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Defense mechanism differences between younger and older adults: A cross-sectional investigation

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Abstract
This study evaluated defense mechanism differences between younger and older adults and also assessed the relationship between defense mechanisms and perceived stress, in order to provide evidence of construct validity of a self-reported defense mechanisms scale. Community-dwelling younger ($n = 259$; M age = 19.7 years) and older adults ($n = 69$; M age = 70.8 years) completed the Defense Style Questionnaire and the Perceived Stress Scale. Whereas there were no age differences on adaptive defense mechanisms, younger adults scored higher than older adults on the Acting Out, Passive-Aggression, and Regression maladaptive defense mechanism scales. Maladaptive defenses were significantly and positively correlated ($r = .57$) with perceived stress. Cross-sectional results suggest a general stability of adaptive defense mechanisms across the lifespan but a lessening of maladaptive defense mechanisms with advancing age. These results dispel the myth that old age is associated with inevitable psychological impairment and suggest some specific positive psychological adaptations with age. The correlational findings provide partial support for the construct validity of a self-report measure of defense mechanisms.

Introduction

Defense mechanisms have a long and rich history in psychology, dating back at least as far as Freud's classic *The Interpretation of Dreams* (1900/1956). Empirical studies of defenses and theoretical expositions have linked them to a host of clinical topics including identity formation in early adulthood (Cramer, 1998), child abuse treatment (Thomas, 2003), coping with social rejection (MacDonald & Leary, 2005), play therapy with children (Benveniste, 2005), domestic violence (Zosky, 2003), the need for self-esteem (Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004), and the process of psychotherapy (Clark, 1998; Plutchik, 2000). Recently, the measurement of defensive functioning has been proposed as a domain for further study and possible inclusion as part of the multiaxial classification system of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-IV-TR*; American Psychiatric Association, 2000). According to the *DSM-IV-TR*, defense mechanisms are defined as 'automatic psychological processes that protect the individual against anxiety and from the awareness of internal or external dangers or stressors' (p. 807). The *DSM-IV-TR* lists 31 defense mechanisms and provides a glossary of their definitions. Defenses are known to range on a continuum from being maladaptive or immature to being adaptive or mature. Defenses are similar to coping styles as both are adaptational processes, although coping has often been conceptualized as reflecting more conscious strategies and having volitional control (Cramer, 2000; Vaillant, 2000).

Little is known, however, about the extent to which defense mechanisms are stable or change across the lifespan and whether a self-report approach to the assessment of defense mechanisms is valid. The popular Five-Factor Model of personality (e.g., Costa & McCrae, 2006) suggests the general long-term stability of major personality dimensions (Costa & McCrae, 1994, 2002) which are conceptually related to defenses. However, a host of empirical studies and theoretical articles have suggested that many adults become more mature in their coping as they advance into later life, specifically showing enhanced abilities to regulate their emotions, control the way they express their emotions, understand their emotional experiences, and develop effective strategies of mastery of gains and losses (Baltes, 1997; Carstensen, Isaacowitz, & Charles, 1999; Carstensen & Turk-Charles, 1994; Lawton, Kleban, Rajagopal, & Dean, 1992; Labouvie-Vief & Hakim-Larson, 1989).

In an early cross-sectional study of coping, McCrae (1982) reported that older adults were less

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likely to use hostile reactions and fantasy as coping styles compared to younger adults. Folkman, Lazarus, Pimley and Novacek (1987) found that older adults used more positive reappraisal and distancing as coping strategies whereas younger adults tended to seek social support more often and used more confrontive coping styles. Diehl, Coyle and Labouvie-Vief (1996) found that older adults used a combination of coping and defense strategies indicative of greater impulse control and they tended to evaluate conflict situations more positively than younger adults. Segal, Hook and Coolidge (2001) found lower levels of psychological distress and better dispositional coping among older adults compared to younger adults. Objectives of the present study were to evaluate defense mechanisms among younger and older persons and assess the relationship between defense mechanisms and subjective stress in an attempt to provide evidence of construct validity of a self-reported defense mechanism inventory.

Method

Participants and procedure

Undergraduate students were recruited from psychology classes. They received extra credit for their participation or for their recruitment of older adult family members. Older adults were also recruited through senior centers and newspaper advertisements. Participants ($N = 328$) completed anonymously a questionnaire packet. Two groups were formed based on age.

Younger adults. This group ranged from 17 to 29 years of age ($n = 259$; M age $= 19.7$ years; 78% female; 78% Caucasian). Education ranged from 12 to 17 years ($M = 13$ years).

Older adults. This group ranged from 60 to 85 years of age ($n = 69$; M age $= 70.8$ years; 65% female; 78% Caucasian). Education ranged from 8 to 21 years ($M = 13$ years).

Measures

Defense Style Questionnaire (DSQ). The DSQ (Bond, 1984) is an 88-item self-report measure in which respondents answer using a 9-point Likert scale ranging from *Strong Disagreement* (1) to *Strong Agreement* (9). Higher scores indicate higher use of the defense. According to the DSQ developers, the term *defense mechanism* is used to describe unconscious intrapsychic processes as well as behaviour that is either consciously or unconsciously designed to reconcile internal drive with external demands (Bond, Gardner, Christian, & Sigal, 1983). The DSQ was created to make intrapsychic processes operational so that defenses could be studied objectively. The DSQ evaluates defense mechanisms through self-appraisals of conscious derivatives of defenses, specifically measuring behaviours, attitudes, and beliefs that are reflective of 26 defense mechanisms. Factor analyses generated four major categories of defenses that were ranked on a developmental continuum from immature to mature: maladaptive action, image-distorting, self-sacrificing, and adaptive (Bond et al., 1983; Bond & Wesley, 1996). This ranking was supported empirically by correlations of the factors with separate measures of ego development and ego strength. Twelve other defense mechanisms were also identified from items that generally did not correlate significantly with any of the four primary factors and these are called non-factor defenses (Bond & Wesley, 1996). However, some non-factor items load on the primary factor scales although they do not load on the subscales of the factor. DSQ scales and sample items are provided in Table I. The DSQ factors have moderate test-retest correlations after six months ranging from.68 (self-sacrificing) to.73 (maladaptive action) (Bond & Wesley).

Perceived Stress Scale (PSS). The PSS (Cohen, Kamarck, & Mermelstein, 1983) is a 10-item self-report measure designed to assess the degree to which situations in one's life are appraised as stressful, with higher scores indicating higher stress. The PSS was designed for non-clinical samples and has ample evidence of reliability and validity (Cohen et al.). In the present sample, internal consistency of the PSS was good ($\alpha = 0.87$).

Results

Cross-sectional analyses

Independent t tests were conducted on mean DSQ scale scores among younger and older adults (see Table II). Regarding maladaptive defense mechanisms, three significant group differences emerged: younger adults were higher than the older adults on Acting Out, Passive-Aggression, and Regression. Effect sizes (Cohen's d) were small for Acting Out and Regression and moderate for Passive-Aggression. Regarding adaptive defense mechanisms, no significant differences were found between the age groups. Effect sizes for the three subscales (Humor, Sublimation, and Suppression) were small.

Regarding image-distorting defenses, no group differences emerged and the effect sizes were all less than small. For the self-sacrificing defenses, older adults were significantly higher on Pseudoaltruism, and the effect size was small. Among non-factor defenses, younger adults were significantly higher on three scales (Affiliation, Fantasy, and Somatization) with small effect sizes whereas older adults were

Table I. DSQ Factors, scales, and representative items.

Maladaptive action factor	
Acting Out (5)	I often act impulsively when something is bothering me.
Inhibition (5)	I'm very shy about standing up for my rights with people.
Passive-Aggression (5)	If my boss bugged me, I might make a mistake in my work or work more slowly so as to get back at him.
Projection (9)	People tell me I have a persecution complex.
Regression (2)	I act like a child when I'm frustrated.
Withdrawal (3)	I withdraw from people when I feel hurt.
Image-distorting factor	
Omnipotence-Devaluation (3)	I pride myself on my ability to cut people down to size.
Primitive Idealization (2)	There is someone I know who can do anything and who is absolutely fair and just.
Splitting (3)	As far as I am concerned, people are either good or bad.
Self-sacrificing factor	
Pseudoaltruism (1)	I get satisfaction from helping others and if this were taken away from me I would get depressed.
Reaction formation (5)	If someone mugged me and stole my money, I'd rather he'd be helped than punished.
Adaptive factor	
Humor (3)	I'm usually able to see the funny side of an otherwise painful predicament.
Sublimation (1)	I work out my anxiety by doing something constructive and creative like painting or woodwork.
Suppression (2)	I'm able to keep a problem out of my mind until I have time to deal with it.
Non-factor defense mechanisms	
Affiliation (2)	When I feel bad, I try to be with someone.
Anticipation (2)	If I can predict that I'm going to be sad ahead of time, I can cope better.
Consumption (3)	When I'm depressed or anxious, eating makes me feel better.
Denial (4)	My philosophy is 'Hear no evil, do no evil, see no evil.'
Fantasy (1)	I work more things out in my daydreams than in my real life.
Help-Rejecting Complaining (3)	No matter how much I complain, I never get a satisfactory response.
Isolation (4)	When someone close to me dies, I don't feel upset.
Omnipotence (3)	I've got special talents that allow me to go through life with no problems.
Projective-Identification (1)	Someone is robbing me emotionally of all I've got.
Somatization (2)	I get physically ill when things aren't going well for me.
Task Orientation (2)	Hard work makes me feel better.
Undoing (3)	After I fight for my rights, I tend to apologize for my assertiveness.

Note: The number in parentheses is the number of items comprising the scale. A 'Lie' scale with 8 items measures defensiveness but items do not load on any defense mechanism scale.

higher on one scale (Denial) with a medium effect size.

DSQ construct validity

It was predicted that maladaptive defense mechanisms would have a significant positive relationship with perceived stress and that adaptive defense mechanisms would have a significantly negative relationship with perceived stress. Simple correlations were computed between the DSQ defense mechanism scales and the PSS total stress scale (see Table III). As expected, the Maladaptive Factor Total score was strongly positively correlated with participants' current stress level ($r = 0.57$). Each of the six maladaptive subscales were significantly positively correlated with the PSS, and the magnitudes were small to medium (ranging from 0.29 for Inhibition to 0.54 for Acting Out). These data indicate that higher use of these defenses is related to higher perceptions of stress. In contrast, the Adaptive Factor Total score was not significantly related to stress. The direction was negative (as expected) but the magnitude was small. Moreover, only one of the three subscales were significantly related to the PSS. These results indicate that maladaptive defense mechanisms were moderately related to stress in the predicted direction, whereas adaptive defense mechanisms were minimally related to stress, thus providing partial support for the predictions.

Examination of the remaining defense mechanism scales showed four other significant effects ($p < .01$): Fantasy, Help-Rejecting Complaining, Somatization, and Undoing were all significantly and positively related to stress, and the effect sizes were medium. The general pattern was that higher use of these defenses appears related to higher levels of stress.

Discussion

The aims of this study were to assess age-related differences in defense mechanisms and to evaluate the validity of a self-report measure of defenses. The cross-sectional results showed no age differences on any of the adaptive defense mechanism scales, suggesting a general stability of adaptive defense mechanisms across the lifespan. Similar to core dimensions of personality, it may be that adaptive defensive strategies are formed relatively early in life

Table II. Comparison between younger ($n = 259$) and older ($n = 69$) adults on DSQ Defense Mechanism Scales.

DSQ	Younger *M* (*SD*)	Older *M* (*SD*)	*t*-value	*df*	*p*	Cohen's *d*
Maladaptive action factor	117.4 (31.6)	113.0 (36.8)	0.98	326	0.327	0.13
Acting Out	20.6 (7.9)	18.3 (8.1)	2.06	326	**0.040**	0.29
Inhibition	20.1 (7.7)	19.3 (8.8)	0.74	326	0.462	0.10
Passive-Aggression	18.4 (6.3)	15.2 (6.2)	3.73	326	**0.000**	0.51
Projection	21.9 (9.0)	20.8 (10.7)	0.88	326	0.381	0.11
Regression	7.2 (3.4)	6.3 (3.8)	2.09	326	**0.037**	0.25
Withdrawal	17.8 (5.6)	16.4 (6.8)	1.81	326	0.071	0.22
Image-distorting factor	49.8 (15.6)	51.1 (17.5)	−0.62	326	0.539	0.08
Omnipotence-Devaluation	7.8 (4.2)	8.3 (4.5)	−0.91	326	0.366	0.11
Primitive Idealization	9.7 (4.1)	9.6 (5.1)	0.15	327	0.882	0.02
Splitting	9.8 (4.7)	10.6 (5.6)	−1.19	326	0.237	0.15
Self-sacrificing factor	37.0 (9.1)	38.0 (11.2)	−0.74	326	0.461	0.10
Pseudoaltruism	6.3 (2.0)	7.0 (2.1)	−2.39	325	**0.017**	0.34
Reaction Formation	24.0 (7.1)	22.9 (8.8)	1.09	326	0.275	0.14
Adaptive factor	41.0 (7.2)	41.9 (8.1)	−0.89	326	0.376	0.13
Humor	17.0 (4.5)	16.0 (4.5)	1.75	326	0.081	0.22
Sublimation	5.3 (2.4)	5.9 (2.7)	−1.88	324	0.085	0.23
Suppression	10.9 (3.5)	11.7 (3.8)	−1.73	326	0.062	0.22
Non-factor defense mechanisms						
Affiliation	10.9 (3.9)	9.3 (4.2)	2.96	326	**0.003**	0.39
Anticipation	11.1 (3.5)	11.3 (4.3)	−0.24	326	0.813	0.05
Consumption	8.6 (5.1)	8.7 (4.3)	−0.12	326	0.905	0.02
Denial	17.6 (4.2)	19.6 (5.1)	−3.40	326	**0.001**	0.43
Fantasy	4.0 (2.6)	3.0 (2.4)	2.83	326	**0.005**	0.40
Help-Reject. Complaining	8.9 (5.3)	10.2 (5.6)	−1.80	326	0.072	0.24
Isolation	13.4 (6.5)	14.9 (6.1)	−1.68	326	0.094	0.24
Omnipotence	10.1 (4.6)	10.1 (5.1)	−0.12	326	0.905	0.00
Projective-Identification	2.3 (1.9)	2.2 (2.0)	0.29	326	0.774	0.05
Somatization	7.2 (4.0)	6.1 (3.8)	2.03	326	**0.043**	0.28
Task Orientation	12.1 (3.4)	12.9 (3.7)	−1.76	326	0.080	0.23
Undoing	9.5 (4.7)	9.5 (4.6)	−0.02	326	0.987	0.00

Note: Primary factor total scores are greater than the sum of the subscales because some non-factor items are included in the primary factor total scores.

and continue into later life. In support of this notion, Feldman, Araujo and Steiner (1996) reported that age differences in defenses can be seen between early- and mid-adolescence but not later in life. Vaillant, Bond and Vaillant (1986) reported that defense mechanisms measured at the age of 47 were significantly correlated with those measured six to eight years later. The also found that childhood traits measured during junior high school, such as IQ, emotional maturity, and boyhood competence, were significantly associated with defenses in midlife. Our findings support the hypothesis that adaptive defense mechanisms are relatively stable characteristics throughout the lifespan. This does not imply that individuals cannot change their coping or defense mechanisms, but that adults generally retain adaptive strategies developed earlier in life. This stability may be caused by underlying biological processes that become relatively fixed early in life and are relatively immune to socialization processes.

In contrast to the stability of adaptive defense mechanisms with age, younger adults were more prone than older adults to use maladaptive defense mechanisms. Higher scores on the Acting Out scale among younger adults may suggest that they are less able to manage their impulses and set their own limits. Indeed, some of the stereotypical images of younger adults include acts of delinquency, lack of discipline, and aggression, and our findings suggest that these behaviours when used as defense mechanisms are likely to diminish with advancing age. Our findings are suggestive of increased abilities among older adults to manage more effectively their impulses, an idea consistent with Diehl et al. (1996) who found greater impulse control among older adults and McCrae (1982) who found less hostile methods of coping among older adults. With advancing age, there may also be fewer opportunities for delinquency as well as less physical ability to carry out impulsive and aggressive activities. Indeed, among individuals with antisocial personality disorder, the overt behavioural manifestations of the disorder are known to decrease with advancing age although the underlying psychopathology is likely to remain present (see Segal, Coolidge, & Rosowsky, 2006). In contrast, the finding may also be explained by

Table III. Correlations between DSQ Defense Mechanism Scales and the PSS Total Stress Score ($N = 328$).

DSQ	PSS Total score
Maladaptive action factor	.57**
Acting out	.54**
Inhibition	.29*
Passive-Aggression	.41**
Projection	.43**
Regression	.44**
Withdrawal	.30**
Image-distorting factor	.25*
Omnipotence-Devaluation	.13
Primitive Idealization	.15
Splitting	.24*
Self-sacrificing factor	.16
Pseudoaltruism	.07
Reaction Formation	.12
Adaptive factor	−.17
Humour	−.05
Sublimation	−.14
Suppression	−.23*
Non-factor defense mechanisms	
Affiliation	.21*
Anticipation	.07
Consumption	.21*
Denial	.08
Fantasy	.31**
Help-Rejecting Complaining	.40**
Isolation	.11
Omnipotence	.04
Projective-Identification	.28*
Somatization	.46**
Task Orientation	−.08
Undoing	.31**

* $p < .05$.
** $p < .01$.

selective mortality effects: Those prone to severe acting out are at risk for early death.

We found that younger adults were also higher than older adults on two other maladaptive defense scales, Passive-Aggression and Regression. Passive-aggressive behaviours can be described as a resistance or resentment toward authority, demands, and responsibility through passivity. It is possible that younger adults are more prone to defy expectations of others due to the normal developmental tasks of testing limits and increasing their independence. Alternatively, older adults are or have recently been in positions of authority where passive aggressive resentment is less likely to be bred. Regression is defined as a return to childish and immature behaviours, such as nail-biting, childish bragging, and clinging behaviours. It is possible that the age-difference emerged because regressive behaviours may be less age-inappropriate and less likely to be punished among younger adults whereas these behaviours may have little adaptive value and be viewed by others as more pathological among older adults.

Similar to our findings, Costa, Zonderman and McCrae (1991) reported a significant negative correlation between age and the Maladaptive Factor of the DSQ in their longitudinal samples of individuals ranging in age from 20 to 92 years. They also reported a positive correlation between age and the Adaptive Factor but the magnitude did not reach significance. Our findings of generally less maladaptive defenses among older adults are consistent with established theories of greater maturity and emotional control among individuals in later life (e.g., Carstensen et al., 1999) and increased resiliency and self-regulatory capacities of older adults including cognitive-affective complexity. According to Labouvie-Vief and Medler (2002) as life experience accumulates, increasingly complex executive cognitive systems mature which allow older individuals to better coordinate and mange their emotional experiences. Cognitive-affective complexity allows older adults to draw from their life experiences and access rich schemas from which to interpret and manage their experiences, both positive and negative. It is likely this process

translates into less maladaptive coping behaviours or, similarly, less maladaptive defensive strategies.

Similarly, Baltes' (1997) metatheory of development (the selection, optimization, and compensation [SOC] model) provides an important framework for understanding positive adaptations to the challenges of later life. Reductions in the use of maladaptive defenses may be considered consistent with this model. According to the model, as individuals age, they adapt by focusing their efforts on abilities that are central to them and have a greater chance of success while reducing their efforts in maintaining those abilities that are not as important. Through the process of selective optimization with compensation, older adults increase their capacity to exercise good judgment. As such, this process may help explain why older adults are less likely to act-out their frustrations, passively resist authority, and display immature and childish responses to stressful situations.

In classic works, Vaillant (1977, 1992) reported clear increases between adolescence and adulthood in the use of mature defense mechanisms, although the changes from early adulthood to midlife were less dramatic. Our findings extend those of Vaillant and suggest a decrease in maladaptive defenses from younger adulthood to later life. Sadly, many individuals still hold negative stereotypic views of aging, perceiving later life as being fraught with inevitable decline, impairment, rigidity, and loss of function, with minimal capacity for growth or improvement (Zarit, S.H. & Zarit, J.M. 1998). In contrast, our results help to dispel the myth that old age is associated with inevitable psychological impairment and, in fact, our findings suggest some specific positive psychological adaptations with age.

Regarding other defenses, we found that younger adults were higher on the Affiliation, Fantasy, and Somatization scales whereas older adults were higher on the Pseudoaltruism and Denial scales. The finding regarding somatization is particularly intriguing given the stereotypical image of older adults as being preoccupied with bodily ailments. However, because most older adults are known to suffer from at least one chronic illness, a case could be made that concern over bodily ills among many older adults is expected and understandable, and therefore does not necessarily reflect a unhealthy defensive strategy. The finding regarding denial is also interesting and may be explained in the context of socioemotional selectivity theory (e.g., Carstensen et al., 1999) which suggests that older adults strive to optimize positive affect and minimize negative affect. To the extent that some older adults do not attend to negative stimuli in their attempt to maintain positive moods, this behaviour may be captured on the DSQ as evidence of denial.

Another concept from which to view these results is that of heterotypic continuity, which emphasizes the continuity of changes across the lifespan (Caspi & Bem, 1990) and suggests that although the behavioural manifestation of a trait or attribute changes over time the underlying structure remains the same. In other words, heterotypic continuity implies continuity of the same behaviour, but in different form across stages of development. As applied to defense mechanisms, it is possible that individuals retain their basic core defenses with advancing age but manifest them in different ways and contexts, similar to how many aging individuals with personality disorders present with 'geriatric variants' of the prototypical disorders that are more consonant with the context of aging (for an in-depth examination of these issues, see Segal et al., 2006; see also Mroczek, Hurt, & Berman, 1999). Future research should determine whether changes in defense mechanisms across the lifespan represent qualitative distinctions or merely changes in degree or expression of the same underlying trait or process.

Regarding the relationship between defense mechanisms and stress, as predicted, higher scores on maladaptive defenses were significantly associated with higher stress scores. However, contrary to our expectations, higher scores on adaptive defenses were not associated with lower stress scores. One possibility is that adaptive defense mechanisms tap into areas associated with resiliency, hardiness, wisdom, and ingenuity that are not necessarily associated with stress levels but rather are more related to personal fulfillment. Our results regarding maladaptive defenses are consistent with the findings of Araujo, Ryst and Steiner (1999) who found among adolescents that maladaptive defense mechanisms were significantly and positively associated with stress. Our results also are consistent with Cramer's (2000) thoughtful theory of defense mechanisms, indicating that they are typically employed in reaction to anxiety and distress. Our results suggest that as stress increases, people are more likely to resort to maladaptive defense mechanisms regardless of age. An alternative hypothesis, however, is that as maladaptive defenses increase, so do corresponding levels of stress. By their nature, our correlation findings are unable to confirm whether defense mechanisms cause stress or vice versa. However, due to the expected relationships among the constructs, our findings do provide evidence of construct validity for a self-report measure of defenses in a sample of diverse ages. Notably, the pattern of correlations also supports the developmental hierarchy of the four DSQ factor scores because the Maladaptive Action Factor subscale correlations are more strongly positive than the Image-Distorting Factor subscale correlations which in turn are more strongly positive than the Self-Sacrificing Factor subscale correlations. In contrast, the Adaptive Factor subscales had negative (albeit small) correlations with stress, suggesting that this factor represents the most mature defenses.

A strength of this study was that we assessed numerous types of defenses, providing broad spectrum coverage of a host of psychological tactics that vary in their degrees of adaptation and harmfulness. Despite these positives, several limitations should be noted. First, the present study included a non-clinical population, which limits potential generalizability to clinical samples. The sample was a non-random convenience sample and there was also a much smaller group of older adults than younger adults. There was also little ethnic diversity, and certainly, future studies should investigate the effects of ethnic identity and culture on defensive psychological functions. Our study also relied solely on self-report measures. Researchers may consider using projective measures as well to examine concordance between objective and projective assessments of the same constructs across the lifespan. We also would not wish to confuse our cross-sectional findings, which speak to age differences, with longitudinal studies that more directly address age changes. Longitudinal studies are needed to clarify whether the age differences found in the present study are generational or maturational effects and to document more clearly the extent of change or stability in defense mechanisms across the adult lifespan.

Further research might investigate defenses in other age groups such as middle-aged adults (who face a unique set of stressors and developmental tasks; Helson & Soto, 2005) and also distinguish between the 'young-old' and the 'old-old'. Future studies might also evaluate the relationships among defenses and various forms of psychopathology (e.g., clinical disorders and personality disorders). Most extant studies in this area have focused on younger adults whereas data are sorely lacking among older individuals. Our further understanding of defense mechanisms in middle and later adult life is certainly worthy of further pursuit.

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