Shorter communication

Linking obsessional beliefs to OCD symptoms in older and younger adults

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Received 29 July 2005; received in revised form 16 August 2006; accepted 23 August 2006

Abstract

There are many open questions about the phenomenology of obsessive-compulsive disorder (OCD) in the elderly, and theories about the development of OCD have rarely been applied to older populations. The current study uses structural equation models to evaluate the relationship between obsessional beliefs and OCD symptoms across young and older adult age groups in a large community sample (aged 18–93; N = 335), and to examine whether subjective concerns about cognitive decline partially mediate this relationship. Results support partial mediation, and follow-up analyses suggest that the pattern of relationships among subjective cognitive concerns, obsessional beliefs and OCD symptoms is invariant for younger and older adults, but older adults report relatively greater levels of subjective cognitive concerns.

Keywords: Obsessive-compulsive disorder; Obsessional beliefs; Aging; Elderly

Introduction

Anxiety disorders in late life reflect a serious and understudied health problem, particularly as the baby-boomer generation ages. Interestingly, there has been far more research on depression in the elderly despite anxiety occurring 4–8 times more frequently than depression among older adults (Beck & Stanley, 1997). Especially little is known about obsessive-compulsive disorder (OCD) in late life (see Calamari, Janeck, & Deer, 2002), though OCD is typically a chronic condition if untreated and is associated with serious disability (APA, 2000; Rasmussen & Eisen, 1992). Bland, Newman, and Orn (1988) found a 6-month prevalence rate of OCD among persons over age 65 of 1.5%, and suggest that rates among older adults living in institutional settings may be substantially higher. Further, while the majority of OCD cases have a younger adult onset, initial investigations suggest a relatively high rate of new cases in elderly women, age 65+ (Nestadt, Bienvenu, Cai, Samuels, & Eaton, 1998). In addition, there is some indication that OCD symptoms, such as hoarding (Steketee, Frost, & Kim, 2001) and fear of forgetting names (Jenike, 1991), may be particularly serious problems among the elderly.

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Not surprisingly, given the many open questions about the phenomenology of OCD in the elderly, theories about the development of OCD have also rarely been applied to older populations. Research over the past quarter century has demonstrated that the vast majority of the population has intrusive thoughts that are similar in content to obsessions found in people with OCD (Rachman & de Silva, 1978). Based on this finding, cognitive models of OCD propose that it is not the content of obsessional thoughts, but the interpretation of the thoughts as meaningful that causes the severe distress and repetitiveness that characterizes OCD (see reviews in Frost & Steketee, 2002; Rachman, 1998; Salkovskis, 1996). In fact, the Obsessive Compulsive Cognition Working Group (1997) have noted a range of critical interpretations that follow intrusive thoughts, such as beliefs about the importance one attaches to thoughts and the need to be certain about thoughts. These maladaptive interpretations are expected to differentiate persons with OCD, and there is mounting evidence to support these models (see review by Steketee, Frost, Rhéaume, & Wilhelm, 1998). However, it is not clear whether the models will apply in their standard form for older populations because of changes in cognitive functioning that accompany normal aging and because the models typically assume that beliefs about the importance of thoughts develop early in life, which makes it difficult to understand why obsessional thinking would not be evident until much later in life.

One factor that may link obsessional beliefs to OCD symptoms in older populations is subjective concerns about cognitive functioning. Appraisals of cognitive decline are highly prevalent among older populations. For example, Jorm et al. (1994) found that over 60% of adults aged 70+ reported they felt their memory was worse than it had been earlier in life. Importantly, subjective cognitive complaints often do not reflect objective changes in cognitive functioning (see Jorm et al., 1994). However, they do more consistently predict anxiety and negative affect (e.g., Sinoff & Werner, 2003), which makes sense given the threatening nature of feeling cognitive functioning is waning. Although we are unaware of prior empirical work tying subjective cognitive complaints to OCD, Calamari et al. (2002) have suggested that perhaps concerns about cognitive functioning could lead to greater monitoring of thoughts, making normal intrusive thoughts more salient and activating more effortful thought control attempts.

The current study tests a slight modification of this proposal, though one that is consistent with its spirit. We suggest that subjective cognitive complaints may to a degree explain how obsessional beliefs contribute to OCD symptoms in older populations. Specifically, it is expected that subjective cognitive concerns will partially mediate the relationship between obsessional beliefs and OCD symptoms. Individuals with beliefs that thoughts are important, need to be controlled, etc. seem especially likely to become concerned about their cognitive functioning as they age because they will be hypervigilant for even minor, normal changes due to aging. As a result, they will become more distressed in response to normal unwanted, intrusive thoughts than they would have been without the appraisal of cognitive decline. In essence, subjective cognitive complaints exacerbate the effects of obsessional beliefs, and promote maladaptive responses to intrusive thoughts. If you think that you are losing control over your thought processes, you will be more likely to repeatedly check your actions, want order in your life, experience more unwanted intrusive thoughts, etc.—all factors that promote OCD symptoms.

Note that full mediation is not expected, given that both a direct relationship between obsessional beliefs and OCD symptoms, and an indirect relationship through subjective cognitive concerns are hypothesized. The indirect relationship, described above, is thought to be one of the mechanisms linking obsessional beliefs to OCD symptoms, but it still seems likely that certain obsessional beliefs will lead to OCD symptoms independent of the shared variance with subjective cognitive concerns. For instance, a belief reflecting overestimation of threat seems liable to directly promote checking behaviors above and beyond any indirect path involving worries about cognitive functioning declining.

It is not clear whether to hypothesize that the indirect relationship through subjective cognitive concerns will be unique to older populations or true for any persons with such concerns. In other words, it is possible that getting caught in this cycle will be more frequent for older persons because of their greater mean levels of subjective cognitive concerns, but the effects of such concerns (i.e., contributing to greater OCD symptoms) will work the same regardless of age. This possibility is congruent with the idea that any factor that increases the preferential processing of unwanted thoughts may increase vulnerability to OCD symptoms. In this respect, subjective concerns about cognitive functioning may play a similar exacerbating role at any age. Alternatively, the proposed cycle may be particular to older individuals because of unique changes.
that accompany normal aging (e.g., changes in cognitive processing, such as perceptual speed; Salthouse, 1993).

To evaluate these questions, a series of nested models will be examined using structural equation modeling (SEM) to test whether adding subjective cognitive concerns to a model linking obsessional beliefs and OCD symptoms improves its fit. Age differences in the structure of this model will then be examined to determine whether it operates differently as a function of being over or under age 65. Evaluation of obsessional beliefs, subjective cognitive concerns, and OCD symptoms was conducted in a large, community sample with a broad age span (18–93 yo) to insure a large range on the measures. Using a non-clinical sample for this initial evaluation also permits continuous, rather than categorical, evaluation of obsessional symptoms, which is important given concerns about under-diagnosis in older populations (Hersen & Van Hasselt, 1992). This approach is also congruent with the expectation that the link between subjective cognitive complaints and OCD-relevant beliefs will help explain the development of OCD problems, rather than being specific to an established clinical diagnosis. It should be noted that the use of SEM does not test causal relations between obsessional beliefs and OCD symptoms, and as a cross-sectional design, this study cannot directly address questions of development. However, it can examine important inter-individual age differences in the relationships among key components of cognitive models of OCD to shed light on the influence of age and associated cognitive concerns on these models.

Method

Participants

Participants (N = 335, 64% female) consisted of physically healthy (by self report) adults between 18 and 93 years of age (M = 51.06, SD = 17.74) recruited through advertisements in local newspapers in Virginia. Criteria for participation included at least 11 years of education, and ability to come to the lab for three separate testing sessions. All participants completed the Mini Mental State Examination (MMSE; see Measures below) to screen for cognitive impairment. One participant received a low score on the MMSE (score = 19), and reported history of a stroke, so his data were excluded. The remaining sample had a mean MMSE of 28.83 (range 23–30, SD = 1.52), reported a mean number of 15.71 years education (SD = 2.77), and ethnicity was reported as 78% Caucasian, 12% African-American, 2% Asian, 4% American Indian, and 5% indicated other or a multi-racial/ethnic background. Health was self-reported as 2.10 (SD = .89) on a 5-point scale ranging from 1 = excellent to 5 = poor, and mean number of current medications was 2.05 (SD = 3.77). Age distribution of the final sample was age 18–30: N = 54, age 31–50: N = 107, age 51–70: N = 121, age 71+: N = 52.

Materials

The MMSE (Folstein, Folstein, & McHugh, 1975), included as a screener, is a brief, standardized method to evaluate cognitive status by assessing orientation, attention, recall, and language. OCD symptoms were assessed with the Obsessive-Compulsive Inventory-Revised (OCI-R; Foa et al., 2002), which measures overall severity of OCD and is appropriate for assessing sub-clinical OCD symptoms in a non-clinical sample. The 18-item measure has good test-retest reliability, demonstrates convergent validity with other measures of OCD symptoms, and provides subscales for specific symptom domains (i.e., Washing, Checking, Ordering, Obsessing, Hoarding, and Neutralizing). Obsessional beliefs were measured with the Obsessional Beliefs Questionnaire (OBQ; Obsessive Compulsive Cognitions Working Group, 1997, 2001, 2003), an 87-item questionnaire with good psychometric properties that assesses six general belief domains relevant to OCD: Tolerance for Uncertainty, Threat Estimation, Control of Thoughts, Importance of Thoughts, Responsibility, and Perfectionism. Finally, subjective concerns about cognitive functioning were assessed with the general concerns 3-item subscale of the Memory Functioning Questionnaire (MFQ; Gilewski, Zelinski, & Schaie, 1990), a well-established measure of the subjective evaluation of memory, relative to others and in the past (independent of education and self-reported health status; Gilewski et al., 1990). This subscale was selected because of the interest in reflecting general memory self-efficacy, rather than specific worries about forgetting.
or memory strategies (as assessed by the main MFQ factors) that could overlap with items reflecting obsessional concerns. In addition, to assess cognitive concerns more broadly, three additional items were included that assess apprehension about thinking and reasoning skills (modified from Jorm et al., 1997). In this way, it was possible to reflect a range of concerns about cognitive decline, rather than limiting the construct to worries about memory loss.

Procedure

The measures were administered as part of a larger study on the effects of aging on the contents of memory. Tasks were completed across three testing sessions to reduce fatigue.

Modeling plan

Multivariate techniques were used to build a “true score” measure of obsessional beliefs, subjective cognitive concerns, and OCD symptoms in order to model interindividual differences taking into account intraindividual variability. The obsessional beliefs indicator included the six subscales from the OBQ, given the strong theoretical and empirical support for each domain’s relevance to OCD. Analogously, the six subscales of the OCI-R were used to compose the OCD symptoms latent factor. Finally, the MFQ-general concerns subscale and the three items reflecting concerns about thinking and reasoning skills were used to create the subjective cognitive concerns factor.

Correlations among the indicators within each latent factor were evaluated to determine the empirical support for the selected combination of indicators. Next, a series of nested models were examined. Our primary question concerned whether adding subjective cognitive concerns to the model linking obsessional beliefs to OCD symptoms would improve the fit. Fig. 1 outlines the proposed relationships. To evaluate this model, a series of nested structural regression models were compared (see McArdle & Hamagami, 1996), allowing for simultaneous consideration of relations between multiple predictors and dependent variables, along with direct tests of hypothesized differences across nested models that vary the constraints on the paths to and from subjective cognitive concerns. Comparing the change in fit for nested structural models allows alternative hypotheses to be evaluated systematically by testing the change in chi-square value, with lower values indicating superior fit (Joreskog & Sorbom, 1979). Finally, multi-group analyses were conducted to evaluate age invariance in the selected model. To evaluate age invariance, the sample was divided at age 65 (this choice was made to maximize power to detect age cohort differences, though it has the disadvantage of obscuring potentially interesting age differences between the ‘young-old’ and ‘old-old’; age 75+, following groupings by Scogin & Rohling, 1989). All models were fit to the data using AMOS, and full information maximum likelihood methods were used so that incomplete data were treated as missing at random (Little & Rubin, 1987).

Results

Descriptive statistics

Means and standard deviations for each variable in the proposed model are listed in Table 1 by age group (with significant age differences noted). Means on the OCI-R subscales were similar to those seen in prior research with non-anxious controls (and the mean total score was approximately .5 SD below the mean for controls presented in Foa et al., 2002). Approximately 6% of the sample scored above the mean total score found previously for persons with OCD (and ~24% scored within 1 SD of the mean; Foa et al., 2002), suggesting considerable range in OCD symptoms.

Relationships among Indicators: Correlations among the indicators on each latent variable were examined to evaluate whether there was common variance that would justify grouping them together (see Table 2). Given the significant relationships in all cases and the theoretical interest in fully sampling the varied domains of obsessional beliefs and OCD symptoms, all indicators were retained on their respective factors.
Model linking obsessional beliefs to OCD symptoms

The model comparison was designed to determine whether adding subjective cognitive concerns to the model linking obsessional beliefs to OCD symptoms would improve the fit, relative to a model that did not...
include subjective cognitive complaints. Three models were fit, varying constraints on the structural weights (regression parameters connecting the latent factors; see Fig. 1). The baseline model, labeled Model 1, reflected the null hypothesis that subjective cognitive concerns would not add to the model. In this version, the path from obsessional beliefs to subjective cognitive concerns and the path from subjective cognitive concerns to OCD symptoms were both set to zero. This model tests whether there are direct effects only linking obsessional beliefs to OCD symptoms. Model 2 reflected the alternative hypothesis that adding subjective cognitive concerns as a partial mediator of the relationship between obsessional beliefs and OCD symptoms would significantly improve the model fit. In this version, all paths were freely estimated (i.e., no paths were constrained to zero) to estimate both direct and indirect effects linking obsessional beliefs to OCD symptoms. Finally, Model 3 tests the possibility that there are only indirect effects involved (i.e., full mediation), so the path directly linking obsessional beliefs to OCD symptoms was set to zero. Given that only partial mediation was hypothesized, Model 3 was expected to significantly worsen the fit relative to Model 2. (These comparisons to evaluate mediation were modeled after Gionta, Harlow, Loitman, and Leeman, 2005.)

Table 3 outlines the goodness of fit indices for each model, and the change in fit ($\Delta \chi^2$ on $\Delta df$) between Models 1 and 2, and between Models 2 and 3. Assessment of model fit was based primarily on the root-mean-square error of approximation index (RMSEA). This index was selected because it accounts for both absolute fit and model complexity, so that simply adding parameters to the model does not improve fit (Steiger, 2000). RMSEA less than .08 can be considered an acceptable fit (as defined by Browne & Cudeck, 1993). In addition, the comparative fit index (CFI) and normed fit index (NFI) are noted in Table 3, given the importance of looking for convergent evidence across indices. Both the CFI and NFI vary from 0–1, with values above .90 indicating an acceptable fit (Hu & Bentler, 1999).

The goodness of fit indices suggest solid support for Model 2, the model that includes partial mediation by subjective cognitive concerns, with an adequate fit across all indices. Further, as evident from Table 3, when compared with the fit of Model 1 (direct effects only) or Model 3 (indirect effects only), Model 2’s fit was significantly better (see $\Delta \chi^2$ on $\Delta df$ in Table 3, which indicates a significantly lower chi-square value for Model
2 based on the relevant Δdf). In other words, adding subjective cognitive concerns resulted in a significant increment in fit relative to the previous model, but the indirect effects do not fully explain the relationship (suggesting partial, rather than full mediation). Finally, all estimated paths in Model 2 were significant, further supporting the proposed three-factor model and associated indicators (Fig. 1 notes the standardized regression estimates1 from Model 2). These results suggest that Model 2, the model including subjective cognitive concerns, provides a reasonable fit for the data and is superior to the model without this partial mediator linking obsessional beliefs and OCD symptoms.2

2 Table 2
Correlations among indicators for the latent factors

<table>
<thead>
<tr>
<th>Subjective cognitive concerns</th>
<th>Thinking/reasoning relative to earlier</th>
<th>Thinking/reasoning interferes day-to-day</th>
<th>Worry re. changes in thinking/reasoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thinking/reasoning interferes day-to-day</td>
<td>.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worry re. changes in thinking/reasoning</td>
<td>.34</td>
<td>.51</td>
<td></td>
</tr>
<tr>
<td>Memory functioning questionnaire-general</td>
<td>.32</td>
<td>.46</td>
<td>.39</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Obsessional beliefs</th>
<th>Intolerance of uncertainty</th>
<th>Overestimation of threat</th>
<th>Control of thoughts</th>
<th>Importance of thoughts</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overestimation of threat</td>
<td>.70</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control of thoughts</td>
<td>.70</td>
<td>.65</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Importance of thoughts</td>
<td>.62</td>
<td>.57</td>
<td>.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsibility</td>
<td>.75</td>
<td>.65</td>
<td>.67</td>
<td>.57</td>
<td></td>
</tr>
<tr>
<td>Perfectionism</td>
<td>.78</td>
<td>.61</td>
<td>.60</td>
<td>.57</td>
<td>.63</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OCD symptoms</th>
<th>Washing</th>
<th>Checking</th>
<th>Ordering</th>
<th>Obsessing</th>
<th>Hoarding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Checking</td>
<td>.42</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ordering</td>
<td>.35</td>
<td>.49</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obsessing</td>
<td>.35</td>
<td>.47</td>
<td>.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hoarding</td>
<td>.12 (p = .03)</td>
<td>.35</td>
<td>.31</td>
<td>.24</td>
<td></td>
</tr>
<tr>
<td>Neutralizing</td>
<td>.50</td>
<td>.48</td>
<td>.43</td>
<td>.41</td>
<td>.23</td>
</tr>
</tbody>
</table>

1All correlations significant at the 0.001 level.
2Model 2 was also run omitting the item ‘Thinking/reasoning interferes day-to-day’ because of concerns that this item might overlap conceptually with OCD symptoms. All goodness of fit indices remained comparable with this alternate model and all paths remained significant, suggesting that results hold even without this item. Further, running the models using the three subscales from the recently revised OBQ 44 (OCCWG, 2005), rather than the older OBQ 87, also did not change the results appreciably. The main model (Model 2) continued to provide a good fit to the data (χ² = 149.90, df = 62, RMSEA = .065, ΔNFI = .89, CFI = .93), and the paths connecting the three latent factors changed minimally. Also, all paths remained significant, and the model comparisons again suggested that Model 2 provided the best fit.

3The indicators for subjective cognitive concerns were originally scaled such that lower path estimates indicated greater concern, so they were reverse scored for the present analyses to make the model easier to interpret visually (i.e., more concern is now positively related to both obsessional beliefs and OCD symptoms).
4The indicators for subjective cognitive concerns were originally scaled such that lower path estimates indicated greater concern, so they were reverse scored for the present analyses to make the model easier to interpret visually (i.e., more concern is now positively related to both obsessional beliefs and OCD symptoms.).
Age invariance in model

To examine the effects of age, a multi-group analysis using the selected model (\#2) was conducted to consider whether any of the pathways in the model differed significantly as a function of being under or over age 65. Table 4 indicates the goodness of fit indices for the baseline model (which has no paths constrained equal across age groups), followed by a series of models that progressively constrain more parameters. Thus, each test of age invariance becomes more stringent. In each case, the fit of the model is compared to the baseline model (based on the relevant $\chi^2$ distribution). First, only the measurement weights were constrained to determine if the indicators had significantly different loadings on their respective latent factors as a function of age group. The change in fit was not significant. Second, the measurement and structural weights were constrained, and again no significant change in fit was observed, suggesting factorial and structural invariance across age. Third, the measurement and structural weights were constrained, along with the intercepts for each factor in sequence. As indicated in Table 4, only when the intercepts for the subjective cognitive concerns factor were added to the parameters being constrained did a significant loss in fit occur, relative to the baseline model.

Follow-up analyses constraining each indicator on the subjective cognitive concerns factor in succession indicated two variables whose intercepts differed significantly across age groups: thinking/reasoning relative to earlier and MFQ-General (see Table 4). Specifically, older adults reported that their thinking and reasoning was less clear and their memory was worse (relative to others’ and/or to their own cognitive functioning in the past), compared to younger adults. Overall, these results suggest that the number of factors, associated indicators, and pattern of relationships among subjective cognitive concerns, obsessional beliefs and OCD symptoms is invariant for younger and older adults, but older adults report relatively greater levels of subjective cognitive concerns.

Discussion

Anxiety problems have been understudied in older populations. This is particularly true for OCD, where questions of symptom presentation and etiology are only recently starting to receive empirical attention. The current study evaluated a modification to standard cognitive models of OCD (see Frost & Steketee, 2002;
Rachman, 1998; Salkovskis, 1996) to determine whether adding subjective cognitive concerns to a model linking obsessional beliefs to OCD symptoms would improve the model’s fit and application to older populations. A large community sample with a broad age span was used to insure a wide range of OCD symptoms and beliefs, and to insure adequate representation of older adults. As expected, results indicated that subjective cognitive complaints do partially mediate how obsessional beliefs, such as the importance of thoughts, predict OCD symptoms. Interestingly, age invariance was mostly supported with no differences in the model between adults over or under age 65 in the number of factors, associated indicators, and pattern of relationships. However, older adults did report relatively greater levels of subjective cognitive concerns.

Overall, these results provide support to cognitive models of obsessions and suggest that obsessional beliefs that have been validated in younger adult samples are also important for older adults. Relationships among obsessional belief domains and OCD symptom clusters were similar across age groups. Only hoarding symptoms indicated a mean age difference, with higher levels reported by the older sample, which is consistent with prior research (see Calamari et al., 2002; Steketee et al., 2001). It is not yet clear whether these reports reflect greater symptoms that are part of the psychopathology of OCD, or simply reflect a reporting bias, or normative behaviors that are more prevalent in older populations. There was also some indication of lower perfectionism beliefs reported in the older group, but given that this was a non-significant trend, these results need to be interpreted with caution. Finally, there was age variance with respect to elevated levels of subjective cognitive concerns among persons over age 65. This is consistent with earlier findings (e.g., Jorm et al., 1994), and suggests that while the partial mediating role of subjective cognitive concerns seems to operate in similar ways across adulthood, it may occur with greater frequency in older populations. The finding of a mean difference in subjective cognitive concerns but comparable associations with obsessional beliefs and OCD symptoms across age groups suggests that complaints about general cognitive abilities may have important repercussions for anxiety problems, regardless of age.

Calamari et al. (2002) have previously pointed out the plausible cycle between subjective cognitive complaints, increased anxiety and focus on intrusive, unwanted thoughts, but to date there had been no data to address these hypothesized relationships. The current study did not evaluate every step of their hypothesized model, but our findings do suggest that subjective cognitive complaints can partly explain how obsessional beliefs connect to OCD symptoms. Further research is needed to clarify how this mechanism operates, but we expect that concerns about cognitive decline will lead the vulnerable individual (based on

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**Table 4**

Summary of age invariance results for Model 2

<table>
<thead>
<tr>
<th>Goodness-of-fit indices</th>
<th>( \chi^2 )</th>
<th>df</th>
<th>( \Delta \chi^2 \text{ on } \Delta df )</th>
<th>( \Delta \text{ NFI} )</th>
<th>CFI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline (unconstrained)</td>
<td>445</td>
<td>202</td>
<td>Baseline</td>
<td>.83</td>
<td>.90</td>
<td>.060</td>
</tr>
<tr>
<td>Measurement weights constrained</td>
<td>460</td>
<td>215</td>
<td>15 on 13</td>
<td>.83</td>
<td>.90</td>
<td>.059</td>
</tr>
<tr>
<td>Measurement + structural weights constrained</td>
<td>463</td>
<td>218</td>
<td>18 on 16</td>
<td>.83</td>
<td>.90</td>
<td>.058</td>
</tr>
<tr>
<td>Measurement + structural weights + obsessional belief intercepts constrained</td>
<td>470</td>
<td>224</td>
<td>25 on 22</td>
<td>.82</td>
<td>.90</td>
<td>.057</td>
</tr>
<tr>
<td>Measurement + structural weights + obsessional belief + OCD symptoms intercepts constrained</td>
<td>482</td>
<td>230</td>
<td>37 on 28</td>
<td>.82</td>
<td>.89</td>
<td>.057</td>
</tr>
<tr>
<td>Measurement + structural weights + all intercepts constrained</td>
<td>508</td>
<td>234</td>
<td>63 on 32(^a)</td>
<td>.81</td>
<td>.88</td>
<td>.059</td>
</tr>
<tr>
<td>Measurement + structural weights + obsessional belief, OCD symptoms, &amp; ‘thinking/reasoning relative to earlier’ intercepts constrained</td>
<td>494</td>
<td>231</td>
<td>50 on 29(^a)</td>
<td>.81</td>
<td>.89</td>
<td>.059</td>
</tr>
<tr>
<td>Measurement + structural weights + obsessional belief, OCD symptoms, &amp; ‘memory functioning questionnaire-general’ intercepts constrained</td>
<td>489</td>
<td>231</td>
<td>44 on 29(^a)</td>
<td>.81</td>
<td>.89</td>
<td>.058</td>
</tr>
</tbody>
</table>

\(^a\)Indicates change in model fit is significant at \( p < .05 \) on \( \chi^2 \) distribution with relevant \( \Delta df \), relative to baseline (fully unconstrained) model. Significant changes are noted in bold.
their predisposing OC-relevant beliefs) to pay greater attention to their thought processes and monitor their thoughts more closely. This will make intrusive thoughts (that everyone has, but typically ignores) more salient, leading to more frequent attempts to neutralize or suppress the thoughts, thereby aggravating OCD symptoms. Note, although not directly evaluated in this study, we suspect that the relationship between subjective cognitive concerns and obsessional beliefs is likely bidirectional, in that these potentially distorted beliefs can exacerbate one another.

It will be important for future research to evaluate whether subjective cognitive concern is a prospective predictor of OCD symptoms, because the cross-sectional design in the current study cannot address questions of change or permit causal inferences. Other limitations of the study include the use of only self-report measures of OCD symptoms. In addition, the sample was predominantly Caucasian, relatively healthy, and cognitively intact, thus limiting generalizability of the findings. Notwithstanding, the sample demonstrated a broad range of symptoms, and the use of a relatively healthy, non-clinical sample should only make evaluation of the hypothesized relationships more challenging because of the potential for restricted range.

Clinical implications and conclusion

The cognitive-behavioral model of OCD has led to successful treatment approaches for younger adults, but much remains unclear about how effectively we can transfer these models to older patients (though initial results appear promising; see Carmin & Wiegartz, 2000). A first step to adapting cognitive treatments for late-life OCD and other anxiety problems is determining the nature of older adults’ beliefs about their intrusive thoughts and the role that aging processes, including subjective cognitive decline, play in these belief systems. Interestingly, one of the few published studies highlighting treatment for OCD in older persons discusses a case study that fits the model proposed in the current study well (see Bhattacharyya & Khanna, 2004). The report describes a retired professor who developed OCD at age 65 after he began worrying about deterioration and making mistakes in his work, and other obsessions related to aging concerns. In consequence, he began a series of mental rituals that escalated until the individual sought treatment at age 80. This case seems to capture the posited cycle of obsessional beliefs (seemingly perfectionism in this case) that are exacerbated and lead to OCD symptoms following a rise in subjective cognitive concerns. The current study uses a non-clinical sample so the clinical implications of these findings can only be speculative at this time, but to the extent that subjective cognitive complaints play a prominent role in the exacerbation of OCD symptoms in older populations, they may be an important target for treatment.

Cognitive models of emotion dysregulation have long posited that it is the beliefs about events that matter most, not the events themselves. The current findings reinforce this idea, suggesting that although appraisals of cognitive processing are often not good predictors of actual cognitive functioning, they may play a key role in the development or maintenance of OCD symptoms.

Acknowledgements

The authors are thankful for the support provided by Timothy Salthouse and the research assistance provided by Joshua Magee and members of the Salthouse Cognitive Aging Lab and Teachman Program for Anxiety, Cognition and Treatment (PACT) Lab. This research was supported by a National Institute on Aging grant RO1AG19627 to Timothy Salthouse and a University of Virginia Institute on Aging pilot grant to Bethany Teachman.

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