome Measures: Outcomes including self-report measures of mental health and mood, psychological well-being, social well-being, and spirituality. Results: Findings indicated that cancer survivors demonstrated impairment relative to the comparison group in mental health, mood, and some aspects of psychological well-being. Longitudinal analyses spanning pre- and postdiagnosis clarified that while mental health declined after a cancer diagnosis, poorer functioning in other domains existed prior to diagnosis. However, survivors exhibited resilient social well-being, spirituality, and personal growth. Moreover, age appeared to confer resiliency; older survivors were more likely than younger adults to show psychosocial functioning equivalent to their peers. Conclusion: While younger survivors may be at risk for disturbances in mental health and mood, cancer survivors show resilience in other important domains of psychosocial adjustment.
Psychological Well-Being
and the Brain
Neuroimaging study

Individual Differences in Amygdala and Ventromedial Prefrontal Cortex Activity are Associated with Evaluation Speed and Psychological Well-being


Abstract

Using functional magnetic resonance imaging, we examined whether individual differences in amygdala activation in response to negative relative to neutral information are related to differences in the speed with which such information is evaluated, the extent to which such differences are associated with medial prefrontal cortex function, and their relationship with measures of trait anxiety and psychological well-being (PWB). Results indicated that faster judgments of negative relative to neutral information were associated with increased left and right amygdala activation. In the prefrontal cortex, faster judgment time was associated with relative decreased activation in a cluster in the ventral anterior cingulate cortex (ACC, BA 24). Furthermore, people who were slower to evaluate negative versus neutral information reported higher PWB. Importantly, higher PWB was strongly associated with increased activation in the ventral ACC for negative relative to neutral information. Individual differences in trait anxiety did not predict variation in judgment time or in amygdala or ventral ACC activity. These findings suggest that people high in PWB effectively recruit the ventral ACC when confronted with potentially aversive stimuli, manifest reduced activity in subcortical regions such as the amygdala, and appraise such information as less salient as reflected in slower evaluative speed. ■

Van Reekum et al., 2007, J of Cognitive Neuroscience

Faster eval of neg info: → greater amyg activ

However, higher PWB:
→ slower eval neg info
→ lower amyg activ
→ increased activation of anterior cingulate cortex

Figure 3. Activity in the ventral ACC in response to negative versus neutral images is positively associated with total PWB. Note that $n = 24$ due to a missing observation in total PWB. neg = negative; neu = neutral.
“These findings suggest that people high in PWB effectively recruit the ventral ACC when confronted with potentially aversive stimuli, manifest reduced activity in subcortical regions such as the amygdala, and appraise such information as less salient as reflected in slower evaluative speed.”

Van Reekum et al., 2007, J of Cognitive Neuroscience
Can psychological strengths (e.g., well-being) be promoted? What are implications for practice?
Promoting Well-Being

- among those who most need it (those suffering from depression)
- “well-being therapy” *Fava et al. (1998)*

*Archives of General Psychiatry*

- importance of well-being in recovery process
Six-Year Outcome of Cognitive Behavior Therapy for Prevention of Recurrent Depression

Giovanni A. Fava, M.D.
Chiara Ruini, Ph.D.
Chiara Rafanelli, M.D., Ph.D.
Livio Finos, Ph.D.
Sandra Conti, M.D.
Silvana Grandi, M.D.

**Objective:** A paucity of studies use non-pharmacological strategies for preventing recurrence in depression. Cognitive behavior treatment of residual symptoms was found to yield a significantly lower relapse rate than clinical management in recurrent depression at a 2-year follow-up. The objective of this investigation was to provide a 6-year follow-up of cognitive behavior treatment versus clinical management.

**Method:** Forty patients with recurrent major depression who had been successfully treated with antidepressant drugs were randomly assigned to either cognitive behavior treatment of residual symptoms (supplemented by lifestyle modification and well-being therapy) or clinical management. In both groups, antidepressant drugs were tapered and discontinued. A 6-year follow-up was undertaken. During this period, no antidepressant drugs were used unless a relapse ensued.

**Results:** Cognitive behavior treatment resulted in a significantly lower relapse rate (40%) at a 6-year follow-up than did clinical management (90%). When multiple recurrences were considered, the group that received cognitive behavior treatment had a significantly lower number of relapses in comparison with the clinical management group.

**Conclusions:** The results suggest that the sequential use of cognitive behavior treatment after pharmacotherapy may improve the long-term outcome in recurrent depression. A significant proportion of patients with recurrent depression might be able to withdraw from medication successfully and to stay well for at least 6 years with a focused course of psychotherapy.

*(Am J Psychiatry 2004; 161:1872–1876)*
FIGURE 1. Proportion of Depressed Patients in Remission 6 Years After Cognitive Behavior Therapy (N=20) or Clinical Management (N=20)

- **Patients in cognitive behavior therapy**
- **Patients in clinical management**

Proportion Still in Remission vs. Time From Baseline (months)
From Treatment to Prevention

- Teaching well-being therapy to children and adolescents
  - Ruini et al. (2006) *Psychother & Psychosom*
  - Ruini et al. (2009) *J of Behav Therapy*
  - Tombe et al. (2010) *J of Anxiety*
The Marketing of Happiness
Current preoccupations with happiness:

- “advent of banality”
- “felicity and vacuity go hand in hand”
  (Voltaire’s *Candide*)
- “amiable twaddle of the Dalai Lama”
- “it is better to lead a rich life with tears than a happy one without meaning”
- “the defeat of an illusion always opens the door to miracles”
Summary

- In studies of health, it is time to remove our blinders about human strengths.
- MIDUS is helping us see what they are.
What have we learned?

- Resilience is real
- People show strengths in the face of adversity
- Such strengths matter for their health
- These strengths can be promoted