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When the “Golden Years” Turn Blue: Using the Healthy Aging Literature to Elucidate Anxious and Depressive Disorders in Older Adulthood

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Abstract

Current treatments for disorders of emotion, like pathological anxiety, are often less effective in older adults than in younger adults and have poorly understood mechanisms, pointing to the need for psychopathology models that better account for age-related changes in normative emotional functioning and the expression of disordered emotion. This article describes ways in which the healthy aging and emotion literature can enhance understanding and treatment of symptoms of anxiety and depression in later life. We offer recommendations for how to integrate the healthy aging literatures' theories and findings with psychopathology research and clinical practice, and highlight opportunities for future research.

Keywords

aging; emotion; anxiety; depression; dysregulation

The world's rapidly aging population poses a challenge to researchers and practitioners to develop, test, and disseminate more effective mental health treatments for older adults. Among community-dwelling adults age 65 and older, the 12-month prevalence rate of anxiety disorders is 7.0% (Gum, King-Kallimanis, & Kohn, 2009), and that of depression is slightly over 6% (Akincigil et al., 2011). Estimates of sub-diagnostic yet clinically significant symptoms among community-dwelling older adults are as high as 50% for anxiety (Schaub & Linden, 2000) and 8-16% for depression (Blazer, 2003). Left untreated, these symptoms can escalate to a diagnosable level and have a significant negative impact on physical health (e.g., Fiske, Wetherell, & Gatz, 2009; Lenze & Wetherell, 2009) and quality of life (Porensky & Carpenter, 2008).

Current treatments for anxiety disorders often do not work as well in older adults as they do in younger adults (Hendriks, Oude, Keijsers, Hoogduin, & Van Balkom, 2008). Further, in

the case of depression, there is little understanding of when particular types of treatments are preferable (Cuijpers, van Strate, & Smit, 2006) for older adults, partly because it is uncertain which mechanisms have been central to the success of these various treatments, and whether these mechanisms are necessary and/or sufficient factors for improving depression and anxiety symptoms in older adults. Critically, the theoretical frameworks underlying most treatments often do not account for normative age-related changes in functioning, life goals, and the expression of disordered emotion (though see Wetherell, Lenze, & Stanley, 2005; Wetherell, Sorrell, Thorp, & Patterson, 2005, for important exceptions). This article illustrates how drawing from theories and methods from the healthy aging and emotion literature can enhance the understanding and treatment of symptoms and correlates of anxiety and depression (in particular, avoidance, dependence, and cognitive biases) in later life.

To organize our integrative discussion of these literatures, we divide our work into three sections, reflective of behavioral, interpersonal, and cognitive domains. These domains' status as major traditions across diverse literatures affords a rich theoretical and empirical basis from which to illustrate potential gains from enhanced communication across fields. In the behavioral domain, we examine the psychopathology literature's depiction of avoidance as a risk or maintaining factor for anxiety and depression alongside the healthy aging literature's concept of adaptive goal selection. In the interpersonal domain, we describe how the healthy aging literature's research on the importance of environmental context can complement the view of extremely close (i.e., dependent) relationships as potential risk factors for anxiety and depression. Within these two domains, by juxtaposing seemingly contradictory conclusions from the psychopathology and healthy aging and emotion literatures, we highlight how "...psychological traits and processes are not inherently positive or negative; rather, their implications for well-being depend on the circumstances in which they operate" (McNulty & Fincham, 2012, p. 106). Last, in the cognitive domain, we look to cognitive control as a nexus between the two literatures where integration is well underway.

Of course, many (good) therapists already work collaboratively with their clients to determine the context and function of a behavior before deeming it as helpful or harmful. Thus, our recommendations are intended to serve as a reminder of the importance of this approach and to provide a first synthesis of key areas where the need to evaluate context and function is especially critical for understanding anxiety and depression in older adults.

Behavioral domain: Is it avoidance or niche picking?

Paul, a 73-year-old who was recently diagnosed with mild neurocognitive disorder, has begun to find his weekly bridge club meetings quite anxiety provoking. He now struggles to remember card play sequences, a skill which once came easily to him, and feels nervous and embarrassed in front of his friends. Paul decides to leave the bridge club and start volunteering for a local library, but misses the social connection he used to experience. Is this healthy?

A finding echoed throughout the psychopathology literature and numerous empirically supported treatments is that there is a strong link between avoidance and disorders of emotion (see Barlow, Allen, & Choate, 2004). However, a key principle of the healthy aging and emotion literature is that, as part of healthy aging, older adults select goals and activities from which to disengage in favor of engaging in preferred ones (Baltes & Baltes, 1990). This process of selection is described as a good use of available resources (e.g., cognitive abilities, time, energy) and is associated with enhanced positive emotions (Freund & Baltes, 1998), despite its surface similarity to avoidance behavior. Given this surface similarity, and because older adults may be able to keep their unhealthy avoidance behaviors secret for some time because of age-related changes in social roles (e.g., retirement from work), it can be difficult to recognize avoidance behaviors in older adults (see Mohlman et al., 2012). To help address this difficulty, the psychopathology literature's discussion of avoidance can better integrate the healthy aging literature's view of selection to better understand when avoidance or continued behavioral engagement is adaptive versus maladaptive.

Avoidance in the psychopathology literature is both symptom and “set-up.” As a symptom, it may take multiple forms, including physically avoiding a feared location, avoiding activities that bring on feared bodily sensations, and using so-called “safety behaviors” (e.g., only going places when accompanied by a trusted spouse or companion, which means one can avoid the full emotional experience; Barlow, 2002). The diagnoses of panic disorder, agoraphobia, specific and social phobia, and post-traumatic stress disorder partly pivot on avoidance of feared stimuli (American Psychiatric Association, 2013). In depression, avoidance is often discussed in terms of “withdrawal behaviors,” and depressed individuals frequently avoid participation in social or other pleasant activities because they do not foresee deriving any enjoyment from them (Vinokur, Schul, & Caplan, 1987).

Avoidance is also depicted as a “set-up” for emotional distress. From a historical perspective, Mowrer's (1947) highly influential conditioning model (e.g., Mowrer, 1947) holds that anxiety is maintained by avoidance of the feared stimulus because avoidance leads to a reduction in anxiety in the short-term. Recent findings that avoidance can exacerbate (or even initiate) anxious symptomatology (Deacon & Maack, 2008) support more current conceptualizations that also account for the role of cognitive factors in the origin and maintenance of the fear (e.g., Martin & Levey, 1985; Mineka & Zinbarg, 1996). Turning to depression, Lewinsohn's (1974) behavioral model posits that avoidance contributes to the development and maintenance of depressive symptoms by leading to a decrease in environmental reward and reinforcement, resulting in a downward spiral.

Taken together, the psychopathology literature has largely viewed avoidance as a risk or maintaining factor for anxiety and depression, with interventions designed to decrease this response tendency in the face of anxiety-provoking stimuli or when the individual is feeling depressed.

Despite considerable evidence for the maladaptive consequences of avoidance in anxiety and depression, applying conclusions from the psychopathology avoidance literature to an older population presents a challenge. Namely, behavior that looks like avoidance in this age group is sometimes associated with *increased* well-being. For example, older adults, more so

than their younger counterparts, use antecedent-based emotion regulation strategies, choosing to approach or avoid situations based on the emotions that they expect to experience (Carstensen, Fung, & Charles, 2003). This relates individually to positive short-term affective outcomes, and we expect that repeated practice of this strategy contributes to older adults' generally strong emotion regulation abilities (Urry & Gross, 2010), which are, in turn, associated with increased well-being (John & Gross, 2004).

Avoidant strategies can also sometimes be helpful for older adults as they encounter limitations associated with aging. Goal disengagement, similar to avoidance in presentation, may take the form of devaluing previously important goals or reappraising certain tasks or activities as unnecessary, in favor of engaging in other meaningful activities (Wrosch, Scheier, Miller, Schultz, & Carver, 2003). This practice is thought to be a key component of healthy aging, partly because it makes effective use of available resources and/or preserves the ability change one's environment in certain domains (e.g., Brandtstädter & Renner, 1990; Heckhausen, Wrosch, & Schulz, 2010).

Though goal disengagement is often studied within a social domain, it is also important in other aging domains, including health. For example, in a study of older adults suffering from osteoarthritis, virtually all participants reported engaging in activity selection, defined as disengaging from certain goals by giving them up or restricting or limiting their physical activity, and this behavior was not correlated with feelings of helplessness (Gignac, Cott, & Badley, 2002), as one would expect in the case of maladaptive behavioral avoidance. Further, among older adults with chronic medical conditions (e.g., arthritis, multiple sclerosis) and among old-old adults, goal disengagement in the form of downwardly adjusting the perceived importance of activities (e.g., leisure activities) restricted by one's illness has been shown to predict better health five years later (Hall, Chipperfield, Heckhausen, & Perry, 2010).

Goal disengagement vs. avoidance: Contributions from the healthy aging and emotion literature

In light of these findings, it is clear that though older adults' goal disengagement can look similar on the surface to maladaptive behavioral avoidance, goal disengagement should not necessarily be construed as a risk factor for anxiety or depression. Indeed, goal disengagement and psychopathology-driven behavioral avoidance are motivated by fundamentally different causes. In the case of anxiety, avoidance is driven by perceived threat or danger, whereas avoidance in depression (often termed withdrawal) is frequently rooted in low motivation and the belief that behavioral or social engagement will not be rewarding (Vinokur et al., 1987). Conversely, goal disengagement, or "selection" as it is referred to in the healthy aging model of Selection, Optimization, and Compensation (SOC; Baltes & Baltes, 1990), can be understood as prompted by a desire to maximize emotional and social well-being. Through goal selection, individuals can allocate decreasing resources to place greater emphasis on goals that are better suited to their abilities. This process is viewed as healthy if done in the service of maintaining "primary control" – the ability to

cause direct change – in certain areas, which can become increasingly difficult with age (see the Motivational Theory of Life-Span Development; Heckhausen et al., 2010).

The consequences of behavioral avoidance and goal disengagement typically also differ. Behavioral avoidance is targeted for change in the psychopathology literature chiefly because it exacerbates symptoms and narrows opportunities for learning (e.g., that situations are safe) and reinforcement. Healthy goal disengagement, in contrast, is marked by positive, adaptive consequences (e.g., satisfaction with aging, lack of agitation, and absence of emotional or social loneliness; Freund & Baltes, 1998). Goal disengagement may support emotional well-being in older adults by protecting them from, or reducing their exposure to, negative material and redirecting resources to activities that will be rewarding. According to the Strength and Vulnerability Integration model (SAVI; Charles, 2010), older adults often use strategies that proactively avoid or reduce their exposure to negative material, which may be functional, given this exposure can sometimes be costly for them. Effective use of goal disengagement may help explain the general finding of lower rates of emotional disorders in older (vs. younger) adults (e.g., Gum et al., 2009).

Critically, behavior that may appear to be goal disengagement can result in similar negative consequences to avoidance if the individual fails to replace a disengaged-from goal with one better suited to his or her resources and important life goals. It is the alignment of activities with important goals and not simply a reduction in number of goals that is associated with enhanced wellbeing in older age (Riediger & Freund, 2006).

Suggestions that follow from considering both literatures

Taking into account both the psychopathology and the healthy aging literatures leads to a series of recommendations and hypotheses that demonstrate the helpfulness of a more integrated framework.

- In classifying behavior as avoidance versus healthy goal disengagement, identify older adults' available resources and the potential costs of pursuing a goal in light of other ongoing goals.

The above theories conclude that when goal pursuit becomes too costly or is in vain, goal disengagement is an adaptive strategy and would not be predicted to be a risk factor for anxiety or depression. Rather, continued engagement with such goals may be viewed as more of a risk factor for anxiety and depression in older age. By assessing goal/resource match and the potential costs of a goal, behavioral models of avoidance in the context of psychopathology may enhance their predictive validity among older adults.

To identify the match between older adults' resources and goals, clinicians may turn to the Life Strengths Interview Guide (Kivnick, 1993; see also Kivnick & Murray, 2001). This thorough interview guide assesses strengths across multiple domains (e.g., competence and hard work; values and sense of self), as well as limitations, including factors that are internal and external to the individual. Included also are questions that assess the relative degree of importance of certain goals (e.g., “What kinds of control are easier to give up, as long as you remain in charge of what's really important?”) Such an assessment, though time-consuming,

would likely be extremely valuable for clinicians aiming to help older adults draw on their strengths to maximize their functioning.

- Conduct multi-method measurement of avoidance among older adults, including measures of beliefs about the purpose of a behavioral decision.

Regarding research methods, the two fields use very different approaches to measure avoidance. Whereas the psychopathology literature typically assesses avoidance through particular behaviors, the healthy aging and emotion literature often focuses on meta-level beliefs about how to approach behavioral decisions. Unlike behavioral assessments of avoidance, the meta-level approach most often relies on questionnaires (e.g., the Selection, Optimization, and Compensation Questionnaire; Baltes, Baltes, Freund, & Lang, 1999; for a notable exception, see Lang, Rieckmann, & Baltes, 2002). Moving forward, it will be helpful to consider how these methodologies can be combined to provide a multi-faceted view of avoidance. For example, assessing depressed or anxious older adults' beliefs about how to approach behavioral decisions may shed light on whether their avoidant behavior is adaptive. Moreover, qualitative research comparing healthy vs. depressed or anxious older adults could be informative about the various forms and functions of avoidance, as well as the characteristics and settings of those who are at risk for anxiety and depression.

Additionally, it is necessary to develop measures that are less centered upon young adults. For example, the Cognitive-Behavioral Avoidance Scale (Ottenbreit & Dobson, 2004), designed to help standardize the measure of avoidance in the field of depression, includes a number of items that could be viewed as over-pathologizing behaviors associated with protective selection and emotion regulation strategies (e.g., "I quit activities that challenge me too much"). Analyses of measurement (in) variance and statistical tools like item response theory will be key to understanding whether these measures function comparably and have similar meaning across age groups and subsets of older adults.

- In clinical work, employ a functional perspective to determine whether "avoidance" behaviors may be adaptive or maladaptive.

Determining the function that an avoidant behavior serves for an older individual can prove quite challenging. For example, fear of falling is the most commonly reported fear among older adults (Howland et al., 1993), and as many as 70% of older adults acknowledge avoiding at least some activities as a result of their fear of falling (Gagnon & Flint, 2003). While avoidance can be adaptive given the real increased risk for falls and potential for serious consequences that older adults face (Rubenstein, 2006), this avoidance can also be maladaptive and impairing, leading to poorer quality of life (Arfken, Lach, Birge, & Miller, 1994) and decreased independence (Cumming, Salkeld, Thomas, & Szonyi, 2000). Importantly, fear of falling in a healthy older adult also sets him or her up for increased avoidance of physical activities, which can, in turn, increase disability and the real risk of falling (Delbaere, Crombez, Vandertraeten, Willems, & Cambier, 2004).

Leventhal's (2008) functional perspective provides an example of the utility of an integrative perspective. In it, he draws a distinction between adaptive and maladaptive avoidance saying, "Avoidance behavior is adaptive when it realistically prevents loss rather than unrealistically interferes with gain... Disorder occurs in the form of anxiety or depression

when, in the presence of these emotions, avoidance behavior blocks the learning or emission of functional behaviors” (p.766). By determining the factors driving seemingly avoidant behavior and encouraging healthy disengagement, clinicians can more accurately assess risk for anxiety and depression.

This conceptualization also raises new possibilities for somewhat counterintuitive techniques, such as creating a “hierarchy of disengagement” that encourages a series of healthy disengagement behaviors while following a similar format to exposure hierarchies. Clinicians could guide older adults to experiment with disengaging from various goals that are no longer a good match to their resources while monitoring older adults' affective and cognitive reactions. Importantly, it would be necessary for clinicians and older adults to consider alternative sources of deriving meaning or perceived control and to replace disengaged-from goals with these alternate pursuits. We wish to be clear that we are not proposing that older adults stop doing all activities that “they are no longer good at;” rather, we want to encourage a fuller evaluation of when disengagement vs. exposure will best enhance emotional health. This recognition of developmental differences may ultimately help improve treatment outcomes for older adults. This is a critical goal, given that results for cognitive behavior therapy, which often focuses on trying to reduce avoidance behavior, for older adults are not as strong as they are for younger adults (Ayers et al., 2007).

Interpersonal domain: How close is too close?

Linda and Roger, a couple in their late 60s, are almost always together – even more so since Linda's health scare last year, which left her feeling “shaken.” Last weekend, Linda had the opportunity to go on a women's weekend retreat with her church to meet some new members. Though she used to enjoy and even organize such trips, Linda told the other women that she was planning to spend the weekend with Roger at home, and declined the invitation. The next two weekends she made the same choice, skipping additional social events. Is Linda showing signs of maladaptive dependency, or is she simply prioritizing her goal to spend time with her husband?

Though the psychopathology literature does not pathologize close relationships in general, it has examined how unusually close relationships can serve as risk or maintaining factors for anxiety and depression. Certain diagnostic criteria focus on how maladaptive dependence can put individuals at risk for anxiety difficulties. For example, in the case of agoraphobia, loved ones often become “safety signals,” without whom patients are unwilling to venture into certain situations where panic is thought to be more likely (Thorpe & Burns, 1983). Additionally, intense reliance on another person can lead to excessive reassurance seeking, which can manifest in obsessive compulsive disorder or generalized anxiety disorder. This latter diagnosis is relatively common among older adults (Wetherell et al., 2005a) and is associated with extreme uncontrollable worry, as well as anxiety, depression, and social fears (Beck, Stanley, & Zebb, 1996).

Whereas excessive dependency in anxiety likely functions to reduce the individual's perception of threat and personal vulnerability, in depression, excessive dependency may stem from an individual lacking a sense of self-efficacy or internal locus of control. In the

depression literature, Coyne's (1976) interpersonal model holds that some dysphoric individuals display a pattern of excessively seeking and then doubting others' assurances that they are "lovable and worthy" (Joiner, Metalsky, Katz, & Beach, 1999, p. 270). Their excessive reassurance seeking, described as a behavioral form of dependency (Katz, Beach, & Joiner, 1998), leads to rejection by others, resulting in a subsequent loss of social support for the dysphoric individual and an increased risk for depression. In support of this model, many empirical studies, including those conducted with older adults (Gardner & Helmes, 2006), have shown a positive relationship between depressive symptoms and the degree to which an individual is dependent (see Bornstein, 1992).

Yet, in apparent contrast to the psychopathology field, a standard premise in the healthy aging and emotion literature is that very close relationships are integral to healthy aging. By chiefly focusing on the negative aspects of close relationships, the psychopathology literature's criteria for diagnoses of anxiety and depressive disorders may risk leading researchers and clinicians to be insufficiently sensitive to the changing social milieu of older adults, potentially pathologizing otherwise healthy relationships. By contextually evaluating extremely close relationships in light of theory discussed in the healthy aging literature, a broader continuum of relationship functioning emerges — even within the context of close relationships — that can be useful in both research and clinical practice with anxious and depressed older adults.

Applying the psychopathology literature's assumptions regarding the dangers of very close relationships to an older population is not straightforward, because older adults' circumstances can differ in substantial ways from younger adults'. Older adults are often more dependent on close others by virtue of health or cognitive difficulties, an important characteristic that is not always reflected in clinical judgments of close relationships in the context of anxiety or depression. Indeed, dependency can function differently across anxiety disorders, and each function may be misinterpreted in an aging context. For example, in the case of panic disorder, an older adult who rarely leaves home without her spouse may not necessarily be using the spouse as a "safety signal" in an agoraphobic context, but may instead be adaptively drawing on her partner's active support, given physical and cognitive changes. Healthy checking-in on a loved one who may be at risk due to changes in his or her cognitive or physical functioning may be misinterpreted within a generalized anxiety framework as excessive reassurance seeking. A third example that speaks to the concerns of older adults is that of healthy dependency and the desire to maximize time with people who fulfill one's emotional goals, which could be seen as overreliance on one person to avoid scrutiny from less familiar others, as sometimes occurs in social anxiety disorder.

Evaluating inter-dependent relationships in older adults requires recognizing that older adults' emotional needs and priorities may differ from those of younger adults. Theories in the healthy aging and emotion literature, such as Socioemotional Selectivity Theory (Carstensen, Isaacowitz, & Charles 1999), emphasize the importance of close relationships in older age. According to this theory, with a shortened time horizon (as occurs in old age), comes an enhanced focus on pursuing emotion-related goals, such as spending time with loved ones, over future-oriented goals. Relatedly, Social Production Functions Successful Aging Theory (Lindenberg, 1996, 2001; Ormel, 2002; Ormel, Lindenberg, Steverink, &

Verbrugge, 1999) highlights three basic social needs — affection, confirmation that one is doing the “right” thing, and status — and changes in these needs' salience, as well as in an individual's resources to meet them, which come with increasing age. According to this theory, older adults tend not to lose the resources required to meet their affection needs (Steverink, 2001), and are able to compensate for losses in other social needs through heightened attempts to satisfy the need for affection (as would be garnered through close relationships).

Indeed, older adults who do not have an emotionally close relationship are more vulnerable to depression (e.g., Murphy, 1982). A 5-year longitudinal study showed marital closeness to mitigate adverse psychological effects in the areas of anxiety, depression, and self-esteem that are associated with worsening functional disability (e.g., difficulties bathing oneself or walking; Mancini & Bonanno, 2006). Clearly, in some cases, very close relationships (even dependent ones) are adaptive and can be viewed as an indicator of an individual's successful resource management.

Contributions from the healthy aging and emotion literature

Given the importance of striking a balance between having close relationships and not becoming too dependent on others in old age, it is imperative that researchers and clinicians consider these relationships within their broader sub-cultural and environmental context when identifying maladaptive dependency.

For instance, the healthy aging literature categorizes different types of dependency, which include “healthy dependency” and “destructive overdependence,” among others (Fiori, Consedine, & Magai, 2008). Healthy dependency is described as “flexible, situation-appropriate help and support seeking” and correlates with increased positive affect and decreased depressed affect (Fiori et al.). Destructive overdependence, on the other hand, is marked by “rigid, inflexible dependency and neediness” (Fiori et al., p. 701; see also Bornstein, 1998; Bornstein, Geiselman, Eisenbart, & Languirand, 2002; Bornstein & Languirand, 2004). It is directly associated with depressed affect and correlates with use of medications for hypertension, perhaps indicative of a somatic manifestation of an adaptational difficulty (Fiori et al.)

Another important contribution from the healthy aging and emotion literature has been an examination of changes in social networks among healthy older adults. Unlike younger adults, older adults may adaptively engage in pruning their social networks (Carstensen et al., 1999) as evidenced by decreases in the size, but not quality, of social relationships (Gurung, Taylor, & Seeman, 2003). This pruning tendency is another example of a potentially adaptive interpersonal behavior that is critical to distinguish from maladaptive behaviors that can look similar on the surface (e.g., withdrawal from social relationships with a corresponding *decrease* in quality of key relationships). More broadly, social pruning is an example of how older adults can adaptively apply the social expertise they have accumulated, which likely follows from older (vs. younger) adults' greater “time lived” and social experience (Charles, 2010). In summary, by understanding the social and environmental stressors that older adults face, as well as how these may interact with

declining resources and enhanced social experience, researchers and clinicians are better informed to recognize the continuum of close relationship functioning.

Suggestions that follow from considering both literatures

- Evaluate interpersonal closeness in older adults within the context of normative shifts in goal focus.

Socioemotional Selectivity Theory and Social Production Functions Successful Aging Theory provide important frameworks within which to understand close relationships in older age. By taking into account normative shifts in goal focus that come with age, these theories allow for healthy increased closeness and dependence in older age. Though increased closeness with few, meaningful partners may share surface similarities to maladaptive dependency, psychopathology models may better distinguish between healthy and unhealthy dependency by specifying the factors that distinguish the relationship types. Healthy dependency is marked by more likely disclosure of troubling feelings and possibly more effective coping behaviors (Bornstein, 1994). Unhealthy dependency, on the other hand, is characterized by “inflexib[ility] and neediness” (Fiori et al., p.701), as previously discussed. It is important that psychopathology models take such distinctions into account, as the correct classification of close relationship types has important implications. Healthy dependency is associated with positive outcomes, including health benefits (Pennebaker, 1997), whereas unhealthy dependency is associated with low self-efficacy and over-reliance on others for a sense of confidence (Schulte, Mongrain, & Flora, 2008).

To evaluate interpersonal closeness, clinicians and researchers may consider using an empirically validated measure such as the Perceived Interpersonal Closeness Scale (PICS; Popovic, Milne, & Barrett, 2003), on which respondents indicate the actual and ideal “closeness” of significant others using a series of concentric circles radiating from the self. Importantly, this measure assesses closeness from a multidimensional perspective, including not only number of relationships but also their intensity (ranging from “distant” to “smothered”) and also provides a discrepancy score that quantifies how well a person's need for closeness is being met. Though, to our knowledge, the measure has not been studied with adults over age 65, the focus on both quantity and quality may make the measure especially well-suited for this age group, for whom social networks may be small but very supportive. Further, assessing the discrepancy between older adults' actual and ideal closeness across multiple significant others may help identify key areas where support needs to be bolstered or maladaptive dependency reduced, and provide a means to track progress during treatment.

- Assess the multidimensionality and age invariance of interpersonal closeness as a construct.

Methodologically, it is important for psychopathology researchers (and healthy aging researchers) to assess for the presence of both maladaptive aspects of dependence and excessive reassurance seeking, as well as adaptive closeness and healthy dependence. For instance, by relying only on symptom or diagnostic measures of anxiety and depression, researchers miss assessment of relationship strengths and protective factors, which can occur even in unusually dependent relationships. The heterogeneity in older adults' functional

abilities and living situations (e.g., independent living vs. assisted care) necessitates a strong understanding of how the environment interacts with an older adult's abilities and resources, as well as a clear delineation of the characteristics of unhealthy dependence in various settings. What may be seen as overly dependent in one context may be an adaptive use of resources in another. Relatedly, more research needs to be conducted comparing physically healthy to less healthy older adults on measures of dependency so that links between behavior and emotional health can be understood across a broader continuum of functioning, as is seen in older adults.

- Test treatment adaptations that parallel the interpersonal styles of healthy older adults.

Clinically, integrating the two literatures brings to light the importance of keeping in mind older adults' normative goal shifts toward prioritizing close relationships, as well as efforts to compensate for diminished resources, when assessing for the presence of anxious or depressive disorders. According to Mancini and Bonanno (2006), "...what people benefit from in late life — and any time that circumstances impose an ending experience — are close meaningful relationships with important others, and greater efforts should be made in service design to accommodate this central need in late life" (p. 608). Clinicians need to take into account environmental and lifestyle changes that older adults face (e.g., moving to assisted living or to a nursing home environment) when evaluating their emotional health, and consult with close family members, medical providers, or others for this purpose. Recognizing older adults' high prioritization of relationships can also point to important directions for therapy. For example, clinicians may choose to use interpersonal psychotherapy (Klerman, Weissman, Rounsaville, & Chevron, 1984) to treat depressed older adults (e.g., Reynolds et al., 1999). This therapy, which focuses on how an individual relates to others and communication patterns within those relationships, has been shown to be effective with depressed older adults, particularly in combination with antidepressant medication (Thase et al., 1997). Novel adaptations of this therapy for older adults, such as learning to navigate the healthy pruning of relationships versus maladaptive dependency, or learning to relate to caregivers, could enhance treatment efforts (see Hinrichsen & Clougherty, 2006), and also help to prevent harmful future interpersonal trajectories.

Cognitive domain: Cognitive control vs. uniformly positive

Virgie, a 70-year-old woman, has always been active and healthy. Recently, however, she reports losing sleep at night, worried about what she describes as a "flip-flop" feeling in her chest and some shortness of breath. These worries followed several calls she made to her physician about six months ago over her concern that she doesn't seem to be as steady on her feet as she used to be. Her daughter tells her that she is overreacting and that if she would just stop dwelling on these minor symptoms, she would feel better. Is Virgie showing signs of risk for developing an anxiety disorder or appropriate vigilance for declining health?

The cognitive domain is an example of an area that has already begun to see the fruits of integrating healthy emotion and psychopathology literatures, especially around the topic of cognitive control over processing valenced information. In particular, the psychopathology literature has long emphasized the preferential processing of negative information (relative

to benign or positive information; e.g., selective attention to threat cues in anxiety disorders, or preferential recall of negative material in depression) as a risk and maintaining factor for anxiety and depression (Bar-Haim, Lamy, Pergamin, Bakermans-Kranenburg, & van IJendoorn, 2007; Beck, 1967, 1976; Beck, Emery, & Greenberg, 1985), and, as we describe below, numerous psychopathology models consider how difficulties with cognitive control can exacerbate or mitigate these effects (e.g., Beevers, 2005). Moreover, in recent years, cognitive bias modification approaches have allowed direct testing of the premise from cognitive models that overriding cognitive biases can reduce emotional vulnerability (see MacLeod & Mathews, 2012).

Importantly, for both younger and older adults, one cannot assume that biases toward negative or threatening information are always maladaptive. Failing to allot needed processing resources to negative material may lead to missing key information, particularly in behavioral health contexts in which accurately perceiving threats to health is considered an important motivator of preventive health behaviors (see Janz & Becker's, 1984, Health Belief Model). Given age-related changes in physical and cognitive health, older adults may experience these so-called real threats (e.g., warning signs of actual physical health problems) more frequently than younger adults, and Virgie's concern about what she perceives as abnormal physical symptoms must be viewed in this light. Therefore, rather than relying on the heuristic of valence alone (i.e., threat/negative bias = bad; positivity bias = good), researchers in the healthy aging and psychopathology literatures have emphasized cognitive control as a key indicator of the ability to respond flexibly, including attending to negative and positive information according to the demands of the situation. We refer to cognitive control using its generally accepted definition as "the ability to orchestrate thought and action in accordance with internal goals" (Miller & Cohen, 2011, p.167). However, we summarize studies that include a range of definitions and operationalizations of cognitive control, and note important divergences.

Partly motivated out of concern about cognitive decline in older adults, the healthy aging literature has a long tradition of measuring cognitive control (see Mather & Carstensen, 2005). Likewise, research on the "positivity effect" has emphasized age-related changes in cognitive control as an explanation for when positivity effect findings are observed in older adults (see Isaacowitz & Blanchard-Fields, 2012). (The positivity effect refers to older, compared to younger, adults' tendency to exhibit a processing bias toward positive, relative to negative, material; Carstensen et al., 2006; Reed, Chan, & Mikels, 2014.) For instance, the positivity effect is typically observed at later stages of information processing (Isaacowitz et al., 2009; Mather & Knight, 2006), and among older adults experiencing sad mood or anxiety (Demeyer & De Radt, 2013; Isaacowitz, Toner, Goren, & Wilson, 2008). This has led to the suggestion that positive gaze preference in older adults reflects a top-down controlled process that can be used to override automatic processing of negative material (see Isaacowitz & Noh, 2011), and potentially help regulate mood. Thus, older adults with good (compared to weak) cognitive control are theorized to be more likely to show positivity effects (Mather & Knight, 2005; Petrican, Moscovitch, & Schimmack, 2008), and there is some empirical support for this idea (e.g., Sasse, Gamer, Büchel, & Brassen, 2014). Further, studies that have diminished older adults' capacity for cognitive control by taxing their cognitive resources have shown a *negativity* effect (e.g., Knight et al.; Mather & Knight).

Notably, cognitive control is now also being incorporated in many studies of anxiety (e.g., Bishop, 2008) and depression (see Joormann & Siemer, 2011), refining our understanding of the relationship between cognitive biases and psychopathology symptoms. Mathews and MacLeod (2005) argue that emotional disorders develop, in part, when overwhelming emotional activation surpasses the individual's degree of cognitive control. In support of this argument, multiple lines of empirical evidence and theory suggest uncontrollable processing of disorder-related information is central to both anxiety and depressive disorders (see Beevers, 2005; Hertel, 1997, 2004; McNally, 1995; Teachman, Joormann, Steinman, & Gotlib, 2012, among others). For example, clinical depression is linked to poorer cognitive control in the form of decreased activity (relative to healthy individuals) in the anterior cingulate cortex, an area involved in error processing, as measured during performance on cognitively demanding tasks (e.g., Pizzagalli, Peccoralo, Davidson, & Cohen, 2006), and abnormal neural activity during cognitive control tasks (see Rogers et al., 2004). Similarly, anxiety is thought to impair cognitive control in part by reducing the efficiency of goal-directed attention as the individual becomes more reactive to stimulus-driven attentional demands (see Attentional Control Theory; Eysenck, Derakshan, Santos, & Calvo, 2007), perhaps to an even greater extent in older adults (Hogan, 2003).

Recent work in our lab has examined the relationship between cognitive control and threat bias within a sample of highly socially anxious younger adults (Gorlin & Teachman, 2014). Threat bias was measured by an emotional Stroop task (i.e., difference in mean latency for naming the ink color of social threat vs. neutral words). Cognitive control (particularly inhibitory control; one aspect of the broader construct of cognitive control) was measured by performance on the traditional color-word Stroop task. Interestingly, cognitive control moderated the relationship between threat bias and a variety of markers of social anxiety among these anxious younger adults. As cognitive models of social anxiety (Clark & Wells, 1995) would predict, for those with relatively weaker cognitive control, stronger threat bias correlated with higher self-reported anxiety across multiple measures. However, among those with relatively stronger cognitive control, *weaker* threat bias was associated with higher anxiety, suggesting “these individuals may be able to override the (normally involuntary) processing of task-irrelevant threat information to the extent that they are more anxious” (Gorlin & Teachman), perhaps to the point of unhealthy avoidant processing (see also Gorlin & Teachman, 2015, for related findings examining observer-rated anxious behavior). In sum, it appears that the presence of a strong threat bias alone does not necessarily produce greater anxiety symptoms for anxious younger adults. Rather, one must also take into account the individual's degree of cognitive resources.

To the extent that cognitive control moderates the expression and influence of processing biases that enhance risk for or maintain psychopathology, these effects may be especially important in older adulthood, given age-linked normative changes in cognitive functioning. Whereas the psychopathology literature establishes that anxiety and depression are marked by deficits in cognitive control, the healthy aging and emotion literature notes that even among unselected older adults, cognitive control is likely to be relatively lower than in younger adults, suggesting effects for both psychopathology and age. This leads to the hypotheses that anxious and depressed older adults with poorer cognitive control will exhibit stronger disorder-congruent processing biases, in comparison to those with better cognitive

control capacities, and perhaps even stronger biases in comparison to anxious and depressed younger adults with equivalently poor cognitive control according to norms for their age group. One might also speculate that anxious and depressed older adults with better cognitive control will show less negative processing biases than similarly anxious and depressed younger adults with better cognitive control according to norms for their age group, though the literature is sufficiently sparse and mixed, making this an open question. This speculation follows in part from the premise we reviewed previously that goal disengagement may not be unhealthy for older adults. In this case, better cognitive control for older adults, which could facilitate goal disengagement, may mean that anxious and depressed older adults are less likely to show a link between strong cognitive control and unhealthy avoidance processing than anxious and depressed younger adults.

As noted, there is preliminary evidence even among younger adults that, depending on the task demands, cognitive control can have both potentially helpful (e.g., mitigating the impact of threat-related interference effects) and potentially harmful (e.g., enabling greater avoidance of threat stimuli, such that opportunities for learning and habituation are reduced) effects (e.g., Gorlin & Teachman, 2014; in press), pointing to the clear need for careful research with older adults. These investigations will also require careful disentangling of the potentially bidirectional effects of changes in psychopathology on cognitive control and vice versa (Eysenck et al., 2007).

Further, there are good reasons to think that an individual's level of cognitive control would have treatment implications. For example, within the psychopathology literature, common cognitive therapy techniques such as cognitive reappraisal may be partially undermined by potential age-related limitations in reappraisal ability, a skill that relies on cognitive control. The limited research on this topic suggests that while older adults use reappraisal more frequently than younger adults (John & Gross, 2004) and are more successful at positive reappraisal (Lohani & Isaacowitz, 2014), they appear to have more difficulty with other types of reappraisal focused on decreasing unpleasant emotions (Opitz, Rauch, Terry, & Urry, 2012) or using detached reappraisal strategies, such as reappraising using the perspective of a third-person observer (Shiota & Levenson, 2009). The greater subjective difficulty older adults experience with some types of reappraisal, in combination with their observed reduction in prefrontal cortex activation relative to younger adults, suggests that age-related cognitive decline in executive function may limit the success of some reappraisal attempts (Winecoff, LeBar, Madden, Cabeza, & Huettel, 2011). It is critical for treatments to select types of reappraisal, or alternative strategies, that are appropriate for an older adults' particular level of cognitive control.

Thus, this is an area that has already shown some recognition of the importance of considering multiple literatures (e.g., the healthy aging field recognizes the long history in the psychopathology field of work on preferential processing of valenced cues, and the psychopathology literature has been incorporating perspectives from cognitive science and from healthy aging and emotions literatures on the need to consider cognitive control). At the same time, it is an area that could benefit from more routine empirical evaluation and careful consideration of how differences in cognitive control can influence the assessment

and treatment of biased processing of emotional information and associated psychopathology, especially in older adults.

Suggestions that follow from considering both literatures

- Measure and manipulate cognitive control in studies of emotional distress among older adults.

Studies are needed that look at the independent and interacting effects of state declines (or increases) in cognitive control, and naturally occurring, individual differences in trait cognitive control by adding dual processing tasks or other changes in cognitive load. These approaches would allow for testing of cognitive biases and interventions like cognitive restructuring when cognitive control is diminished or enhanced. Further, given the presence of a normative positivity effect in older adults, it will be important to routinely test the influence of cognitive control on both enhanced processing of negative (relative to neutral) information in anxious and depressed older adults, as well as reduced processing of positive (relative to neutral) information. Last, while we have referred to cognitive control as a unitary construct, it will be critical to determine what elements of cognitive control (e.g., goal representation, attention allocation, etc.) are especially important for augmenting risk or protection for emotional disorders at different ages.

- Consider cognitive control when selecting possible treatments and as a possible target of treatment.

Clinically, there is emerging evidence that incorporating cognitive control into the treatment of anxiety in older adults can be helpful. In a pilot study that tested the effectiveness of cognitive behavioral therapy for generalized anxiety disorder in older adults (age 60+) with or without executive functioning deficits, Mohlman and Gorman (2005) reported that those whose executive functioning scores remained poor from pre- to post-treatment did not benefit from cognitive behavioral therapy. However, all other older adults showed lower rates of symptoms post-treatment.

Given this evidence that cognitive behavioral therapy's success with older adults partly depends on executive functioning level, providers may consider treatment matching based on baseline level of cognitive control or customizing in other ways to reflect age-related changes in cognitive control. For example, certain forms of cognitive bias modification, which rely in part on implicit rule learning (Hoppitt, Mathews, Yiend, & Mackintosh, 2010) and attention deployment, a relative strength of older adults' emotion regulation, might require less cognitive control capacity than cognitive behavioral therapy, which seems to rely on the effortful and intentional control of one's attention and thought patterns and extensive conscious introspection. Indeed, Opitz et al. (2012) suggest that approaches such as cognitive bias modification are likely to be more effective than cognitive control-mediated reappraisal for individuals with decreased cognitive control. While far more research is needed and older adults do not have difficulty with all types of reappraisal (Lohani & Isaacowitz, 2014), empirical tests of this suggestion could lead to treatment guidelines and matching of individuals to particular treatments based upon specific mechanisms like cognitive control.

An alternative approach would be to integrate cognitive training methods that are intended to enhance cognitive control directly into anxiety and depression treatments (Beaudreau, MacKay-Brandt, & Reynolds, 2013). Though generalizing the effects of training beyond the experimental setting has proven difficult in non-anxious or depressed persons (Lustig, Shah, Seidler, & Reuter-Lorenz, 2009; Willis et al., 2006), training has been associated with meaningful changes in neural measurements lasting up to six months (Anguera et al., 2013) and could be accomplished using technology-informed, portable treatments. Cognitive training could be tested as a method of ‘boosting’ treatment response by at least temporarily improving cognitive control, similar to how D-cycloserine has been tested as an augmentation strategy during exposure therapies (Hofmann, Wu, & Boettcher, 2013).

- Measure and disentangle changes in cognitive biases and in cognitive control from other potential mechanisms.

It seems likely that many interventions for reducing anxiety and depression, such as cognitive bias modification, cognitive behavior therapy, mindfulness, etc., alter not only cognitive biases (e.g., selective attention to threat or negative cues), but also enhance some aspects of cognitive control (e.g., goal-directed attention). Teasing apart their unique contributions may be important to both enhancing the efficacy of interventions to reduce symptoms and to improving the persistence and transfer of post-treatment cognitive control improvements (see Lustig, Shah, Seidler, & Reuter-Lorenz, 2009; Willis et al., 2006). The quad model of implicit task performance (Conrey, Sherman, Gawronski, Hugenberg, & Groom, 2005) offers an intriguing technique for measuring and analytically separating an individual's activation of associations (closely tied to cognitive bias) versus their ability to overcome that bias (indexing a key component of cognitive control). By applying the quad model or similar techniques, disentangling changes in cognitive bias and cognitive control may improve our understanding of the mechanisms underlying successful treatments in older adults. This approach may also advance knowledge about the ways that cognitive control serves different functions in anxiety versus in depression in older adults. For instance, there is growing interest in cognitive bias modification and training cognitive control in depression (Dalgleish & Werner-Seidler, 2014), partially due to reduced autobiographical memory being a vulnerability factor for depression (Dalgleish et al., 2007). Thus, training aspects of cognitive control with potentially protective effects against reduced autobiographical memory in older age (Holland, Ridout, Walford, & Geraghty, 2012) may have unique implications for depression that are distinct from anxiety, in which memory processes appear to function differently (Mathews, & MacLeod, 2005).

In summary, much is unknown about how to reduce disorder-relevant processing biases in anxious and depressed older adults (or the extent to which these biases exist in this population), and when these biases will be risk or maintaining factors for disorders of emotion. However, evaluating cognitive control as a “state” factor to be manipulated, a “trait” (albeit a dynamic one) individual difference factor, and a potential variable for treatment training and/or matching to individuals, has substantial potential to move the psychopathology and healthy aging and emotion fields forward in tandem.

Conclusion and future directions: An integrated research agenda

In proposing new approaches to improve the understanding of anxiety and depression in older adults by integrating theories, methods and findings from the healthy aging and emotion and psychopathology literatures, our goal is to motivate a more integrated research agenda. Akin to the story of the blind men and the elephant in which each man describes the elephant differently based on the part of the elephant's body he happens to be touching, both the healthy aging and psychopathology literatures offer an insightful and intriguing description of a piece of the whole. Integrating these descriptions leads to a more complete and contextualized depiction of aging and disorders of emotion.

It should be noted that though this article was focused on ways in which the healthy aging and emotion literature can inform the psychopathology literature in the understanding and treatment of anxious and depressed older adults, we assume that this should be a bidirectional discussion. For example, despite the theoretical focus in the healthy aging and emotion literature on the benefits of very close relationships in older age, it is not every close relationship that is likely to confer a protective benefit against disorders of emotion in older adulthood. Placing a caveat on prior research documenting the benefits of close relationships in older age, Rook (1984, 1990; Rook & Peitromonico, 1987) noted the potentially deleterious effects of close relationships on older adults' psychological well being and concluded that the ill effects of negative social interactions can be stronger than the benefits of positive ones. The healthy aging and emotion literature tends not to account for such effects, which are discussed in the psychopathology literature as a risk factor for depression.

Though our aim is to better understand anxiety and depression in older adults, there is little experimental psychopathology research among diagnosed anxious and depressed older adults to guide this understanding. This relative paucity of studies is one of the reasons that we think much can be drawn at this stage from the healthy aging literature in motivating future studies of anxiety and depression among older adults. Notwithstanding, we recognize that while the healthy aging literature is an informative literature base from which to draw, it does not provide direct comparisons. In particular, we pulled from the healthy aging literature's empirical findings and theories of emotion reactivity and regulation, which are based primarily on evidence of short-term emotional reactivity. This raises a potential disconnect in that short-term affect is clearly not the same as experiencing a depressive or anxiety disorder. Thus, it is an open empirical question how well findings from one literature will translate to the other. In spite of this need, we believe the healthy aging research is informative, given that a pattern of long-term emotion dysregulation (e.g., a depressive disorder) involves many short-term affective reactions.

Another challenge in integrating the healthy aging and emotion and psychopathology literatures concerns what aspects of emotional experience and expression to highlight. In the healthy aging and emotion literature, we focused primarily on trait and state self-reports of positive and negative affect (e.g., satisfaction and loneliness) and well being. This focus follows from Barrett's (2006) assertion that verbal report is key for assessing emotion, and it provides useful overlap with commonly-used self-reports of anxiety and depression

symptoms. However, examining other emotion experiences and responses in the context of older adult anxiety and depression, such as physiological reactivity, also holds promise for connecting findings across literatures.

Looking across the behavioral, interpersonal, and cognitive domains, it is clear that to advance dialogue between the literatures, more basic experimental psychopathology research that includes geriatric populations is needed. The majority of psychopathology research involves young or middle aged adults; yet, if the field is to gain a more thorough understanding of disorders of emotion in old age, a wider net must be cast. Analogously, further research is needed that considers interventions for different older adult subpopulations (e.g., see groundbreaking work by Gitlin and colleagues on care for older adults with varying levels of dementia, caregivers, and African American older adults, among other groups; Gitlin et al., 2013; Gitlin, Kales, & Lyketsos, 2012; Gitlin, Marx, Stanley, & Hodgson, 2015). There are many important areas for future research. As we have highlighted here, in the behavioral realm, research is needed to help delineate the boundaries between adaptive and pathological avoidance among older adults across a wide range of functional impairment. In the cognitive domain, additional research is needed into the measurement and role of cognitive control in the expression and function of cognitive biases in anxious and depressed older adults. Turning to the interpersonal domain, it will be important for future studies to advance a more complete understanding of the ties between older adults' physical and social milieu, and patterns of adaptive and maladaptive dependent behavior. Certainly there are other constructs that could benefit from careful integration of the healthy aging and emotion disorders literature. It is our hope that future research will continue the integrative discussion we have begun here, resulting in a more contextualized perspective on the relationship between aging and emotional health and disorders.

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