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Cognitive Impairment Leads to Increased Feelings of Sexual Obligation Among a National Longitudinal Sample of Sexually Active Adults Aged 62 and Older

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Abstract

Background and Objectives: We work from a gendered life-course perspective to examine the relationship between cognitive impairment and feelings of sexual obligation among U.S. older adults.

Research Design and Methods: Data are drawn from 2 rounds of the National Social Life, Health, and Aging Project (2010/2011 and 2015/2016). The analytic sample includes 575 sexually active respondents aged 62–86 at baseline. Cognitive impairment is measured using a survey-adapted version of the Montreal Cognitive Assessment, with categories of normal, mild cognitive impairment, and dementia. We estimate cross-lagged models to test the potential reciprocal relationships between cognitive impairment and feelings of sexual obligation.

Results: Older adults with dementia at baseline had significantly higher odds of sexual obligation 5 years later than their peers with normal cognition at baseline, after adjusting for gender, race/ethnicity, education, income, age, marital status, self-rated health, depression, comorbidities, and sexual obligation at baseline. We find no evidence of a reciprocal relationship, as sexual obligation at baseline did not predict later cognitive status.

Discussion and Implications: Older adults with dementia often remain sexually active after their 60s, and many of them feel obligated to have sex with their partner. Our study highlights the importance of understanding the context of their sexual lives. The quality of their sexual relationship, such as whether they feel a duty to maintain their earlier sexual activity or please their partner, and the health implications of sexual obligation should be considered alongside the increase of older adults with dementia.

Keywords: Cognition, Dementia, NSHAP, Sexuality

Background and Objectives

Sexual activity, referred to as “mutually voluntary activity with another person that involves sexual contact, whether or not intercourse or orgasm occurs” (Lindau et al., 2007, p. 763), continues into later life, and sexual behavior is linked to physical and mental health benefits for older adults (Lee et al., 2016; Lindau et al., 2007; Liu

et al., 2016). However, research indicates that the context of the sexual relationship is important for health outcomes (Laumann et al., 1999; Zhang & Liu, 2019). For instance, adults aged 57 and older who feel obligated to have sex report experiencing more stress (Shen & Liu, 2021). Sexual obligation, which refers to having sex out of a sense of duty or obligation rather than desire (Impett et al., 2008),

is prevalent among older adults aged 57–85 (Shen & Liu, 2021; Waite et al., 2009). Older adults may feel obligated to have sex due to cultural expectations that a relationship includes sexual intimacy, beliefs that it is part of the normal sexual interaction, or to fulfill their role as a romantic partner (Culbertson & Dehle, 2001; Muehlenhard & Cook, 1988).

Cognitive impairment, which ranges from mild cognitive impairment (MCI) to Alzheimer's disease and other dementias, results in feelings of confusion and communication problems (Alzheimer's Association, 2021; Davies et al., 2010; Duffy, 1995). If these issues are present in a sexual situation, a person may continue with the sexual activity because it seems expected of them—that is, they feel obligated—rather than out of desire or interest. Moreover, both the experiences of cognitive impairment and sexual obligation vary by gender: women are more likely than men to feel obligated to have sex in a relationship (Lee et al., 2016; Nowakowski & Sumerau, 2019), and more women than men have dementia, largely because of their increased longevity, although incidence rates of dementia are similar across gender (Alzheimer's Association, 2021). Overall, older adults experience both cognitive impairment and sexual obligation, but so far, few studies have examined how these two issues may interact with each other in late life and how the relationship between cognitive impairment and sexual obligation varies by gender (Lindau et al., 2018).

Guided by a gendered life-course perspective, we examine potential reciprocal relationships between sexual obligation and cognitive impairment in late life and pay attention to gender differences in these processes. We analyze a nationally representative longitudinal sample of adults aged 62 and older from the National Social Life, Health, and Aging Project (NSHAP) to address three research questions: (1) is cognitive impairment related to later feelings of sexual obligation in late life? (2) is sexual obligation related to later risk of cognitive impairment? and (3) do these reciprocal processes vary by gender? The importance of this study is highlighted by the continued increase in the number of people living with cognitive impairment in the United States (Alzheimer's Association, 2021). As research explores how cognitive challenges are related to various aspects of older adults' lives, their sexual lives should also be considered because a positive sexual life is important for older adults' overall quality of life (Smith et al. 2019). Results from this study help contextualize the dynamic sexual lives of older adults and are useful for health care practitioners as they consider both cognitive health and sexual well-being in later life.

Sexual Obligation Among Older Adults

Sex may be an assumed relationship aspect, by one or both partners. Within relationships where sex has already been initiated, partners may expect that intimacy to continue,

so unwanted sex may occur out of obligation (Shotland & Goodstein, 1992). Even within relationships where sex is mutually desired, the physical changes that come from aging can make sex more difficult. Yet, adults over age 60 may still feel pressure to continue their sexual activity (DeLamater & Friedrich, 2002).

Sexual obligation among older adults is not widely studied. Research thus far suggests that among adults in their 50s and older, more women than men report having sex out of feelings of obligation or duty (Lee et al., 2016; Nowakowski & Sumerau, 2019). Reports of sexual obligation decrease with age for partnered men and women aged 57–85 (Waite et al., 2009). Sexual obligation is linked with men's greater worry about their sex lives and women's greater dissatisfaction with their sex lives among a sample of adults aged 50 and older (Lee et al., 2016). Experiencing sexual obligation is also related to mental health, including elevated stress and depression among adults in their 50s and older (Lee et al., 2016; Shen & Liu, 2021).

Cognition and Sexual Behavior: Limited Empirical Evidence

Much research on sexuality surrounding cognitive impairment is focused on sexual inappropriateness or consent problems occurring in populations living in nursing or care homes (Grigorovich & Kontos, 2018; Syme et al., 2020). However, the majority of individuals experiencing cognitive decline remain at home, with their spouse or partner often providing care (Pozzebon et al., 2016), so the opportunity for sexual relations remains, including for unwanted sexual experiences such as sexual obligation.

Limited but emerging research on how cognitive status is related to sexual behavior in community-dwelling adults suggests that sex continues—albeit at lower frequencies—for adults with cognitive impairment. Lindau and colleagues' (2018) analysis of a nationally representative sample of adults aged 62 and older found that older men and women remained sexually active in various states of cognitive decline, but the proportion of sexually active older adults decreased as cognitive health declined. Similar results were found in a study that compared 4,201 partnered adults aged 60 and older with and without MCI, where both groups reported sexual activity, but the group with normal cognition reported higher prevalence of sexual activity (Freak-Poli et al., 2018). A review article of eight studies with samples aged 65 and older also found evidence for the association between cognitive decline and sexual behavior, but the results were inconsistent, with some suggesting that better cognitive functioning is related to continued sexual activity while others found no correlation between sexual behavior and dementia (Hartmans et al., 2014).

While older adults with cognitive impairment remain sexually active, little research has considered whether they have sex voluntarily or because they feel obligated. To our knowledge, only one study has addressed this question.

(Lindau and colleagues' 2018) cross-sectional analysis of 3,196 home-dwelling adults aged 62–91 found that sexual obligation was reported more frequently among men with dementia than men with normal cognition while there was no difference in reporting sexual obligation for women with different cognitive statuses. Although informative, this cross-sectional study did not consider the possibility of reverse causality, which is important for studying the relationship between cognition and sexuality in late life.

A Reciprocal Process Linking Cognition and Sexuality: A Gendered Life-Course Perspective

The life-course perspective posits that individuals' development is shaped by their historical and spatial settings, life transitions, and the relationships they have with others (Elder, 1998). This perspective emphasizes the need to consider dynamic life processes in relation to health and well-being over time (Elder et al., 2003). Both individuals' sexual lives and cognition may vary across social contexts and interact with each other as they get older. As adults move into later-life stages, their sexual lives may change due to social and biological aging (DeLamater & Friedrich, 2002); they may also experience a change in cognitive status, as the risk of cognitive impairment increases with age (Alzheimer's Association, 2021).

The change in cognitive status over time may have a subsequent effect on their relationships with others, specifically feelings of obligation in their sexual relationship with their partner, for several reasons. First, apathy is a common behavior change reported in individuals with MCI (Apostolova & Cummings, 2008), and apathy toward sexual behavior is likely to occur among individuals with dementia (Eloniemi-Sulkava et al., 2002; Harris & Wier, 1998). If an individual becomes indifferent toward sexual activity, they may feel they are having sex more as a duty rather than out of desire. Second, individuals with cognitive impairment can have trouble with communication, which may lead them to be unclear in their sexual desires or unable to give sexual consent (Hayes et al., 2009; Mahieu et al., 2017). Data from a focus group of 23 caregivers for spouses with MCI or dementia reported communication problems with their partner, particularly if the partner had dementia (Davies et al., 2010). Another study of 28 spousal caregivers for partners with Alzheimer's disease found that male caregivers in particular reported their partner had limited capacity to give sexual consent which interrupted the sexual moment (Hayes et al., 2009). Third, confusion is a common symptom of cognitive impairment (Alzheimer's Association, 2021), to the extent that the point or conclusion of an activity may be forgotten while the individual is engaged in the activity (Duffy, 1995). Relatedly, problems with sequencing can occur among those with cognitive impairment, such that they may not remember the sequence of sexual events that should occur or have already occurred in intimate situations (Davies et al., 2012). If confusion or

sequencing problems happen during intercourse, the person may continue to go along with sex because it is an activity they are familiar with or may be guided by their partner in how to continue, but they may not be following their own sexual desire. Finally, research indicates that cognitively impaired adults are at risk of being victims of sexual abuse or mistreatment (Lingler, 2003), and this risk may result in their experience of sexual obligation more so than for cognitively intact older adults, even in sexual relationships involving their spouse. Given these impacts that cognitive impairment has on individuals and how they can be linked to feelings of sexual obligation, we predict that:

Hypothesis 1: Older adults with mild cognitive impairment or dementia will have a subsequent greater risk of sexual obligation compared to older adults with normal cognition.

At the same time, it is possible that a reverse relationship is also present. For example, experiencing sexual obligation may be tied to worse cognitive health because the experience of sexual obligation can be stress inducing for older adults, especially over time (Shen & Liu, 2021). Chronic stress is a risk factor for dementia (Johansson et al., 2010). Moreover, sex is a form of moderate physical activity (Butt, 1990) and engaging in physical activity helps older adults' cognitive performance (Kirk-Sanchez & McGough, 2014). However, this benefit may be precluded if sex occurs out of obligation. Taken together, we test the possibility of a reverse causality:

Hypothesis 2: Feeling obligated to have sex is related to a subsequent greater risk of cognitive impairment among older adults.

Gender differences

The life-course perspective often highlights gender as a key factor to define individuals' life-course context. According to the gendered life-course perspective, women and men are socialized differently in childhood and throughout their life course, and this can yield different health and relationship outcomes (Moen, 2001). For instance, women and men face different risks for cognitive impairment and dementia in late life (Gannon et al., 2019), and MCI progresses more quickly to Alzheimer's dementia in women than men (Li & Singh, 2014). In terms of sexual development, today's generation of older women were socialized at a time when traditional gender roles were encouraged, including their sexual behavior. Women were to be sexually submissive and sex was explained to be part of their marital duty, which they were obliged to have despite their own desire (Basson, 2000). These learned gender roles can continue across the life course, which is seen in older women's higher reports of sexual obligation than older men (Lee et al., 2016; Nowakowski & Sumerau, 2019). On the other hand, older men can face social and cultural pressures regarding their sexual performance, with widespread advertising showcasing medications that address erectile dysfunction to allow them to successfully have sex

(Lodge & Umberson, 2012). Successful sexual performance is tied to masculinity, and men may feel obligated to continue having sex despite sexual challenges. These pressures may be internalized before cognitive decline sets in, so men may feel that they should have sex even as they move into various stages of cognitive decline. Additionally, health issues such as vascular diseases prior to the onset of dementia may contribute to men's decreased capacity for successful sexual engagement behaviors and thus increased feeling of sexual obligation. This suggests that for men, sexual obligation is more likely to occur before the onset of dementia. However, this time order may be different for women because connections between their health changes and sexual abilities are less clear. In this sense, the reciprocal process between sexual obligation and cognitive impairment may be more relevant to women, while for men it is more likely that the feeling of sexual obligation occurs before onset of dementia. Therefore, we hypothesize that:

Hypothesis 3: The relationship between cognitive impairment and sexual obligation will be different for men and women in that the reciprocal process is more relevant for women while for men it is more likely to be that sexual obligation predicts later risk of cognitive impairment.

Research Design and Methods

We used data from the second (2010–2011) and third (2015–2016) rounds of NSHAP to consider longitudinal relationships between sexual obligation and cognition. NSHAP is a nationally representative sample of community-dwelling older adults in the United States. The first round of data (2005–2006) included 3,005 adults aged 57–85 and oversampled for African Americans and Latinos. Round 2 surveyed 3,377 respondents, including 2,261 follow-up respondents from Round 1 and 1,116 new interviews for partners and those who declined to participate in Round 1 (Waite et al., 2014). Round 3 surveyed 4,777 respondents, including 2,409 follow-up respondents from Round 2 and 2,368 new refreshment respondents (Waite, 2017). Because consistent cognitive measures were only available in Rounds 2 and 3 in NSHAP, we restricted the analysis to the 2,409 respondents who completed both Rounds 2 and 3 in order to analyze change over time. Round 2 added cohabiting partners, regardless of age, and there were 126 partners under age 62 that we dropped from the sample. The NSHAP questionnaire consisted of two parts, the in-person questionnaire (IPQ; face-to-face interview) and the leave-behind questionnaire (LBQ; self-administered survey). The response rate of LBQ was 87% in Round 2 and 91% in Round 3 (Waite, 2017). Because the sexual obligation measure was asked in the LBQ, the analysis was restricted to respondents who completed the LBQ in both rounds (388 cases deleted). Results from preliminary analysis (results available upon request) suggested that the LBQ sample was more educated and has more female and White respondents than the IPQ sample. Further,

our sample excluded respondents who had no intimate partner ($n = 433$) and respondents who had not had sex in the past 12 months and thus the sexual obligation question was not applicable ($n = 487$). We also excluded respondents with missing data on cognitive status ($n = 12$) and sexual obligation ($n = 388$). The final analytic sample included 575 respondents (333 men and 242 women) aged 62 and older.

Measures

Cognitive impairment

NSHAP administered a survey adaptation of the Montreal Cognitive Assessment (MoCA-SA) to collect data on cognition during Rounds 2 and 3 only (Kotwal et al., 2015). The MoCA-SA measure was pilot-tested and demonstrated validity and internal reliability (Kotwal et al., 2015; Shega et al., 2014). The 18 items included in the MoCA-SA collected information on six cognitive domains, including memory, orientation, attention, language, visuospatial skills, and executive function, with total scores ranging from 0 to 20; this score was then converted to MoCA scores, with a range from 0 to 30, based on a suggested equation (see Shega et al., 2014). In accordance with previous work (Lindau et al., 2018), we used the MoCA score to generate three categories: (1) normal (23 points or greater, reference), (2) MCI (18–22 points), and (3) dementia (17 points or less).

Feel obligated to have sex

NSHAP defined sex as a “mutually voluntary activity with another person that involves sexual contact, whether or not intercourse or orgasm occurs” (Lindau et al., 2007, p. 763). Respondents were asked how often during the past 12 months they had sex “primarily because [they] felt obligated or that it was [their] duty.” Responses ranged from never (1) to always (5). We followed previous studies (e.g., Shen & Liu, 2021) to dichotomize the sexual obligation variable to distinguish between healthy relationships that may have very low levels of sexual obligation (i.e., never/rarely; coded 0) and those with higher levels of sexual obligation (i.e., sometimes/usually/always; coded 1). Additional tests with sexual obligation coded continuously yielded no significant results, suggesting that cognition is related to a distinction of sexual obligation over time rather than the nuances between various levels of sexual obligation (see Supplementary Tables S3 and S4).

Covariates

We controlled for several Round 2 covariates that are suggested to be associated with both sexuality and cognitive impairment (Alzheimer's Association, 2021; Lindau et al., 2007). *Gender* was coded as men (0) and women (1). *Age* ranged from 62 to 86. *Race-ethnicity* included non-Hispanic White (reference), non-Hispanic Black, Hispanic, and others. *Education* was coded as less than a high school degree (reference), high school degree, some

college, and college graduate and higher. NSHAP asked respondents to compare their *family income* to other American families, with options of below average (reference), average, and above average. *Marital status* was categorized into those who are married or cohabiting (0) versus not (1). We also included measures of *self-rated health*, *depression*, and *comorbidities* to account for the global health status of respondents (Idler & Benyamini, 1997). Self-rated health was a continuous measure. Respondents were asked to rate their physical health, with options of poor (1), fair (2), good (3), very good (4), and excellent (5). Depression symptoms were assessed using the Center for Epidemiological Studies—Depression Scale (CES-D; Cronbach's alpha = 0.79; Radloff, 1977). The scale includes 11 questions that inquired about how frequently in the previous week the respondent: (1) did not feel like eating, (2) felt depressed, (3) felt that everything they did was an effort, (4) had restless sleep, (5) was happy, (6) felt lonely, (7) reported people were unfriendly, (8) enjoyed life, (9) felt sad, (10) felt that people disliked them, and (11) could not get going. Response options included rarely or none of the time (0), some of the time (1), occasionally (2), and most of the time (3), and responses were coded so that a higher value represented greater depression. The final CES-D Scale was the sum of the scores for the 11 items. Comorbidities were measured using the modified version of the Charlson Comorbidity Index (CCI; Charlson et al. 1987; Katz et al., 1996) which is a measure of the most common chronic conditions in older adults and has been validated and tested using NSHAP data (Vasilopoulos et al., 2014). The modified CCI includes 10 conditions: heart attack, congestive heart failure, procedure for coronary artery disease, stroke, diabetes, nonskin cancer, metastatic cancer, chronic obstructive pulmonary disease or asthma, rheumatoid arthritis, and Alzheimer's or other dementia. Each condition is given a weighted score per its association with mortality risk; most conditions have a score of 1, except nonskin cancer, which has a score of 2, and metastatic cancer, which has a score of 6. We exclude dementia for our analyses because it is the outcome (see also Hsieh et al., 2021), making the total possible range 0–15.

Analytic Approach

To understand the potential reciprocal relationships between sexual obligation and cognition, we applied cross-lagged panel models which are widely used in the analysis of longitudinal data (Finkel, 2004). The cross-lagged panel models are an analytical strategy specifically designed to describe reciprocal relationships, or directional influences, between variables over time (Berry & Willoughby, 2017; Kearney, 2017). The models are estimated using the structural equation modeling technique. Specifically, we used Round 2 sexual obligation to predict Round 3 cognitive status and used Round 2 cognitive status to predict

Round 3 sexual obligation. In each prediction equation, we controlled for Round 2 cognitive status, Round 2 sexual obligation, and all other Round 2 covariates. All analyses were weighted and further adjusted for the nested distribution within couples using Stata 15 (StataCorp, 2017). To adjust the sample selection biases due to lost to follow-up in the longitudinal survey design, we applied the approach developed by Heckman (1979). This approach consisted of modeling the probability that a respondent would be lost to follow-up between waves, using logistic regression models, conditional on a set of predictors measured at the baseline survey. Then, for individuals who remained in the final sample, cognition or sexual obligation were modeled as a function of a set of independent variables, including the estimated probabilities of lost to follow-up. Following this Heckman-type correction, estimates should be interpreted as being adjusted for factors that may affect that risk, as well as for the tendency to lost to follow-up.

Results

Table 1 shows descriptive statistics of all analytic variables. These results suggest that 28.54% of respondents in Round 2 and 15.32% in Round 3 in our sample felt obligated to have sex in the past year. Additional analysis of gender differences in sexual obligation indicate that women report higher levels of sexual obligation than men, but that both see a decrease in sexual obligation over time (see Supplementary Table S2). Moreover, 19.75% of respondents in Round 2 and 18.65% in Round 3 had MCI, and 5.24% of respondents in Round 2 and 8.59% in Round 3 had dementia. In terms of sociodemographic composition, 56.14% of the sample were men; 84.43% were non-Hispanic White; 35.75% were college graduates; and 34.69% reported family income above the average American. Because our sample was restricted to those who were sexually active in the past year, a majority (93.55%) of respondents in our sample had a partner, either married or cohabiting. Finally, the average age of our sample was 68.18 years old, the average score for self-rated health was 3.69, the average score for CES-D (ranging from 0 to 25) was 3.09, and the average score on the comorbidity index was 0.79 (ranging from 0 to 8). First-order relationships between all variables are included in Supplementary Table S1.

Table 2 shows results from the cross-lagged models, suggesting that baseline cognitive status (Round 2) was significantly related to subsequent feelings of sexual obligation (Round 3), but baseline feelings of sexual obligation (Round 2) did not affect subsequent cognitive status (Round 3). Specifically, after controlling for age, gender, race-ethnicity, education, income, marital status, self-rated physical health, depression, and comorbidities, the odds of feeling sexually obligated 5 years later were 2.89 times higher for those who had dementia than those who had normal cognition at baseline. Interestingly, sexual obligation at baseline was not significantly related to cognitive

Table 1. Weighted Descriptive Statistics, NSHAP Rounds 2 and 3 ($N = 575$)

Variables	Round 2			Round 3
	%	Mean (SD)	Range	%
Obligated to have sex				
Never/rarely	71.46*			84.68*
Sometimes/usually/always	28.54*			15.32*
MoCA				
None	75.02			72.76
Mild cognitive impairment	19.75			18.65
Dementia	5.24*			8.59*
Covariates at Round 2				
Gender				
Male	56.14			
Female	43.86			
Race–ethnicity				
Non-Hispanic White (ref)	84.43			
Non-Hispanic Black	5.50			
Hispanic	6.37			
Others	3.71			
Education				
Less than high school (ref)	8.96			
High school	21.98			
Some college	33.32			
College graduate	35.75			
Relative family income				
Below average (ref)	21.67			
Average	41.62			
Above average	34.69			
Missing	2.01			
Marital status				
Married/cohabiting	93.55			
Not married/cohabiting	6.45			
Age		68.18 (4.90)	62–86	
Self-rated health		3.69 (0.93)	1–5	
CES-D		3.09 (3.59)	0–25	
Comorbidity index		0.79 (1.16)	0–8	
Lost to follow-up R2 to R3		0.20 (0.09)	0.07–0.69	

Notes: CES-D = Center for Epidemiological Studies—Depression Scale; MoCA = Montreal Cognitive Assessment; NSHAP = National Social Life, Health, and Aging Project; R2 = Round 2; R3 = Round 3; SD = standard deviation.

*Significant differences at $p < .05$ level comparing the two rounds of data.

status 5 years later (odds ratio [OR] = 1.07, $p > .05$). Sexual obligation at baseline was a significant predictor for feelings of sexual obligation 5 years later (OR = 5.82, $p < .001$); and having MCI (OR = 3.55, $p < .001$) and dementia (OR = 26.41, $p < .001$) at baseline was a significant predictor for cognitive impairment 5 years later. Results in Table 2 also suggest that non-Hispanic Black respondents had greater odds of experiencing cognitive impairment than non-Hispanic White respondents (OR = 3.66, $p < .001$); and respondents with some college education (OR = 0.30, $p < .01$) and college degree (OR = 0.11, $p < .001$) had lower odds of experiencing cognitive impairment than respondents with no high school diploma.

Table 3 shows the results from the cross-lagged models adding gender interaction terms. These results suggest no significant gender differences in the effect of either sexual obligation on later cognitive status or cognitive status on later experience of sexual obligation.

Discussion and Implications

Cognitive decline influences many aspects of older adults' lives, but only recently has research considered how cognition may affect their sexual lives (Lindau et al., 2018; Waite et al., 2022). Sexual obligation is even more rarely studied, particularly among older adults. However, the

Table 2. Estimated Odds Ratios of Cognitive Status Predicting Sexual Obligation and Sexual Obligation Predicting Cognitive Status From Cross-Lagged Models, NSHAP Rounds 2 and 3 ($N = 575$)

Variables	A. Sexual obligation (binary logit)	B. Cognitive status (ordinal logit)
R2 Cognition (ref: normal)		
Mild cognitive impairment	1.17 (0.60–2.31)	3.55*** (2.00–6.29)
Dementia	2.89* (1.06–7.88)	26.41*** (9.99–69.77)
R2 Sexual obligation (ref: never/rarely)		
Sometimes/usually/always	5.82*** (3.05–11.11)	1.07 (0.61–1.88)
Covariates (all at R2)		
Female	2.82* (0.90–8.83)	1.06 (0.45–2.55)
Non-Hispanic Black	1.69 (0.58–4.94)	3.66*** (1.74–7.66)
Hispanic	1.76 (0.56–5.59)	1.39 (0.67–2.89)
Other race–ethnicity	0.63 (0.14–2.73)	1.66 (0.29–9.73)
Education: high school	0.69 (0.22–2.12)	0.43* (0.17–1.05)
Education: some college	1.04 (0.37–2.96)	0.30** (0.14–0.67)
Education: college graduate	0.81 (0.23–2.81)	0.11*** (0.04–0.35)
Income: average	1.49 (0.57–3.88)	1.22 (0.65–2.30)
Income: above average	1.85 (0.57–5.97)	1.03 (0.52–2.06)
Income: missing	0.91 (0.14–5.78)	1.38 (0.42–4.56)
Age	1.03 (0.83–1.27)	1.09 (0.91–1.30)
Not married/cohabiting	1.05 (0.09–12.49)	0.80 (0.30–2.15)
Self-rated health	0.85 (0.59–1.22)	0.89 (0.65–1.22)
CES-D	0.96 (0.87–1.06)	1.01 (0.94–1.09)
Comorbidity index	0.88 (0.63–1.22)	0.93 (0.74–1.18)

Notes: CES-D = Center for Epidemiological Studies—Depression Scale; NSHAP = National Social Life, Health, and Aging Project; R2 = Round 2; R3 = Round 3. 95% confidence intervals in parentheses.

*** $p < .001$. ** $p < .01$. * $p < .05$. $p < .10$.

gendered life-course perspective argues that changes to both sexuality and cognition occur as people age, and that these experiences are different for men and women due to accumulated gendered experiences and socialization (Moen, 2001). This study provides the first population-based longitudinal evidence on how cognitive status among sexually active adults aged 62 and older is related to risk of sexual obligation over time with a close attention to potential reverse causality and gender differences. In general, our results suggest that for both men and women, having dementia may be a risk factor for developing feelings of sexual obligation rather than vice versa.

In line with our first hypothesis, our results suggest that older adults with dementia face a higher risk of sexual obligation after 5 years than their counterparts with normal cognition. This finding is generally consistent with a broader literature suggesting negative consequences of dementia on multiple dimensions of quality of life and well-being (Hill et al., 2017; Wilson et al., 2013). Notably, personality changes following the onset of dementia, such as memory and sequencing problems (Davies et al., 1998) or being indifferent toward sex (Eloniemi-Sulkava et al., 2002), may influence sexual behavior. For example, previous studies suggest that people whose spouse had dementia tended to experience a negative change in their intimate relationships, including the partner being apathetic toward sex or unable to recognize the spouse's sexual needs (Eloniemi-Sulkava

et al., 2002) or having difficulty in paying attention to sexual needs and in understanding the sexual relationship (Dourado et al., 2010). In these instances, if a person with dementia is indifferent to sex or confused by the relationship, they may be encouraged by their partner to have sex and rely on previously ingrained sexual behaviors to engage in the activity, but it may be more out of feeling obligated rather than their desired commitment to the activity.

While the partners of individuals with dementia may facilitate sex, which the individual then goes along with, it may also be that sexual obligation results from confusion or sequencing problems. A person with dementia may knowingly desire or initiate a sexual encounter at the start, but if they become confused during the activity or cannot remember the next steps (Davies et al., 2012; Duffy, 1995), they may continue with it out of duty. At the same time, people with dementia may have difficulty memorizing the feelings of sexual obligation, and thus predementia mental states may play a key role in evaluating sexual obligation, which may lead to underreports of sexual obligation especially among those with dementia. In this sense, our finding that cognitive impairment leads to increased feelings of sexual obligation may be conservative.

Our second hypothesis predicted that sexual obligation would be related to later risk of cognitive impairment. We found no evidence to support this reverse causality. This is in line with broader previous literature on sexual activity and cognitive impairment suggesting that the likelihood of being

Table 3. Estimated Odds Ratios of Gender Interaction for Cognitive Status Predicting Sexual Obligation and Sexual Obligation Predicting Cognitive Status From Cross-Lagged Models, NSHAP Rounds 2 and 3 ($N = 575$)

Variables	A. Sexual obligation (binary logit)	B. Cognitive status (ordinal logit)
R2 Cognition (ref: normal)		
Mild cognitive impairment	0.91 (0.26–3.25)	3.47*** (1.95–6.17)
Dementia	3.54 ⁺ (0.94–13.40)	25.46*** (9.57–67.75)
R2 Sexual obligation (ref: never/rarely)		
Sometimes/usually/always	5.80*** (3.00–11.21)	1.75 (0.77–3.96)
Female	2.75 (0.77–9.77)	1.41 (0.53–3.79)
Female * Sexual obligation		0.43 (0.14–1.31)
Female * Mild cognitive impairment	1.45 (0.31–6.83)	
Female * Dementia	0.68 (0.12–3.89)	
Covariates (all at R2)		
Non-Hispanic Black	1.69 (0.58–4.97)	3.50** (1.62–7.53)
Hispanic	1.73 (0.55–5.49)	1.28 (0.60–2.72)
Other race–ethnicity	0.60 (0.14–2.63)	1.78 (0.31–10.23)
Education: high school	0.69 (0.22–2.12)	0.43 ⁺ (0.17–1.08)
Education: some college	1.06 (0.38–3.01)	0.31** (0.14–0.69)
Education: college graduate	0.81 (0.23–2.83)	0.12*** (0.04–0.37)
Income: average	1.46 (0.57–3.79)	1.22 (0.64–2.32)
Income: above average	1.85 (0.58–5.88)	1.04 (0.52–2.08)
Income: missing	0.90 (0.14–5.73)	1.35 (0.41–4.40)
Age	1.03 (0.83–1.27)	1.08 (0.90–1.29)
Not married/cohabiting	0.75 (0.27–2.07)	0.75 (0.27–2.07)
Self-rated health	0.88 (0.64–1.21)	0.88 (0.64–1.21)
CES-D	1.01 (0.94–1.09)	1.01 (0.94–1.09)
Comorbidity index	0.94 (0.75–1.18)	0.94 (0.75–1.18)

Notes: CES-D = Center for Epidemiological Studies—Depression Scale; NSHAP = National Social Life, Health, and Aging Project; R2 = Round 2; R3 = Round 3. 95% confidence intervals in parentheses.

*** $p < .001$. ** $p < .01$. * $p < .05$. ⁺ $p < .10$.

sexually active is similar across older adults with normal cognition, MCI, and dementia (Waite et al., 2022). Although previous research finds that sexual obligation is related to negative health outcomes (Shen & Liu, 2021), we do not find evidence that it is linked to later risk of cognitive impairment.

Finally, we found no evidence for our third hypothesis regarding gender differences in the relationship between cognitive impairment and sexual obligation. While Lindau and colleagues (2018) found greater differences in the association between dementia and sexual obligation for men than women aged 62–91, our results, based on longitudinal data, did not support this gendered pattern. The lack of finding significant gender differences may be due to our relatively smaller sample size, which may result in reduced statistical power to detect significant differences. Still, research shows that older women report higher levels of sexual obligation than older men (Lee et al., 2016; Nowakowski & Sumerau, 2019), yet our results do not find a unique experience of gender in the relationship between sexual obligation and cognitive impairment. The gendered life-course perspective posits that men and women are socialized differently regarding appropriate gender-specific sexual activities across the life course, resulting in women's higher reports of sexual obligation than men's (Basson, 2000; Moen, 2001).

Yet, as adults move through the life course, sexual obligation may be present for both men and women as they try to please their partner while facing physical sexual challenges presented by aging (Cacchiono, 2007; Lodge & Umberson, 2012). It is also likely that learned gender roles tend to diminish with aging due to biological and social changes that occur in old age (Carmel, 2019). This later-life change may explain the nonsignificant gender difference in the relationship between sexual obligation and cognitive status. Nevertheless, the specific pathways that link sexuality and cognition may vary by gender despite no gender difference in the overall association. This is a question that clearly warrants future research.

There are several limitations to the study. First, the results are based on two waves of data collected 5 years apart, and we are cautious in making causal claims. NSHAP only included consistent cognition measures in the recent two rounds of data, but it is currently collecting its fourth round. Additional waves of data will not only provide a longer follow-up to study change in sexuality over the life course but also allow for an extended period of time to examine the progression of cognitive impairment. Moreover, our sample size is relatively small and was limited by the number of respondents who answered the sexual obligation

question in the LBQ. This may partially explain our lack of significant findings on any gender differences. Additionally, it is possible that a respondent's sexual obligation may be influenced by having multiple romantic partners at once as people with multiple sexual partners may feel obligated to maintain their different sexual relationships. Further, there may be misreporting in the sexual obligation measure due to a disconnect between what respondents remember and report versus what actually occurred. Previous research shows that reports of sexual activity by people with dementia may not align with their spouse's reports (Nogueira et al., 2017). While NSHAP only surveyed respondents with the cognitive ability to give consent, understand the instructions, and complete the survey questions, this means that those with severe dementia were likely excluded from the sample (Kotwal et al., 2015). This suggests that our sample excluded the most vulnerable group and our conclusion may be conservative. Future research should consider this most vulnerable group to tease out differences between ability to give sexual consent and experiences of sexual obligation in relation to cognition. Finally, we are limited by the data in several ways. NSHAP does not include any measure on whether sexual activity was consensual, so we are unable to consider that in our models. NSHAP also did not collect information on gender identity, and it was not until Round 3 that sexual orientation data were collected. In Round 3, only two respondents identified as gay or lesbian and seven respondents identified as bisexual. Excluding these nine respondents (results not shown but available upon request) did not change our results. The relatively small sample size also limited our ability to examine potential racial-ethnic differences. Future research should be done on this topic using samples that are more diverse in terms of race/ethnicity and sexual orientation and identity.

Despite the limitations, our study makes significant contributions to this line of literature and our findings have important implications. Although consent is often a focus of sexual activity for cognitively impaired populations, our results highlight the importance of considering unwanted sexual situations where sex occurs less out of desire but the person is still consenting to it. There are mental health implications to experiencing sexual obligation over time (Shen & Liu, 2021) which may complicate the preexisting cognitive condition. Even in the face of dementia, spousal caregivers want to preserve the sexual relationship they had with their partner which can be comforting, supportive, or help them adjust to other changes dementia brings (Davies et al., 1998). However, it is likely that these benefits are best realized in instances where sex occurs from mutual desires rather than a partner feeling obligated to engage in or continue it. Implications for policy and practice include recognizing that adults with dementia can also be sexually active. Beyond focusing on whether sex is consensual or not in sexually active, community-based older adults facing cognitive decline, health care practitioners should also

inquire about the details of the sex older adults are having in order to ensure their sexual desires are communicated and to mediate any negative outcomes which could arise with experiencing sexual obligation over time, especially for those who have dementia. Community-residing adults faced with cognitive impairment should be encouraged to discuss changes in their sexual relationship that they suspect relate to cognitive impairment with their health care provider as early as possible. More research on various consensual sexual activities is clearly warranted especially among older adults as the older population continues to grow, remains sexually active (Lindau et al., 2007), and faces high prevalence of cognitive decline (Zheng, 2021).

Supplementary Material

Supplementary data are available at *The Gerontologist* online.

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Conflict of Interest

None declared.

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Data are available to download at Inter-university Consortium for Political and Social Research. Researchers interested in the analytic code used in the study should contact the corresponding author.

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