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Coping Trajectories in Later Life: A 20-Year Predictive Study

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Abstract

Objectives and Method—Information about aging-related change in coping is limited mainly to results of cross-sectional studies of age differences in coping, and no research has focused on predictors of aging-related change in coping behavior. To extend research in this area, we used longitudinal multilevel modeling to describe older adults' (n=719; baseline M=61 years) 20-year, intra-individual approach and avoidance coping trajectories, and to determine the influence of two sets of predictors (threat appraisal and stressor characteristics; gender and baseline personal and social resources) on level and rate of change in these trajectories.

Results—Over the 20-year study interval participants declined in use of approach coping and most avoidance coping strategies, but there was significant variation in this trend. In simultaneous predictive models, female gender, more threat appraisal, stressor severity, social resources, and depressive symptoms; and fewer financial resources, were independently associated with higher initial levels of coping responses. Having more social resources, and fewer financial resources, at baseline in late-middle-age predicted faster decline over time in approach coping. Having more baseline depressive symptoms, and fewer baseline financial resources, hastened decline in use of avoidance coping. Independent of other variables in these models, decline over time in approach coping and avoidance coping remained statistically significant.

Conclusion—Overall decline in coping may be a normative pattern of coping change in later life. However, it also is modifiable by older adults' stressor appraisals, their stressors, and the personal and social resources they possess at entry to later life, in late-middle age.

Keywords

Coping; Stress; Older adults; Longitudinal trajectories

Introduction

Almost 30 years ago, Lazarus & DeLongis (1983) lamented the slow progress being made toward understanding aging-related change in coping. Although pioneering qualitative research on adult development (Gutmann, 1974; Haan, 1977; Vaillant, 1977) implied that there may be intrinsic developmental change in adults' coping responses, the only

quantitative evidence of this came from cross-sectional studies of age differences in adults' coping strategies.

Surprisingly, there still are no descriptive accounts of long-term, intra-individual change with age in older adults' coping responses. This information can help us learn whether older adults' coping follows a "normative" later-life course, and how older adults' long-term, intra-individual coping trajectories correspond to age-related change in coping implied by previous cross-sectional studies of age differences in coping.

It also is important to examine predictors of older adults' late-life coping trajectories. This provides some information about whether older adults' coping follows an intrinsic developmental course, as implied by early adult development researchers (Guttman, 1974; Haan, 1977; Vaillant, 1977), or whether it is shaped mainly by the stressful circumstances individuals encounter as they age (McCrae, 1982; McCrae 1987). Furthermore, from a preventive health perspective, it is worthwhile to consider whether personal characteristics, such as gender, and the personal and social resources that individuals possess at entry to later life, can be linked prospectively to their subsequent long-term coping trajectories. This might help identify individuals at risk for having less successful or health-promoting coping trajectories over the course of late-life, and thus inform efforts to improve late-life coping efforts.

Late-life Change in Coping Responses

Most of what we know about aging-related change in coping is based on findings from cross-sectional studies of age differences in coping. Results of these studies can be classified into a simplified scheme according to *direction of change* (increase, decrease, no change), implied by patterns of age differences, in two broad categories of coping (Moos, 2004; Skinner, Edge, Altman, & Sherwood, 2003): *approach* coping, which involves active attempts to change stressful circumstances, and a *avoidance* coping, which involves efforts to avoid, or to manage emotions associated with, stressful circumstances.

Several cross-sectional coping studies show age difference patterns suggesting that there is age-related increase in approach coping, but age-related decline in avoidance coping (e.g., Diehl, Coyle, & Labouvie-Vief, 1996; Armirkhan & Auyeung, 2007). Consistent with this, McCrae (1989) showed diminished use of avoidance coping (e.g., "escapist fantasy"; "passivity") among adults followed for 7 years. These results can be interpreted to mean that as adults age they become more effective or mature in their coping skills, because they are increasingly are more confrontational, and decreasingly avoidant, in response to stressors.

However, other cross-sectional coping studies show just the opposite pattern, i.e., age differences that imply there is age-related decline in use of approach coping and a corresponding increase in use of avoidance coping responses (e.g., Aldwin, 1991; Folkman, Lazarus, Pimley, & Novacek, 1987). This can be interpreted to reflect age-related efforts to conserve energy, and to compensate for loss of it by reducing active confrontation of stressors and relying increasingly on avoidance coping strategies.

A third set of studies indicates that approach coping and avoidance coping both decline over the course of later life (e.g., Aldwin, Sutton, Chiara, & Spiro, 1996; Felton & Revenson, 1987; Irion & Blanchard-Fields, 1987; Meeks, Castensen, Tamsky, Wright, & Pelligrini, 1989). This pattern has been interpreted to reflect older adults' diminished energy to cope, but also as evidence that older adults become more judicious or effective in their coping as they age; they increasingly engage in proactive or anticipatory coping that prevents stressors (Aspinwall & Taylor, 1998; Greenglass, 2002), resulting in lowered overall need to cope (Aldwin, 2007). Finally, results of some cross-sectional studies of age differences imply that

there is little or no change with age in older adults' coping responses (e.g., McCrae, 1982; McCrae, 1989; Whitty, 2003), because coping takes place in immediate, moment-to-moment transaction with the environment and is influenced mainly by appraisals and characteristics of stressors at hand.

Predictors of Later-Life Coping Trajectories

Stress and coping literature suggests that two sets of predictors may influence the level and rate of change in older adults' coping trajectories. One set comprises appraisal and characteristics of stressors, including their type and overall severity. The way in which people appraise their stressors affects their coping responses (e.g., Aldwin, 2007; Lazarus & Folkman, 1984). In particular, subjective appraisal of threat is associated with more use of avoidance coping (e.g., Chung, Langenbucher, Labouvie, Pandina, & Moos, 2001) and, in some cases, more use of both avoidance and approach coping strategies (e.g., Lengua, Sandler, West, Wolchik, & Curran, 1999). Stressor severity, too, has been shown to be associated with elevated coping efforts, especially avoidance coping strategies (Carroll, Mercado, Cassidy, & Côté, 2002; Chung, Symons, Gilliam, & Kaminski, 2010). Finally, type of stressor may influence coping responses. For example, some cross-sectional age difference comparisons imply that with increasing age, older adults may be more likely to use avoidance coping strategies to manage interpersonal stressors (e.g., Birditt & Fingerman, 2005; Blanchard-Fields, Chen, & Norris, 1997; Lawton, Kleban, Rajagopal, & Dean, 1992). Overall these findings suggest that individuals' general tendency to view stressors as threats, their exposure to more severe stressors, and a later-life course in which interpersonal stressors predominate, may be associated with higher levels of coping, especially avoidance coping, and even promote increases in these coping strategies over the course of later life.

Gender, and personal and social resources that individuals possess when they enter later adulthood, comprise another important set of predictors of later-life coping trajectories. In general, women use all types of coping strategies more than do men (Tamres, Janicki, & Gelgeson, 2002), but no one has examined whether gender influences the level and rate of change in late-life coping trajectories. With respect to personal and social resources, Holahan & Moos (1987) found that personal and social resources, including more financial resources, and more family support, generally predicted more use of approach coping responses, and less reliance on avoidance coping responses. Other studies have shown associations between more social resources (e.g., support from family and friends), and coping responses, especially lowered levels of avoidance coping, and between resource deficiencies (e.g., drinking problems, depressive symptoms, poorer health, lack of financial resources) and coping responses, especially elevated use of avoidance coping responses (Kraaij, Garnefski, & Maes, 2002; Mann & Zautra, 1989; Moos, Brennan, Fondacaro, & Moos, 1990; Terry, 1994; Vollrath, Alnaes, & Torgersen, 1996). Accordingly, it is possible that personal and social resources, known at entry to later life, prospectively influence levels and rates of change in long-term approach and avoidance coping trajectories.

Predictions

Based on these findings, we predict that: (1) Most older adults in our study will experience intra-individual decline with age in approach coping responses, avoidance coping responses, or both of these; (2) More threat appraisal, more severe stressors, and predominance of interpersonal stressors will be associated with higher initial levels of approach and avoidance coping, and with slower decline over time in coping, especially avoidance coping; (3) Women will engage in more coping efforts than will men; they will experience slower rates of decline in approach and avoidance coping; (4) More baseline social resources, and fewer baseline resource deficiencies, will be associated with more initial approach coping and less initial avoidance coping. Having more social resources at baseline in late-middle-

age will contribute to slower decline in approach coping and to faster decline in avoidance coping. Having more resource deficiencies at baseline will have the opposite effect. For example, more depressive symptoms at baseline in late-middle-age will contribute to a faster decline in approach coping efforts and and slower decline in avoidance coping responses.

Method

Sample

Participants took part in a longitudinal study of life context, coping responses, and health behavior. The study was approved by the institutional review board of Stanford University, and all study participants provided informed consent.

At baseline data collection, overall sample size was $n=1,884$. The sample comprised community residents age 55 to 65 who had had recent contact with a health care facility on an outpatients basis, for a variety of health conditions. It was comparable to other same-aged, community-based samples with respect to key health characteristics, including presence of chronic illness and hospitalization rates (Brennan & Moos, 1990).

Data were collected from participants at baseline, then 1, 4, 10, and 20 years later. Follow-up rates were high: 94%, 94%, 93%, and 86%, respectively. However, between baseline assessment and the 20-year follow-up, a total of 1,045 individuals were unable to participate in the study due to death ($n = 969$) or because they became too ill to participate further in the study ($n = 76$). Non-survival due to death or severe illness was reported by family members or care providers. Almost all (90%) of mortality cases were confirmed by death certificate, the remainder by another official source (e.g., the Social Security Death Index).

At baseline, non-surviving participants were less likely to be married (66% versus 74%), female (30% versus 46%), and White (89% versus 93%) in comparison with surviving participants. Non-surviving participants also had lower annual family incomes (\$32,000 versus \$44,000) and relied somewhat more heavily on avoidance coping strategies ($M = 24.3$ versus $M = 21.9$) than did surviving participants.

A total of 120 individuals survived to 20 years, but dropped out of the study. At baseline, the 120 surviving non-participants were less likely to be men (46% versus 56%), married (64% versus 74%), and White (86% versus 93%) and had lower annual family income (\$35,000 versus \$44,000) than did surviving participants. However, at baseline these individuals were similar in terms of avoidance and approach coping.

Because a key purpose of this study was to observe participants' 20-year coping patterns, we focus here on the $n=719$ surviving participants. This sample comprised 44.5% women and 55.5% men and was predominantly Caucasian (93%). At baseline, participants' average age was about 61 years ($SD = 3.2$); most participants (74%) were married. On average, participants had almost 15 years of education and a total family income of about \$44, 000 ($SD = 19,782$) per year.

Measures

Coping responses—We used the Coping Responses Inventory (CRI; Moos, 1993; 2004) to assess participants' coping strategies. At each wave of data collection, participants identified the most important problem or stressful situation they had experienced during the last 12 months (focal stressor), and indicated, on 4-point scales ranging from 0 (*not at all*) to 3 (*fairly often*), how frequently they relied on a variety of strategies to cope with the focal stressor.

Four of the CRI subscales assess *approach coping responses*; these subscales include logical analysis (cognitive attempts to understand a stressor and its consequences), positive reappraisal (cognitive attempts to construe and restructure a problem in a positive way), guidance- and support-seeking (behavioral attempts to seek information, guidance, or support), and problem solving (behavioral attempts to take action and deal directly with a problem). *Approach coping* is a summation of participant responses to items in these four subscales ($\alpha = .84$ to $.87$, across assessment points).

The other four CRI subscales assess *avoidance coping responses*; these subscales include cognitive avoidance (cognitive attempts to avoid thinking about a problem), resigned acceptance (cognitive efforts to deal with a problem by accepting it), seeking alternative rewards (behavioral attempts to cope by finding substitute activities or sources of satisfaction), and emotional discharge (behavioral efforts to reduce tension by expressing negative feelings). *Avoidance coping* is a summation of participant responses to items in these four subscales ($\alpha = .79$ to $.82$, across assessment points). Group-level means and standard deviations for the overall approach coping and avoidance coping subscales, across five assessment points, are in Table 1.

Appraisal and stressor characteristics—As part of the CRI, participants reported the extent to which they viewed their focal stressor as a threat, ranging from 0 (*definitely no*) to 3 (*definitely yes*). Participants' *threat appraisal* responses were averaged across all five waves of data to represent overall tendency to appraise stressors as threatening.

Experienced raters classified participants' focal stressors and assigned to them standard weights derived from the work of Dohrenwend, Krasnoff, Askenasy, & Dohrenwend (1978) and Holmes & Rahe (1967). All ratings were independently cross-checked for between-rater agreement. On rare occasions of disagreement, raters met and used documented decision rules to reach agreement.

Interpersonal, financial, health, and "other" problems comprised the four main categories of focal stressor. Across data collection waves, 43% to 48% of participants identified interpersonal problems as their focal stressor; 8% to 30% of participants identified financial problems as focal stressor; 16% to 38% identified health issues, and 6% to 12% identified "other" problems, as focal stressor. Type of stressor changed markedly over time, resulting in little cross-wave consistency in focal stressor type. The highest degree of consistency was for interpersonal problems; 44% of the sample indicated an interpersonal problem as focal stressor at 3 or more data collection points. However, only 13% of participants indicated financial problems as focal stressor 3 or more times; this was the case for 12% of the sample with respect to health stressors, and $< 1.5\%$ for the "other" focal stressor category.

Based on these data distributions, and previous research suggesting the importance of interpersonal problems as an influence on older adults' coping responses, we created a variable representing *predominance of interpersonal problems* as focal stressor (interpersonal problems was focal stressor at 3 or more waves of data collection; 1=yes; 0=no). A measure of overall, average *stressor severity* was constructed by summing a participant's focal stressor weights across study waves, then dividing this sum by five.

Personal and social resources—The first of these measures, social resources, taps positive resources at baseline assessment; the remaining four assess resource deficiencies. Participants' *social resources* were assessed with the Life Stressors and Social Resources Inventory (LISRES; Moos & Moos, 1994; Moos, 2002). The LISRES includes separate subscales that tap interpersonal social resources from spouse or partner, extended family members, and friends (for scoring details, see Moos & Moos, 1994). LISRES social resource

indices have moderate to high internal consistency (average $\alpha = .79$) and are only moderately intercorrelated (average $r = .20$; Moos & Moos, 1994). To assess participants' overall social resources at baseline, we summed their baseline social resource scores across the spouse/partner, extended family, and friend domains, then divided the sum by the number of domains in which individuals reported social resources.

Baseline *drinking problems* were assessed with the Drinking Problems Index (DPI; Finney, Moos, & Brennan, 1991), a 17-item survey designed for use with older adults to assess negative consequences of alcohol consumption, including physical problems (e.g., craving for alcohol), psychological difficulties (e.g., feeling confused after drinking), and social conflicts (e.g., family members' complaints about respondents' use of alcohol). The DPI has high internal consistency ($\alpha = .94$), good construct validity (Brennan & Moos, 1990; Finney et al., 1991; Kopera-Frye, Wiscott, & Sterns, 1999), and acceptable sensitivity and specificity for identification of late-middle-aged and older adults who have problems with alcohol (Bamberger, Sonnenstuhl, & Vashdi, 2006). Individuals were identified as having drinking problems if, at baseline assessment they endorsed one or more items from the DPI (0 = no drinking problems, 1 = one or more drinking problems).

Baseline *depressive symptoms* ($\alpha = .93$) were assessed with Health and Daily Living (Moos, Cronkite, & Finney, 1992) items derived from the Research Diagnostic Criteria (Spitzer, Endicott, & Robins, 1978). Individuals were asked to indicate how frequently in the past month each of the 18 depressive symptoms was experienced, rating each item on a 5-point scale, ranging from 0 (*never*) to 4 (*very often*). The items were summed to represent total depressive symptoms in the past month. This composite measure has good convergent validity with the Beck Depression Inventory (Billings & Moos, 1985).

Baseline *health problems* were assessed with the LISRES (Moos & Moos, 1994) as a count of 13 medical conditions (e.g., anemia, cancer, diabetes) and 13 serious physical ailments (e.g., shortness of breath, back pain), diagnosed by a physician, that began more than 1 year ago. *Fewer financial resources*, was measured by family income at baseline, measured in thousands of dollars (e.g., 1 = \$10,000).

Analytic Plan: We first used SPSS 17.0 software to conduct descriptive analyses of participants' demographic characteristics and group-level, cross-wave approach and avoidance coping responses. Next, we used SPSS 17.0 procedure MIXED to generate unconditional multilevel models of participants' 20-year coping trajectories, and predictive models of the effects of appraisal, severity and type of stressor, and gender and baseline personal and social resources, on participants' 20-year approach and avoidance coping trajectories.

Longitudinal multilevel modeling is used to estimate intra-individual growth or change in the characteristics or behaviors of individuals assessed at multiple time points (Singer & Willett, 2003); individuals' outcome variables (e.g., coping responses), measured at multiple time points, are transformed to trajectories that represent individuals' within-person change on the outcome variable over the course of time. Of key interest are the initial levels (intercepts) of and rates of change (slopes) in these trajectories, how these trajectory characteristics vary in the sample, and whether they can be predicted from participants' personal characteristics and environmental circumstances.

Following Singer & Willett (2003), we first estimated unconditional (i.e., without predictors) means and unconditional linear growth models of approach coping and avoidance coping. Next, we estimated a series of models that determined the individual effects, unadjusted for other variables, of demographic characteristics (chronological age at

baseline, gender), stressor appraisal and characteristics (threat appraisal, stressor severity, predominance of interpersonal stressors, and baseline personal and social resource strengths (social resources) and deficiencies (drinking problems, depressive symptoms, health problems, fewer financial resources), on levels and rates of change in 20-year approach and avoidance coping trajectories. Finally, we estimated simultaneous predictive models of approach coping and avoidance coping trajectories, in order to determine effects that remained statistically significant, independent of all other variables in the model.

In all of these longitudinal multilevel analyses, the passage of time was measured as years of chronological age elapsed since baseline assessment, with baseline age centered on 61, the average age of participants at initial assessment. All of the predictive variables in these models, except those that were dichotomous, were centered on their sample means (Kraemer & Blasey, 2004).

Results

Approach Coping Responses

Multilevel models of 20-year approach coping trajectories are shown in Table 2. The unconditional means model of approach coping shows that the overall mean for approach coping is significantly greater than zero, and that the intra-class correlation for approach coping, calculated from the variance components Var_I and Residual, was .44. This indicates that 44% of variance in levels of approach coping is attributable to differences among participants, and that there is, as expected, a moderately high degree of residual autocorrelation among the multiple assessments of approach coping. Unconditional linear growth model fit was a significant improvement over the unconditional means model ($\Delta\chi^2=10.19, p<.01$). In this model, the estimated average approach coping score at baseline was about 41, and rate of change in approach coping responses was one of moderate decline ($Int_S=-.20, p<.01$). There was statistically significant variability in participants' average level of approach coping at baseline ($Var_I = 80.82, p < .01$), and in their rate of change in approach coping ($Var_S = 0.11, p < .01$). However, there was no statistically significant covariation between initial levels of approach coping and rate of change over time in approach coping responses ($COV_{IS} = -.42, p = .11$).

As subsidiary analyses (not shown), we estimated unconditional linear growth models of 20-year change in each of the four CRI subscales comprising approach coping. Results indicated patterns of statistically significant decline in three of the approach coping subscales: logical analysis ($Int_S = -.09, p < .01$), problem solving ($Int_S = -.05, p < .01$), and positive reappraisal ($Int_S = -.04, p < .01$), but not guidance and support-seeking ($Int_S = -.01, ns$).

Results in Table 2 show that women used somewhat more approach coping at initial assessment than did men (i.e., $B_I = 2.51; p < .01$), but gender had no influence on the rate of change in approach coping over the next 20 years. Individuals who tended to view stressors as threats were engaged in more approach coping at initial assessment $B_I = 1.91; p < .01$; however, threat appraisal and stressor characteristics had no other effects on participants' 20-year approach coping trajectories.

Regarding baseline resource deficiencies, having more depressive symptoms and more health problems at baseline were associated with more use of approach coping responses ($B_I = .10, p < .01$ and $B_I = .29, p < .05$, respectively); having fewer financial resources at baseline promoted a faster rate of decline approach coping over time ($B_S = -.03, p < .01$).

In the simultaneous predictive model, three participant characteristics were significantly associated with initial levels of approach coping: more threat appraisal ($B_I=1.80, p<.05$), more social resources ($B_I=.78, p<.01$), and more depressive symptoms ($B_I=.14, p<.01$). Two characteristics known at late-middle-age predicted subsequent change in approach coping: more social resources tended to hasten decline in approach coping ($B_S=-.02, p<.05$), as did having fewer financial resources ($B_S=-.04, p<.01$).

Independent of all other variables entered into the simultaneous predictive model, decline over time in approach coping remained statistically significant ($Int_S = -.40, p<.01$). Overall model fit was $-2LL = 18671.6$; $AIC=18723.6$. Taken together, the predictors of approach coping trajectories accounted for 13% of the variance in their intercepts, 40% of the variance in their slopes, and 13% of with-in person variance in the trajectories, above and beyond that accounted for unconditional linear change in approach coping.

Avoidance Coping

Multilevel models of avoidance coping trajectories are shown in Table 3. The unconditional means model of avoidance coping shows that the overall mean for avoidance coping is significantly greater than zero; the intra-class correlation for avoidance coping is .48, indicating that almost half of the variance in levels of avoidance coping are accounted for by differences among participants, and that there are moderately high correlations among residuals of the repeated measurements of avoidance coping. The unconditional linear growth model fit the data significantly better than did the unconditional means model ($\Delta\chi^2 = 55.21, p<.01$), and showed that the average avoidance coping score at baseline was about 21. It showed also that avoidance coping responses declined significantly ($Int_S = -.09, p<.01$) over the course of 20 years. There was statistically significant variability in participants' avoidance coping at baseline ($Var_I = 62.78, p<.01$) and in rate of change over time in avoidance coping ($Var_S = 0.06, p<.01$). There also was statistically significant covariation between initial level of avoidance coping and its rate of change over time ($COV_{IS} = -.88, p<.01$).

Results of subsidiary analyses (not shown) indicated patterns of statistically significant decline in most of the CRI avoidance coping subscales: cognitive avoidance ($Int_S = -.02, p<.01$), seeking alternative rewards ($Int_S = -.03, p<.01$), and emotional discharge ($Int_S = -.06, p<.01$). However, the avoidance coping strategy of resigned acceptance showed a small but statistically significant rate of increase ($Int_S = .02, p<.01$) over the 20-year interval.

Younger age, threat appraisal, and higher stressor severity, were each associated with more use of avoidance coping at baseline ($B_I = -.24, p<.05$; $B_I = 4.19, p<.01$; $B_I = .10, p<.01$, respectively), as were the resource deficiencies of baseline drinking problems ($B_I = 2.38, p<.01$), more depressive symptoms ($B_I = .37, p<.01$), more health problems ($B_I = .81, p<.01$), and having fewer financial resources ($B_I = 1.20, p<.01$). In contrast, the positive resources of support from family and friends was associated with less use of avoidance coping strategies ($B_I = -.27, p<.01$). More threat appraisal, and having drinking problems, more depressive symptoms, and fewer financial resources at baseline were associated with a faster rate of decline in use of avoidance coping over the 20-year study interval ($B_S = -.08, -.13, -.01, -.03$, respectively, $p<.01$).

In the simultaneous predictive model of avoidance coping responses, five participant characteristics were significantly associated with higher initial levels of avoidance coping: female gender ($B_I = 2.35, p<.01$), more threat appraisal ($B_I = 2.09, p<.01$), higher stressor severity ($B_I = 1.80, p<.05$), more depressive symptoms ($B_I = .34, p<.01$), and fewer financial resources ($B_I = .74, p<.01$). Two characteristics known at late-middle-age influenced subsequent change in avoidance coping: more depressive symptoms ($B_S = -.01, p<.01$) and

fewer financial resources ($B_S = -.03$, $p < .01$) contributed to faster decline in avoidance coping strategies.

Independent of all other variables entered into the simultaneous predictive model, decline over time in avoidance coping remained statistically significant ($Int_S = -.22$, $p < .01$). Model fit was $-2LL = 17319.4$; $AIC = 17371.4$. The overall predictive model accounted for 43% of the variance in the baseline intercepts, and 45% of the variance in rate of change in, participants' 20-year avoidance coping trajectories. It accounted for about 13% of the within-person variation in 20-year trajectories over and above the unconditional linear growth model for avoidance coping.

Discussion

Almost everything known about later-life coping change has been inferred from cross-sectional studies of age differences in older adults' coping responses, and no one has examined predictors of older adults' long-term coping trajectories. We sought to extend knowledge in this area by describing older adults' 20-year, intra-individual coping trajectories, and by showing how two sets of predictors (appraisal and stressor characteristics; gender, personal and social resources) influence level and rate of change in these trajectories.

Late-Life Change in Coping

In general, older adults declined moderately over the course of 20 years in their use of both approach and avoidance coping responses. This is consistent with results of previous cross-sectional studies of age difference in coping (Aldwin et al., 1996; Irion & Blanchard-Fields, 1987; Felton & Revenson, 1987) that suggest older adults reduce their use of both approach coping strategies and avoidance coping strategies as they grow older. One interpretation of this pattern is that, as they grow older, individuals have less energy to devote to coping. Another is that, as they age, people become increasingly more judicious and efficient in application of coping strategies (Aldwin, 2007). For example, with advancing age, individuals may increasingly engage in proactive or anticipatory coping that prevents stressor occurrence (Aspinwall & Taylor, 1998; Greenglass, 2002), resulting in less need to cope. By virtue of accrued experience with stressors and learned application of "best coping practices", older adults may achieve successful stressor resolution, and other beneficial outcomes, with less coping effort than do younger adults (Aldwin, 2007; Brennan, Schutte, & Moos, 2006).

This general longitudinal pattern of decline in coping is suggestive of aging-related change in coping, but we hesitate to conclude that it is evidence of intrinsic developmental change in coping. We found considerable variation attributable to between-person differences in levels of approach coping and avoidance coping, and in the average sample pattern of decline in coping trajectories. Moreover, the general pattern of decline in coping responses was not completely uniform across coping strategies; participants did not decline over time in use of guidance- and support-seeking, and showed moderate increase over time in use of resigned acceptance coping.

We hesitate also to conclude that our findings are evidence that coping becomes more "effective" or "adaptive" in later life. Patterns of coping alone provide insufficient evidence of this. They need to be linked to outcomes, such as successful stressor resolution, and better health and social functioning, to demonstrate that more effective or adaptive coping has occurred (Brennan et al., 2006; Harnish, Aseltine, & Gore, 2000). Overall, we conclude that a general downward trend in use of most coping responses may be the normative pattern of coping change in later life, but there is noteworthy variability in this pattern, and it remains

to be demonstrated whether it reflects intrinsic adult development or use of increasingly more “adaptive” coping responses with age.

Predictors of Coping Trajectories

Intra-class correlations showed that there is considerable between-person variation in approach coping and avoidance coping that may be predictable from individuals’ personal characteristics and life context. Previous theory and empirical research findings helped us to identify what these predictors might be.

Stress and coping theory posits that appraisal, stressor characteristics, and coping responses are closely intertwined (e.g., Aldwin, 2007; Lazarus & Folkman, 1984); thus, we expected that threat appraisal, and type and severity of stressors, would be associated in predictable ways with the longitudinal course of later-life coping. In partial fulfillment of our expectations, simultaneous predictive models showed that, at initial assessment, individuals with a stronger tendency to appraise stressors as a threat were more likely to engage in both approach and avoidance coping responses, and higher stressor severity was associated with more avoidance coping. However, independent of other variables, threat appraisal and stressor severity had no influence on rate of change in approach and avoidance coping. Also contrary to expectation, having a preponderance of interpersonal stressors did not influence level or rate of change in participants’ coping response trajectories. This runs counter to expectations raised by previous research (e.g., Birditt & Fingerman, 2005; Blanchard-Fields et al., 1997; Lawton et al., 1992) but is consonant with findings indicating that there is considerable consistency in individuals’ preferred coping strategies independent of the type of stressor they encounter (Fairbank, Hansen, & Fitterling, 1991; Jorgensen, Dusek, Richards, & McIntyre, 2009; Moos, Brennan, Schutte, & Moos, 2006).

This study may have underestimated the influence of threat appraisal, stressor severity, and type of stressor on older adults’ 20-year coping trajectories. Our measures of these constructs were global averages of participants’ appraisal and stressor experiences over five waves of data collection, and, with respect to type of stressor, limited to a very broad categorization, predominance of interpersonal stressors versus all other types of focal stressors. Time-varying measures of threat appraisal and stressor characteristics may have better explained the course of participants’ 20-year coping trajectories. For example, subsidiary analyses showed that threat appraisal and risk of drinking problems declined somewhat over the 20-year study interval; changes such as these may help to explain 20-year decline in use of avoidance coping in this sample. However, use of time-varying measures as predictors would have resulted in loss of temporal precedence between baseline predictors and trajectory outcomes, a key strength of our study design; it is difficult to interpret causality whenever time-varying predictors are used to explain intra-individual behavioral trajectories (Singer & Willet, 2003).

As we predicted, participants who entered later life with resource deficiencies, such as more depressive symptoms and health problems, and fewer financial resources, engaged at baseline in more approach and in more avoidance coping. In the simultaneous predictive models, more baseline depressive symptoms remained a significant predictor of more use of both approach and avoidance coping, and having fewer financial resources at baseline was associated with more use of avoidance coping. Also as predicted, individuals with more interpersonal support from family members and friends were less likely to engage in avoidance coping strategies, independent of other variables. These results are consistent with previous research (e.g., Holahan & Moos, 1987; Kraaij et al., 2002; Mann & Zautra, 1989; Moos, Brennan, Fondacaro, & Moos, 1990; Terry, 1994) suggesting that individuals who have resource deficiencies are likely to be in circumstances that require them to exert more

effort toward all types of coping strategies, and that social resources can help steer them away from reliance on avoidance coping to manage stressors.

Participants' resources at baseline in late-middle age also had some influence on subsequent rates of change in their 20-year coping trajectories. Independent of other factors, having more social resources at baseline in late-middle-age promoted faster decline in approach coping. Plentiful social resources in late-middle-age, in the form of instrumental and emotional help from family and friends, may have reduced participants' need to exert strong, continued approach coping efforts to resolve their stressors.

Independent of other factors, having fewer financial resources at baseline in late-middle-age contributed to a faster rate of decline in subsequent use of both approach coping and avoidance coping, suggesting that having sufficient material means helps to sustain a wide variety of coping efforts. It also is possible that having fewer financial resources in late-middle-age foreshadowed less complex (e.g. occupation of fewer social roles) and less "stress-generating" subsequent social environments than was the case for individuals who entered later life with more financial resources. This lowered demand might account for decreasing long-term levels of coping found among those with fewer baseline financial resources.

Contrary to expectation, more depressive symptoms at baseline in late-middle-age foreshadowed faster decline in avoidance coping. Perhaps having more depressive symptoms at late-middle-age enhances the likelihood of eventual successful resolution of difficult mid-life challenges, lowering subsequent need to use avoidance coping strategies. It also is possible that statistical regression to the mean accounts somewhat for this finding, with depression at baseline promoting "peak" avoidance coping use, which was then bound to decline over the next 20 years.

In the simultaneous predictive models, the downward trend in coping so readily apparent in the unconditional linear growth models of coping remained statistically significant, independent of all other variables in the model. This somewhat supports the idea that there may be an intrinsic developmental "core" to later-life coping trajectories. However, predictors known at baseline in late-middle-age accounted for a significant amount of variance in participants' coping trajectories, suggesting as well that later life coping trajectories are malleable, influenced by participants' personal and social resources when they enter later life, in late-middle-age.

Limitations

This study has several limitations. The coping trajectories described here have limited generalizability because our sample comprised mainly White participants, individuals between the ages of 55 and 65 at baseline, and adults belonging to a particular historical cohort. Moreover, 20-year attrition from the sample contributed to 20-year coping trajectories that are likely unique to our sample. Further research is needed to determine the generalizability of the coping trajectories described here to more racially diverse samples, samples that cover different late-life age ranges and cohorts, and that undergo different attrition processes.

Our data analytic approach and study design had drawbacks. Statistical regression to the mean may have influenced our findings; for example, multilevel regression results showed significant covariation between higher baseline levels of avoidance coping and faster rate of decline over time in avoidance coping. More broadly, our use of multilevel modeling placed constraints on what we could learn about later-life coping processes. In multilevel modeling, multi-wave behavioral measurements are transformed into longitudinal trajectories, which

become new, unitary dependent variables that are the focus of description and prediction. Offsetting the merits of this analytic approach is loss of information about relationships among variables measured at each individual assessment point in a longitudinal study. Variable-focused techniques, such as structural equation modeling, are needed to learn about time-lagged associations among appraisal, stress, coping, and outcomes in later life. Finally, we collected stressor and coping information from participants over relatively long assessment intervals, precluding consideration of short-term stress and coping processes unique to later life. Research designs that encompass multiple measurements, over short time intervals, would help advance our understanding of stress and coping processes in later life.

Notwithstanding these limitations, this study makes important contributions to knowledge about coping change in later life. It extends research in this area by advancing beyond cross-sectional designs to describe longitudinal intra-individual change in coping in later life. Moreover, it demonstrates that older adults' long-term coping trajectories are modifiable by personal and social resources known at entry to later life, in late-middle-age. Overall, this study lays important groundwork for future research into key issues concerning coping change in later life: whether decline in coping in late life is indeed normative; the extent to which late-life coping patterns reflects intrinsic adult developmental change; and whether coping efforts can be influenced, especially prospectively, to follow a long-term course that will promote better health and well-being for older adults.

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Table 1

Descriptive Statistics for Approach and Avoidance Coping across 20-Years (N = 719)

Wave of Data Collection	Approach Coping Mean (SD)	Avoidance Coping Mean (SD)
Baseline	41.51 (12.94)	21.77 (10.81)
1-year follow-up	40.05 (12.55)	20.61 (10.47)
4-year follow-up	40.23 (13.11)	20.40 (10.60)
10-year follow-up	38.54 (13.56)	19.44 (10.65)
20-year follow-up	37.06 (14.01)	19.62 (10.51)

Table 2
Unconditional Growth Models and Individual Predictors of 20-year Approach Coping Trajectories

	Approach Coping										
	Fixed Effects					Random Effects					
	Initial Status			Rate of Change							
	Int _i	(SE)	B _i	(SE)	Int _S	(SE)	B _S	(SE)	Var _i	COV _{IS}	AIC
Unconditional means model	39.41 ^{**}	(.37)							78.68 (5.28)		26756.5
Unconditional growth model	40.79 ^{**}	(.40)			-.20 ^{**}	(.02)			80.82 (6.17)	-.42 (.29)	26660.6
Predictors											
Demographic											
Age at baseline	43.26 ^{**}	(7.6)	-.04	(.13)	.05	(.46)	-.00	(.01)	80.80 (6.17)	-.42 (.29)	26664.0
Gender	39.67 ^{**}	(.54)	2.51 ^{**}	(.80)	-.22 ^{**}	(.03)	.05	(.05)	79.21 (6.08)	-.44 (.29)	26649.6
Appraisal & Stressor Characteristics											
Threat appraisal	41.29 ^{**}	(.42)	1.91 ^{**}	(.66)	-.20 ^{**}	(.03)	.06	(.04)	76.25 (6.19)	-.23 (.29)	23833.6
Stressor severity	41.19 ^{**}	(.41)	.08	(.05)	-.20 ^{**}	(.02)	.00	(.00)	77.12 (6.16)	-.18 (.28)	24553.6
Interpersonal stressors	40.70 ^{**}	(.54)	.20	(.81)	-.21 ^{**}	(.03)	.03	(.05)	80.79 (2.80)	-.42 (.29)	26664.1
Positive Resources											
Social resources	40.73 ^{**}	(.44)	.59	(.13)	-.20 ^{**}	(.03)	-.01	(.01)	79.43 (6.17)	-.24 (.32)	21610.8
Resource Deficiencies											
Drinking problems	40.81 ^{**}	(.51)	-.06	(.83)	-.18 ^{**}	(.03)	-.06	(.05)	80.80 (2.80)	-.42 (.29)	26660.2
Depressive symptoms	40.80 ^{**}	(.40)	.10 ^{**}	(.03)	-.20 ^{**}	(.02)	.00	(.00)	79.06 (6.08)	-.45 (.29)	26593.1
Health problems	40.80 ^{**}	(.40)	.29 [*]	(.14)	-.20 ^{**}	(.02)	.01	(.01)	80.04 (2.80)	-.44 (.29)	26656.3
Fewer financial resources	41.49 ^{**}	(.97)	.16	(.22)	-.30 ^{**}	(.06)	-.03 [*]	(.01)	81.54 (6.23)	-.44 (.30)	25967.4

Notes. Int_i = estimated intercept at initial status (i.e., baseline); Int_S = estimated intercept for the rate of change (i.e., slope); SE=standard error; B_i=increment in initial status for every one unit increase in the predictor; B_S=increment in rate of change for every one unit increase in the predictor; Var_i=variance in estimated intercept at initial status; Var_S=variance in estimated rate of change; COV_{IS}=covariance between the residuals for initial status and rate of change; -2LL=log likelihood fit index; AIC=Akaike Information Criterion;

*
p < .05,

**
p < .01.

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