



## Singles of both sexes expedite reproduction: Shifts in sexual-timing strategies before and after the typical age of female menopause

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### ABSTRACT

How do singles' strategies for engaging in sexual activity with a new partner vary across the adult lifespan? Using three large and independent demographically representative cross-sectional samples of heterosexual single adults in the U.S., we found that females approaching the typical age of menopause became less likely to establish relationship exclusivity prior to sexual activity with a new partner. However, after the typical age of menopausal onset, females returned to earlier levels of commitment choosiness. These changes in commitment choosiness surrounding the age of menopause were consistent across two studies (including a larger dataset combining two samples). Findings suggest that single females approaching menopause—a major life history milestone—alter their behavior to achieve reproductively relevant partnering goals but abandon this mating strategy once the typical reproductive period has ended. Males exhibited similar, though attenuated, changes in expected relationship commitment before sexual activity during midlife as well. Age-related changes in commitment corresponded with the amount of stress expressed regarding one's “biological clock”. However, reduced commitment choosiness did not vary with frequency of sexual thoughts, frequency of sexual behaviors, or external pressures to find a romantic partner. Results are discussed in terms of life history theory and sex differences in sexuality.

### 1. Introduction

The “Closing Time” effect (Pennebaker et al., 1979) holds that over the course of an evening in a bar, patrons rate one another as more attractive as closing time approaches. This result highlights the influence of diminishing opportunity on decision making, even on social interactions that take place over the course of just a few hours. However, it is less understood what happens when the time scale is expanded. Do diminishing opportunities have similar effects on romantic and sexual decision making over longer durations, such as over years or across the lifespan?

A few studies have attempted to address questions related to the effects of age on partner preferences and choice. Most have been couched in terms of individual value on mating markets, with age-related declines in fecundity (reproductive capacity) associated with

diminishing value and hence decreasing market competitiveness and selectivity (e.g. Fales et al., 2016; Kenrick & Keefe, 1992). In research on newspaper personal ads, for instance, both older women and relatively less attractive women tended to be less demanding than their younger and more attractive counterparts (Pawlowski & Dunbar, 1999; Waynforth & Dunbar, 1995). The decline in demands may be due to female age being negatively correlated with the number of suitor responses a woman receives, be it in newspaper ads (Baize & Schroeder, 1995) or online dating markets, where men contrastingly receive greater interest with age (Bruch & Newman, 2018). However, it remains unclear whether women of an older age are more generally exhibiting shifts in their behavioral strategies to accommodate diminishing mating opportunities. Furthermore, considerably less work has been done on age-related shifts or changes in men's sexual behavior (e.g. DeLamater, 2012; Gray & Garcia, 2012). The current study

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explores these questions of shifting mating strategies across the adult life course in two separate studies of adult singles in the United States.

### 1.1. Behavioral responses to reproductive aging

Animals with a limited breeding season provide comparison cases that can reveal wider evolutionary patterns regarding diminishing mating opportunities. Reproductive senescence occurs across a variety of sexually reproducing species (Alberts et al., 2013; Nussey, Froy, Lemaitre, Gaillard, & Austad, 2013), and female choosiness (that is, selectivity for a mate) often decreases when reproductive time is limited. In polygynous killifish [*Austrolebias reicherti*], for example, females prefer larger males, but this preference decreases by the end of the breeding season (Passos, Tassinio, Reyes, & Rosenthal, 2014). In cockroaches [*Nauphoeta cinerea*], females who are prevented access to males early in the lifespan subsequently require dramatically less courtship prior to mating (Moore & Moore, 2001). Theory predicts generalized expedited courtship and lowered mating standards as time diminishes for other species as well: Computational simulations have shown that animals with a limited breeding season and mutual mate choice should optimally become less choosy over time as the number of mating prospects and quality of remaining mates decreases (Crowley et al., 1991; Johnstone, 1997), provided mate quality changes over time (but see a counter-example from a species with biparental care in Kvarnemo & Forsgren, 2000).

Human adults also decrease in reproductive ability over the lifespan, meaning one might expect corresponding lowered standards for a potential reproductive partner (reduced mate choosiness) as age advances. All else being equal, individuals should be choosy in their partner choices overall, as there are a variety of social, economic, sexual, reproductive, and survival benefits that can result (directly or indirectly) from good partnering decisions. The sexes vary in this pattern: Women are relatively more choosy in mate choice than men, having more demanding preferences for a mate (Schwarz & Hassebrauck, 2012) and preferring to wait longer prior to engaging in sexual intercourse with a new partner (Buss & Schmitt, 1993). Women also decline in fecundity faster than men, experiencing reproductive cessation with the onset of menopause, a transitional process that consistently begins around the ages of the late 40s and early 50s (recent biomedical reproductive technology interventions notwithstanding). Menopause, therefore, represents a significant temporal boundary in direct reproductive fitness for women—that is, a *reproductive deadline* or *milestone*, but crucially one that does not typically occur at the end of life. Despite the importance of this life history event, relatively little is known about the consequences of reproductive decline on women's mate choice strategies and choosiness.

As with other species, reduced choosiness in response to diminishing reproductive opportunity may be advantageous for women as menopause approaches. When younger, the benefits of being romantically and sexually discriminating are large, because one can choose a good partner with whom to have and raise multiple offspring in the years ahead. But being choosy also comes with costs: Being more restrictive in partner choice typically results in some good opportunities being lost, more time passing (thus delaying partnering and/or reproduction), and potentially increasing intrasexual competition with other choosy individuals attempting to attract the same mates. When the reproductive window begins to close, the cost-benefit scales tip with respect to individual reproductive potential, particularly for women, making it more advantageous to relax their choosiness towards sexual partners.

Just such a pattern was found by Easton, Confer, Goetz, and Buss (2010)—in their study, women ages 27–45 years (i.e. those typically nearing or experiencing a decline in fecundity) reported more frequent sexual fantasies and more willingness to have sex with a partner they had known for a short period of time than women ages 46+ (i.e. approaching menopause or post reproductive deadline) or women

younger than 27 (i.e. no immediate reproductive deadline). The authors dubbed the effect *reproduction expediting*—a tendency for women (both nulliparous women and those with children) nearing the onset of menopause to engage in behaviors and thoughts promoting additional sexual activity. While theory predicts this particular pattern for women, their study did not include men, leaving unexamined additional questions around the sex-specific nature of the reproduction-expediting effect. Schmitt et al. (2002) also found that women, but not men, experience a sexual peak in the early 30s, hypothesizing it could increase fertility in long-term monogamous relationships. These results are in line with an evolutionary prediction that women nearing menopause have facultative changes in sexual desires and engage in sexual activities that promote increased potential of sexual intercourse, conception, and ultimately reproduction.

Most past research has focused on what happens to women's mating strategies as they *approach* menopause, but that is only a portion of the lifetime story of women's partner choices. Humans tend to engage in pair-bonding and reproduction throughout much of the adult life course and enter partnerships not just to reproduce, but also for companionship and recreational sex, among numerous other reasons. Cross-cultural and biological evidence indicates that older adults generally remain sexually active, with older women even showing increased sexual satisfaction (Gray, Garcia, & Gesselman, 2018), even though sexual activity (and reproductive output) generally declines with increased age (DeLamater, 2012; Gray & Garcia, 2012; Winn & Newton, 1982). After menopause, when sexual reproduction is no longer as substantial a factor in women's partner choice, other factors such as companionship, resources, and health benefits remain important, and individuals should again attempt to choose a high-quality partner—but based on these other aspects of a mate not necessarily tied to their reproductive possibility. As a result, the cost-benefit comparison can shift back in favor of the benefits of greater choosiness in the relationship domain. Thus, we hypothesize a general U-shaped pattern for women's romantic/sexual partner choosiness, predicting a steep decline in choosiness before the typical age of menopausal onset (reproduction-expediting), and a return to greater choosiness after menopause.

Choosiness can be defined as an acceptable threshold level for some valued trait in a mate. Individuals value many traits in a mate, which differ in relative importance. We here focus on a single trait that is *typically* valued by women: commitment (see Discussion for additional consideration of choosiness based on other important traits). We measure choosiness regarding commitment in terms of the length of time one expects to wait prior to having sex with a potential new romantic or sexual partner (one's *sexual-timing strategy*<sup>1</sup>), such that waiting longer indicates greater choosiness. Therefore, we expect:

**H1.** : While women approaching the typical age of menopausal transition are likely to use sexual-timing strategies that reduce their partner commitment choosiness, women beyond that age will be more likely to use strategies requiring greater partner commitment, increasing commitment choosiness to levels similar to those before menopause.

Testing this hypothesis involves replicating the reproduction-expediting pattern observed by Easton et al. (2010) in a larger and more diverse national sample with a greater range of sexual choice behaviors.

Although research on choosiness often focuses on the advantages for women, men also benefit from choosiness for a long-term partner and face age-related declines in fecundity. Therefore, men could also vary their degree of choosiness over the life course. Research has shown that

<sup>1</sup> Not to be confused with the related, but distinct, concept of sexual strategy (Buss & Schmitt, 1993). While individuals' sexual-timing strategy likely covaries with their sexual strategy in terms of short-term or long-term mating preferences, here we are concerned only with how people decide when to have sex with a new partner.

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