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Perhaps It Was Too Soon: College Students' Reflections on the Timing of Their Sexual Debut

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ABSTRACT

Early sexual debut has been a focus of social scientific research due to its association with adverse circumstances and negative outcomes. However, there has been a recent shift to considering not only chronological age, but also the degree to which the event is viewed to be optimally timed (i.e., the perception that it occurred at the “right time” versus too soon). The purpose of this study was to assess how individual/family background variables and contextual aspects of the experience (including partner and relationship aspects) are associated with both the actual age at sexual debut and the perceived acceptability of the timing of the event. Using data collected from students at a U.S. university between 1990 and 2019 ($N = 6,430$), several factors (in addition to chronological age) were associated with the perceived acceptability of the timing of sexual debut. Strong gender differences were found – women perceived their timing to be less acceptable, even though they did not differ from men in actual age at sexual debut. Other robust predictors of perceived acceptability included (lower) religious involvement and recalling desire (for the experience), pleasure, and lower guilt at the time. Only slight changes occurred over the 30-year period in age at sexual debut and perceived acceptability of the timing. Suggestions for future research are provided and implications for sex education/sexual health interventions are discussed.

Sexual debut, usually defined as first sexual intercourse, is considered a significant, memorable event in individuals' lives (Harvey et al., 1986). The timing of sexual debut has received considerable research attention in large part due to the potential negative implications of early sex. Early sex has been most often conceptualized as sexual initiation occurring before peers, before the legal age of sexual consent, or before the age of 15 or 16 (Hawes et al., 2010; Sprecher et al., 2019). It is associated with later negative health outcomes, such as a heightened risk of sexually transmitted infections (STIs) and unplanned pregnancies (Else-Quest et al., 2005; Heywood et al., 2015; Sprecher et al., 2019).

Recently, however, it has been argued that optimally timed sexual debut should not focus exclusively on chronological age at the event, but also on the perceived timing of the event; that is, whether sexual debut is believed to have occurred at the “right time” versus too soon (e.g., Dickson et al., 1998; Moreau et al., 2019; Palmer et al., 2017, 2019; Wellings et al., 2001). In line with this work, this study contributes to the literature on how young adults perceive the timing of their first sexual intercourse experience.

The Public Health Concern about Early Sexual Debut

Public health concern surrounding early sexual debut has led to research on predictors, outcomes, and the corresponding

risk and vulnerability associated with early onset of sexual activity. Reviews of the research have emphasized that those who have an early sexual debut are more likely to have family-related risk factors, such as low socio-economic status and family life disruptions (e.g., conflict, low parental monitoring, and parental absence) (Gordon & DeLamater, 2015; Lee et al., 2018; Sprecher et al., 2019). Other environmental predictors include coming from a disadvantaged community and having peers who are sexually active (Epstein et al., 2014; Lee et al., 2018). A host of personal factors also predict early sexual debut, including behavioral inhibition and externalizing (e.g., aggression, delinquency) and internalizing behavior problems (e.g., anxiety, depression, withdrawal) (Epstein et al., 2014; Savioja et al., 2015; Skinner et al., 2015).

Identifying these risk factors is important because early sexual debut is associated with a variety of later adverse sexual and relationship outcomes (Heywood et al., 2015; Lara & Abdo, 2016), lower psychological adjustment (Samek et al., 2014), and health issues (Epstein et al., 2018). However, it may be that it is the constellation of negative contextual factors that co-occur with an early sexual debut that are related to these outcomes. Else-Quest et al. (2005) found that a negative context at sexual debut (i.e., forced, pressured, or while under the influence of drugs and alcohol) predicted later sexual dysfunction and poor well-being better than did premarital or marital relationship status, although they did not consider

individuals' perception of the acceptability of the timing of debut.

Adding to the complexity of the implications of the timing of sexual debut, the age at which sexual debut typically occurs has shifted across time, but in different ways across different cultures. For example, according to data from the U.S. National Survey of Family Growth conducted 1988–2010, the percentage of unmarried adolescents (15–19 years) reporting sexual intercourse decreased from 51% to 43% among females and 60% to 42% among males (Martinez et al., 2011). Meanwhile, in the British NATSAL (National Survey of Sexual Attitudes and Lifestyles) data collected between 1990 and 2012, the percentage of adolescents (16–18 years) reporting intercourse increased from 53% to 60% among females and from 55% to 61% among males (Lewis et al., 2017). Thus, the concept of “early” sexual debut may differ based on birth cohort and culture. Clearly, the characterization of sexual debut as “early” is not straightforward, definite, or universal.

Acceptable Timing of Sexual Debut in the Context of Sexual Competence

The degree to which individuals perceive sexual debut as having occurred at an acceptable time (versus too soon) is considered a key component of the larger construct, *sexual competence* at sexual debut. Wellings et al. (2001) initially proposed that sexual competence at the time of sexual debut captures the individual's emotional, psychological, and behavioral preparedness to engage in sexual intercourse better than does the person's chronological age. Sexual competence comprises not only the extent to which a person believes that the event was characterized by optimal timing, but also autonomy in the decision to have sex (i.e., not influenced by factors such as peer pressure), equal willingness of both partners, and contraceptive use. Palmer (2015) found that the perception that first sexual intercourse occurred at the “right time” had the strongest factor loading on sexual competence, particularly for women. In addition, of all the negative features of first sex (e.g., nonuse of contraception, non-mutual interest), sexual debut not occurring at the right time was the most commonly cited negative feature among both women (39.7%) and men (26.5%) (Palmer et al., 2019).

A few other studies have considered the perception of the timing of sexual debut. Rouche et al. (2019) showed that sexual debut timing was related to health-related quality of life among 1778 Belgian adolescents (16–20 years old). Among those who reported a low health-related quality of life, 33.5% indicated that they wished first sexual intercourse had happened later than it did or not at all. In a study of 6,073 adolescents across four European countries (Moreau et al., 2019), the modal response was that first intercourse had occurred at the right time (43.8%). However, 17.5% reported that it had occurred earlier than desired. The remainder either thought debut was later than they would have preferred (11.1%) or else had not previously considered the timing (25.7%). A longitudinal study of a small sample of U.S. adolescent teenagers (most of whom were African American), however, found that 78% indicated they were “too young” at their sexual debut (Cotton et al.,

2004). The higher percent in this sample of those believing that sex had occurred too soon (relative to NATSAL and other samples) likely reflects the nature of the sample (teenagers age 12 to 15 at the start of the study, selected from an adolescent medical clinic).

Several of these studies, including those based on the British NATSAL samples, examined predictors and covariates of the perceived timing for sexual debut. For example, gender was a strong predictor of the perception of the timing of sexual debut. With NATSAL-2, Wellings et al. (2001) found that twice as many women (40.8%) as men (20.4%) reported feeling regret about the timing (i.e., they wished that they had waited longer). Similarly, with NATSAL-3, Palmer et al. (2019) found more women (39.7%) than men (26.5%) reported that sexual debut did not happen at the “right time.” In both NATSAL samples, this gender difference was even more pronounced for those who were younger at first sexual intercourse. In addition, in the Moreau et al. (2019) study, 32.1% of female adolescents compared to 9.5% of male adolescents reported negative feelings about the timing of their sexual debut.

Researchers have also identified other factors associated with the perception that the timing of sexual debut was too soon. Not surprisingly, a younger chronological age at sexual debut is associated with the perception that the transition had occurred too soon (Cotton et al., 2004; Palmer, 2015). In addition, family affluence, a consensual experience, having a sexual debut partner who was approximately the same age, and other components of sexual competence were associated with the perception of acceptable timing (Cotton et al., 2004; Moreau et al., 2019; Palmer, 2015; Palmer et al., 2019). Sexual competence has also been associated with living with both parents, higher family socio-economic status, higher educational attainment, having a racial/ethnic identity other than African American, and having sexual debut in a relational context (Palmer, 2015; Palmer et al., 2019).

In sum, the perception that sexual debut occurred at the right time (and not too soon) is a key element of sexual competence at sexual debut (Palmer et al., 2019; Wellings et al., 2001). However, this perception is likely to be associated with other affective reactions.

Emotional Reactions to Perceived Timing of First Sex

Adolescents tend to regard their sexual experiences as more positive than negative (Fortenberry et al., 2005; Verbeek et al., 2020), although the transitional experience of first intercourse is often associated with a mix of positive and negative feelings – both in anticipation of the event and as recalled later after the event (O'Sullivan & Hearn, 2008; Rouche et al., 2019; Vasilenko et al., 2015). Furthermore, a robust gender difference has been found, in that numerous studies have shown that sexual debut is associated with fewer positive emotions and more negative emotions for women than for men (Darling et al., 1992; Rouche et al., 2019; Sprecher, 2014). The findings on emotional reactions to sexual debut underscore how integral emotional components are to first sexual experiences (see Else-Quest, 2014) and suggest that emotional reactions are likely to be tightly linked to the perceptions of the perceived timing of the event.

Conceptual Framework

The current study addressed the timing of sexual debut by considering the perception of the degree of acceptable timing jointly with chronological age at the time of the event. A contextual-behavioral perspective steered our choice of factors to include as covariates. This conceptual framework focuses on behavior embedded within a historical and situational context (Hayes et al., 2012; see Small & Luster, 1994 for a similar ecological model). The act-in-context, in this case sexual debut, occurs not only at the individual level, but also at the interpersonal level. In line with this framework, we drew from the literature key variables that are central to understanding sexual debut. These represent both individual and family background variables (age, gender, race, religious involvement, social class, family background) and interpersonal characteristics (age gap between partners, contraception use, sexual pressure, desire for sex, and relationship type), as well as a historical metric (i.e., cohort).

A great deal of research has focused on gender differences in sexual debut experience, including emotional reactions to first intercourse. These studies typically have found that girls and women report more negative feelings compared to boys and men (Reissing et al., 2012; Rouche et al., 2019; Schwartz & Coffield, 2020; Sprecher, 2014). Race/ethnicity is another important background variable, but the research on race and sexual debut is equivocal. Some studies have found that race predicts the timing of sexual debut, with African-American young people more likely to have early sexual debut (Cavazos-Rehg et al., 2009; Furstenberg et al., 1987; Stevens-Watkins et al., 2011), whereas other studies have found no effects for race (Rouche et al., 2019; Vasilenko et al., 2011) or that race intersects with gender (Upchurch et al., 1998).

Religiosity is another individual difference variable found to have an important influence on early sexual experiences. Generally, greater religiosity is associated with a delay in sexual debut, especially among women (George Dalmida et al., 2018; Rostosky et al., 2004). Furthermore, being more religious is associated with anxiety or guilt as a consequence of sexual experience among young people (Tan & Yarhouse, 2010; Woo et al., 2012). Although less often examined, urban-rural setting can be associated with the timing of sexual debut, with a later onset of age at sexual debut for those in rural areas than for those in urban areas (Ford & Bowie, 1989).

Family context also appears to influence emotional reactions to the timing of first intercourse. Specifically, research indicates that stressful family experiences are strongly associated with early sexual debut (e.g., Lee et al., 2018). Adolescents who did not live with both parents or those who were socio-economically disadvantaged had more negative reactions than their counterparts from two-parent families or more advantaged social classes, respectively (Hawes et al., 2010).

Finally, relationship context also appears to be an important factor in perceived acceptability of the timing. Those who indicate that first sexual intercourse occurred at the right time (versus sooner than they wanted) tend to report that

debut occurred within the context of a romantic relationship (Palmer, 2015; Rouche et al., 2019; Zimmer-Gembeck et al., 2015). Additionally, more negative outcomes and feelings are reported when first intercourse occurs outside of a relationship (Shulman et al., 2009) and when contraceptives are not used (Moreau et al., 2019; Rouche et al., 2019), possibly because these factors reflect power, pressure, detachment, or dominance in ways that do not facilitate agentic decision-making.

The Current Study

The current study advances work in this area with data from a sample of over 6,000 young adults, who represent successive cohorts surveyed over three decades at a large Midwestern U.S. university. Students responded to several questions about first sexual intercourse, including their age at the time and their perception regarding the timing of the event. In response to calls for research exploring changes across decades (e.g., Twenge et al., 2017), we examined whether chronological age at sexual debut and the perception of acceptable timing of the event changed over the 30-year period. Our focus on the perceived appropriateness of the timing aligns with recent sex-positive frameworks for adolescent and young adult sexuality (Golden et al., 2016; Harden, 2014; Hensel & Fortenberry, 2014).

Our cross-sectional cohort study had four aims. The first was to examine how common it is for emerging adults to perceive that the timing of sexual debut was at the “right” age, whether the perceived acceptability of the timing was associated with chronological age at sexual debut, and whether (and how) the timing variables have changed over time. Our hypotheses and research questions for the first aim were:

RQ1: How common is it for emerging adults to perceive that the timing of their sexual debut is acceptable (versus unacceptable) for themselves?

H1: There will be a positive association between age at sexual debut and the perception of appropriate timing for sexual debut (i.e., those who were older at sexual debut will be more likely to perceive that the timing was acceptable).

RQ2: How have both perceived acceptability of the timing of sexual debut and age at sexual debut changed over three decades?

Because considerable prior research has found gender differences in the experience of sexual debut, our second aim was to examine whether men and women perceived the timing of their sexual debut differently. Based on previous research, our predictions were:

H2: (a) Women will be less likely than men to report that sex had occurred at the right time (i.e., women will be more likely to believe that sex had occurred too soon), even though (b) No difference will be found between men and women in age at sexual debut.

A third objective was to examine how other demographic/background and family variables (e.g., race, socio-economic class, family structure) predicted both perceived timing of sexual debut and age at sexual debut:

RQ3: Is the variation in perceived acceptability of the timing of sexual debut and age at sexual debut associated with race, religiosity, urban-rural setting during adolescence, family socio-economic status, and parental marriage/family structure?

Our fourth objective was to examine how perceived acceptability of the timing of sexual debut was associated with other aspects of the context of the first time. We expected:

H3: The perception that the timing of sexual debut was unacceptable (i.e., occurred too soon) will be associated with other negative aspects of the first time, including negative emotional reactions, pressure to have sex, nonuse of contraception, having the experience occur outside of a relational context, having an older partner, and recalling less desire and other positive affect.

Method

Overview to the Data

The sample for this study was obtained from a larger study of college students at a U.S. Midwestern public university, which enrolls a diverse student body including from rural areas, small cities, suburbs, and a major city in the Midwest. Beginning in 1990 and for most years through 2019, a convenience sample of college students from the university completed a survey about their sexual attitudes and behaviors as part of a human sexuality class that enrolled students from numerous majors. In one section of the survey, participants responded to a screening item that asked whether they had engaged in sexual intercourse (or another intimate genital activity if first sex had occurred with someone of the same sex). Students who reported that they had had sex completed a series of items about their first experience; those who reported that they had not engaged in sex completed separate items (not addressed here).

Participants who replied to the screening question that they had not engaged in sex were omitted from the analyses. We also eliminated those whose current age was under 18 or over 24. Additional information on inclusions and exclusions (including due to faulty or missing data) is available in online Supplementary Table 1.

Sample

The final sample for this study consisted of 6,430 young adults. Of this sample, 36.1% ($n = 2,321$) were men and 63.9% ($n = 4,109$) were women. The mean age of the participants was 20.08 ($SD = 1.41$). With regard to ethnic background, 85% identified as White/Caucasian, 9% identified as Black/African American, and the remaining 6% selected another race (e.g., Asian, Hispanic), selected "Other," or left the question blank.

Procedure

The participants completed a voluntary and anonymous survey (which had received institutional ethics approval from the university) during class time, typically within the first 2–3 weeks of the semester's instruction. Students were informed that the survey was conducted for both research and instructional purposes. Participants read the questions on paper surveys but completed their answers on machine-readable opscan sheets to enhance the privacy of the students' responses and to facilitate presenting results back to the class during the semester. In most semesters, the participants were given extra credit to either complete the survey or an alternative activity if they preferred not to complete the survey. Almost all students present on the day that the survey was administered completed it (estimated to be > 95%).

Measures

The survey completed by the participants beginning in 1990 was updated slightly three times (1997, 2006, 2016) with item additions, deletions, and modifications. With only a few exceptions that are noted below, the items measuring the participants' first sexual experience (e.g., age at first time, perceived appropriateness of the timing) and the items assessing the predictor variables (e.g., family background) were identical in all versions of the survey. The items in the survey reported in this article are described below.

Timing of First Sex

To measure *age at sexual debut*, participants were asked, "How old were you the first time you had sexual intercourse?" The closed-ended response options were: under 14, 14, 15, 16, 17, 18, 19, 20, 21, and over 21. This item was recoded for the analyses so that the first option was recoded to 13 and the last option was recoded to 22, although both recoded ages are estimates.

The key item asking about *perceived acceptability of the timing of sexual debut* was: "Looking back, do you think you had your first sexual intercourse experience at the right age, too early, or too late?" The response options were: I wish I had waited until I was older; I was at about the right age; and I wish I had it sooner (at a younger age). For most of the analyses below, we used a recoded, dichotomous item to represent perceived acceptable timing, which was *wish I had waited until I was older* versus *the right age or wish I had it sooner*. Thus, a lower number indicated that the timing was perceived to be too soon and a higher number indicated more acceptable timing. Very few participants (<6%) indicated that they wished they had had sex sooner and thus these participants were combined with those who perceived they were at the right age to represent the group who did not believe it was too soon.

Year of Data Collection and Demographic Predictors

Year of data collection was a code that was added by the investigator to each participant's opscan form. Participants were asked their *gender/sex* (male or female; and beginning with the revised survey in 2016, an "other" option was included). Participants were asked their *race/ethnic background*, and were presented with the following options: White, Black, Hispanic, American Indian, Asian, and Other. The *type of (urban vs.*

rural) setting in which the participant was raised was assessed with the question “In what type of setting did you spend most or all of your adolescent and teenage years?” The response options were as follows: *rural community, small town, large town or small city, suburb of large city, and large city.*

Religious involvement was measured with two items. One item was: “How religious do you consider yourself?” and was followed by a 4-point response scale that ranged from 1 (very religious) to 4 (not religious). This item was recoded so that the higher number indicated greater religiosity. The second item asked about attendance at church, synagogue, or a spiritually based program, which was rated on a 5-point scale ranging from 1 (0 times) to 5 (4 or more times a month). The first item was recoded to a 5-point scale (by multiplying the responses by 1.25) to be weighted equally with the second item. The two items were correlated ($r = .53, p < .001$) and were combined for an index of religious involvement; the index had an acceptable reliability coefficient ($\alpha = .70$).

To measure **parental marital status**, participants were asked “What is the current status of your parents’ marriage (or what was it when they were both alive)?” The response options presented in the first three versions of the survey were: happily married, married but not very happily, separated, and divorced. In the most recent version of the survey, a fifth option was included, which was, “they were never married or partnered.” The four (or five) responses were recoded into two categories: *married* versus *separated/divorced/never married*. **Family structure during adolescent years** was assessed with an item that asked with whom participants lived during their adolescent and teenage years: both parents, mother only, father only, mother and stepfather, father and stepmother, or other. For the analyses, this item was recoded into *both parents* versus *all other options*.

Three items assessed **family socio-economic status**: (1) father’s highest level of education (options ranged from less than 12 years to Ph.D., M.D., law degree, or other advanced degree); (2) mother’s highest level of education (same options); and (3) the perceived social class of parental family during adolescent and teenage years (options ranged from lower class to upper class). Because the parental education items had eight responses whereas the subjective family social class question had six responses, the items on parental education were first recoded to six responses (i.e., combining some of the responses), to be weighted the same as the subjective social class item. An index of family social class was created from the mean of the three items. Because the reliability was low ($\alpha = .56$), we also examined each indicator of socio-economic status separately.

Competence/Contextual Factors Related to Sexual Debut

Contraception protection was measured with two items. First, participants were asked if they or their partner used condoms during the first time (yes, no, I can’t remember). To a second item, participants indicated whether they had used another form of contraception from a checklist (e.g., pill, diaphragm). Participants were subsequently categorized as having *used no protection* or *used condoms or another form of contraception*.

In addition, an item in the survey measured the participants’ willingness to have sex at the time and for autonomous reasons

(i.e., **desire for sex**): “At the time, how much did you desire to have the sexual intercourse experience?” A 7-point response scale followed the item with the anchors 1 (*not at all*) and 7 (*a great deal*). In addition, in 2016 a question was added to the survey that more directly assessed willingness of both partners to have sex: “Looking back, did either partner pressure the other to have sex that first time for you?” Options presented were: Neither of us did, I pressured my partner, and My partner pressured me. For the analysis, this item (**pressure for sex**) was recoded to *no pressure* versus *pressure by one partner*.

Participants were asked about the **type of relationship** they had at the time with their first sexual partner. The main options were: just met that day, casual acquaintances, friends, casual dating partners, serious dating partners, engaged, married (i.e., wedding night). Because only a few participants selected engaged ($n = 21$) or married ($n = 4$), they were combined with those who selected serious dating; this group was referred to as having a serious relationship at sexual debut for the analysis. Participants were also asked about the **length of the relationship** before sex had occurred (i.e., less than a week, 1 week to 1 month, 1–3 months, 4–8 months, 9–12 months, over 1 year). Participants indicated the age of their partner at the time of the experience (with the same options provided for the question about the participant’s own age at first intercourse). From this measure in combination with the item on the participant’s age at the first time, **age gap between partners** was coded to two options: (1) *partner younger, same age, or one year older* versus (2) *partner two or more years older*.

Participants reported alcohol use during first intercourse with the item, “Had either of you had any alcohol to drink before you had sex for the first time?” Five options were provided: Yes, we both had; My partner had, but I had not; I had, but my partner had not; Neither of us had; and I can’t remember. A second item assessed use of other drugs at the time of first sex, with the same response options. These two items were combined to create an index of **substance use** during the first time, which was coded *none* versus *one or both partners used alcohol or drugs* at the time of sexual debut. Those who did not remember were coded as missing for this variable.

The survey also assessed how much of each of three emotions was experienced at sexual debut: **pleasure, anxiety, and guilt**. Each emotion was followed by a 9-point Likert scale ranging from 1 (*not at all*) to 9 (*a great deal*). Because these are distinct emotions, each was considered separately.

Analytical Strategy

We begin by presenting descriptive results for perceived acceptability of the timing of sexual debut and age at sexual debut, including how these variables were associated (Spearman’s *rho* correlation). Then, we present trend analyses that examined whether the timing variables have changed over the 30-year period. For these analyses, we conducted correlations between the year of data collection and the timing measures and compared different cohort periods via ANOVA.

For the other predictor variables of the timing of sexual debut, we first present bivariate results (with greater detail of the results presented in online Supplementary Tables 3–7). The particular

Table 1. Perceived acceptability in timing of sexual debut and age at sexual debut: total sample and across six cohort periods.

	Total Sample	1990–1994 (<i>N</i> = 1,834)	1995–1999 (<i>N</i> = 1,831)	2000–2004 (<i>N</i> = 1,190)	2005–2009 (<i>N</i> = 747)	2010–2012 (<i>N</i> = 409)	2016–2019 (<i>N</i> = 419)	<i>F</i>
Perceived Acceptability in Timing ¹	.63(.48)	.61 _a (.49)	.60 _b (.49)	.67 _{ab} (.47)	.64(.48)	.68(.47)	.65(.48)	4.49***
Age at Sexual Debut	16.63(1.71)	16.51 _{ab} (1.69)	16.50 _{cd} (1.74)	16.83 _{ac} (1.65)	16.85 _{bd} (1.62)	16.76(1.71)	16.58(1.89)	10.09***

¹Each participant had a score of either 0 (wished had waited until older) or 1 (was at the right age or even wished I had it sooner). Thus, the higher number indicated greater acceptability of timing. Identical subscripts for the means indicate significant differences between the identified groups, based on Bonferroni posthoc tests. *** $p < .001$.

type of analysis conducted depended on the metric of the predictor variables (i.e., categorical vs. linear). We also report the results of a series of logistic regressions (see online Supplementary Table 7) in which it was determined whether the particular predictor variable was associated with perceived acceptability of the timing of sexual debut (our key dependent variable) after controlling for age at sexual debut. Finally, we present the results of a multivariate logistic regression that examined which background and contextual variables were most highly associated with perceived acceptability of the timing, controlling for age at sexual debut and the other predictor variables. For all analyses, we used the p value of $< .001$ for significance (rather than the more conventional $p < .05$) due to the large sample size and therefore the increased risk of making Type I errors.

Results

Preliminary Results

The modal response of the sample to the item on perceived acceptability of the timing of sexual debut was that it had occurred at the right age (57.0%) (*RQ1*). However, a large minority (37.0%) of the participants indicated they wished they had waited until they were older. Only 5.9% said they wished they had experienced sexual debut earlier.¹ The mean age of first sexual debut was 16.63 ($SD = 1.71$). As expected (*H1*), there was a positive association between age at sexual debut and perceived acceptability of the timing of sexual debut (Spearman's $\rho = .40$, $p < .001$). An Independent t -test comparison indicated that the participants who said they wished they had waited until a later age were significantly younger at sexual debut ($M = 15.76$, $SD = 1.55$) compared to those who thought it had occurred at the right time ($M = 17.14$; $SD = 1.59$; $t [6428] = 33.93$, $p < .001$; $d = .87$).

Year of data collection (ranging from 1990 to 2019) was only very weakly associated with perceived acceptability of the timing of sexual debut (Spearman's $\rho = .039$, $p = .002$ [which was not significant at our $p < .001$ level]) and age at sexual debut (Pearson's $r = .061$, $p < .001$) (*RQ2*). That is, over time, participants reported greater acceptability in the timing of their sexual debut as well as later ages in debut. To further examine trends over time, we created approximate 5-year cohort-intervals: 1990–1994, 1995–1999, 2000–2004, 2005–2009, 2010–2012, and 2016–2019.² A one-way ANOVA yielded a significant difference in perceived acceptability of the timing

of sexual debut based on cohort ($F [5,6424] = 4.49$, $p < .001$). Bonferroni posthoc tests indicated that the means were significantly lower for the 1990–1994 and 1995–1999 groups compared to the 2000–2004 group; no other between-group comparisons were significant. A significant cohort difference was also found for age at sexual debut ($F [5,6424] = 10.09$, $p < .001$). As indicated in Table 1, age at sexual debut was higher in the 2000s decade than in the 1990s decade. Then, in the 2010s decade, it was slightly lower again. Bonferroni posthoc tests indicated that the first and second periods (1990–1994 and 1995–1999) were each significantly different from the third and fourth periods (2000–2004 and 2005–2009). We then conducted a logistic regression (presented in online Supplementary Table 7) to examine whether year of data collection predicted the likelihood of perceiving acceptable timing for sexual debut controlling for age at sexual debut. The association was not significant.³ Descriptive data for each year for the timing variables are presented in online Supplementary Table 2.

Gender and Other Background Predictors

Next, we considered how each background variable was associated with perceived acceptability of the timing of sexual debut (along with age at sexual debut), which addressed *H2* and *RQ3*. We highlight the major findings of the results below; the detail of the statistical results is presented in Tables 3, 4, and 7 of the online Supplementary File.

Gender

As predicted (*H2a*), women had a lower score than men on perceived acceptability of the timing of sexual debut.⁴ This difference was not due to a gender difference in age at sexual debut, as there was not a significant difference between men and women in age at sexual debut (*H2b*). Relatedly, the logistic regression indicated that, controlling for age at sexual debut, gender remained significantly associated with the perceived acceptability

¹As noted in the Method, we used a recoded version of the item of perceived acceptability in timing in our analyses, which was 0 (wish I had waited until I was older) and 1 (I was the right age or wish I had it sooner) to distinguish in particular between those who believed sexual debut occurred too early versus those who did not believe that it occurred too early.

²The final two time periods included fewer years (no data were collected between 2013 and 2015, or in 2020) and therefore included fewer participants.

³We also examined the temporal course of age at sexual debut and perceived acceptability of timing using a cross-temporal meta-analysis (Wells & Twenge, 2005), in which a new data matrix was created with each year's sample as a case that include the mean age at sexual debut and mean acceptability of timing for that year's sample. Also included for each year in this data matrix were the number of participants and the percentage of men (as control variables). In this analysis, year was not significantly correlated with mean score of age at sexual debut ($r_{\text{partial}} [23] = -.01$, $p = .978$), or with the mean score of perceived acceptability of the timing ($r_{\text{partial}} [23] = .05$, $p = .811$), controlling for sample size and percentage of men in the particular year's sample.

⁴To further examine gender differences in perceived acceptability of timing of sexual debut, we also examined how men and women responded to the original three-category item for acceptability. A greater proportion of women (45.8%) than men (21.6%) reported that they wished they had waited until an older age to have sex, whereas a smaller proportion of women than men believed it was the right time (52.8% vs. 64.5%) or wished that it had occurred sooner (1.5% vs. 13.9%) ($\chi^2 (2) = 653.39$, $p < .001$).

of the timing of the event, with greater odds for men than for women of perceiving the timing of sexual debut to be acceptable.

Race

We compared White, Black, and Hispanic (Latino) participants to examine race differences, which were the three races most highly represented in the sample. A significant race difference was found for perceived acceptability of the timing of sexual debut. White participants had the highest score of acceptability in the timing, in the direction of believing they had sexual debut at the right time (i.e., that it was not too soon). Their score was significantly higher than that for Black participants. Hispanic/Latino participants were intermediate in their perceived acceptability of the timing and their score was not significantly different from that of either of the other racial groups. A significant race difference was also found for age at sexual debut, with White and Hispanic/Latino participants reporting a significantly older age at sexual debut than Black participants. The logistic regression indicated that after controlling for age at sexual debut, race (represented by a dummy variable with Whites/Caucasians as the reference group compared to all other races) was not significantly associated with the perceived acceptability of the timing of sexual debut.⁵

Type of Setting during Adolescence

Significant differences based on type of setting during adolescence were found for perceived acceptability of the timing, with those from suburbs reporting the highest perceived acceptability in timing. They also had the oldest age at sexual debut, whereas those from a large city had the youngest age at sexual debut (i.e., an overall significant effect of setting was found for age at sexual debut). The logistic regression indicated that setting during adolescence (represented by a dummy variable with non-city settings as the reference group and compared to those from a city), after controlling for age at sexual debut, was not associated with the likelihood of perceiving acceptable timing of sexual debut.

Religious Involvement

The religious involvement index was negatively associated with perceived acceptability of the timing of sexual debut, with greater religious involvement associated with believing that sexual debut had occurred too soon (wishing they had waited longer). At the same time, the religious involvement index was found to be modestly correlated with age at sexual debut, with greater religious involvement associated with a slightly older age at first sexual debut. The logistic regression indicated that after controlling for age at sexual debut, religious involvement

remained negatively associated with the likelihood of perceiving acceptable timing of sexual debut.

Parental Marital Status and Family Structure

No significant difference in perceived acceptability of the timing was found between participants whose parents were still together versus participants whose parents were not. However, a significant difference was found between the two groups in age at sexual debut, with the age being lower for the group whose parents were not together. The logistic regression indicated that parental marital status did not affect the likelihood that the participants perceived the timing to be acceptable, after controlling for age at sexual debut.

Significant differences for both timing variables were found, however, when we considered family structure in adolescence instead. Those who lived with both parents in adolescence, relative to those in any other family structure, reported a higher perceived acceptability of the timing of sexual debut and a later age at sexual debut. The logistic regression indicated that family living structure was not associated with the likelihood of perceiving acceptable timing, controlling for age at first time.

Family Socio-Economic Status (SES)

Family SES was not significantly associated with either perceived acceptability of the timing or age at sexual debut. We also correlated each item constituting the SES index (father's education, mother's education, and a subjective measure of family social class) with the two timing variables, and none of the correlations was significant. The logistic regression also indicated that family SES was not a significant predictor of the likelihood of perceiving the timing to be acceptable, controlling for age at first time. Logistic regressions that were conducted for each item of the index yielded similar (non-significant) results.

Competence/Contextual Factors Related to Sexual Debut

Our fourth purpose was to examine how perceived acceptability of the timing of sexual debut along with age at sexual debut were associated with other aspects of sexual debut that also indicate competence at the first time (e.g., Palmer et al., 2017) and with contextual variables associated with the first time (e.g., type of relationship) (H3). The results are summarized below, and the details of the statistical results are presented in online Supplementary Tables 5, 6, and 7.

Contraception Protection

Contraception protection was associated with perceived acceptability of the timing of sexual debut. The participants who reported that they used contraception had a higher score on perceived acceptability of the timing of sexual debut than those who did not use contraception. In addition, participants who reported using contraception were at an older age at sexual debut than participants who did not use contraception. The logistic regression showed that the use of protection/contraception was not significantly associated with perceived acceptability of the timing of sexual debut, controlling for age at sexual debut.

⁵We also considered an intersectional approach (suggested by a reviewer) and examined race and gender differences simultaneously. A 3 (race: Whites, Blacks, Hispanics/Latinos) x 2 (gender) ANOVA was conducted to examine whether there was a significant interaction. For the key variable, perceived acceptability of the timing of sexual debut, the interaction was not significant at our $p < .001$ level ($F = 3.16$, $p = .042$, $\eta_p^2 = .001$). However, the race x gender interaction was significant for age at sexual debut ($F = 26.24$, $p < .001$, $\eta_p^2 = .008$). Separate tests of means indicated that for both genders, there were significant race differences at first sexual debut, with Black participants reporting the youngest age relative to the other races. However, the race differences were greater for men, i.e., the subgroup who had the lowest age at sexual debut were black men ($M = 15.34$, $SD = 1.98$).

Desire to Have Sex and Pressure to Have Sex

The item that asked how much the participants desired to have sex at the time of sexual debut was positively associated with perceived acceptability of the timing. In addition, perceived desire to have sex was positively associated with age at sexual debut. The logistic regression indicated that after controlling for age at sexual debut, recalled desire to have sex remained significantly associated with the likelihood of perceiving the timing to be acceptable.

With the smaller subsample ($n = 415$) who had completed the version of the survey that began in 2016, we examined how the timing variables were associated with an item added to the survey that asked whether there had been any pressure in the relationship to have sex. Participants who reported that neither partner had pressured the other to have sex perceived greater acceptability in the timing of sexual debut than participants who reported that one or both partners pressured the other. In addition, the first group had an older age at sexual debut than the second group. The logistic regression indicated that perceiving pressure to have sex was negatively associated with the likelihood of perceiving acceptable timing of sexual debut, controlling for age at first time.

Characteristics of the Relationship and the Partner

To examine whether perceived acceptability of the timing of sexual debut and actual age at first time varied based on the relationship type, we compared both timing variables as a function of the reported stage of the relationship during which sexual debut had occurred. No significant difference was found in perceived acceptability of the timing based on relationship type, although a significant difference was found for age at first time. The group that had the highest mean age at sexual debut were those who reported they had just met the partner that day, and the youngest age was found for those who reported that the sexual debut partner was a friend. The logistic regression, which included a dummy variable with casual relationships as the reference group and compared to serious relationships, indicated that relationship type was not significantly associated with the perceived acceptability of the timing of sexual debut, controlling for age at first time.

Relationship duration at the time of sexual debut also was not associated with either perceived acceptability of the timing of sexual debut or with the age at the time. The logistic regression indicated that, controlling for age at first time, relationship duration was not associated with the likelihood of perceiving acceptable timing of sexual debut.

The age gap between the participant and his or her partner, however, was associated with both perceived acceptability of the timing and age at sexual debut. Participants who engaged in sexual debut with a partner who was two or more years older reported a lower perceived acceptability of the timing relative to participants who had sex with someone their own age or younger. In addition, the first group had a younger age at sexual debut than the second group. The logistic regression indicated that having a sexual debut partner who was older was negatively associated with the likelihood of perceiving the timing to be acceptable, controlling for age at first time.

No significant difference was found in perceived acceptability of the timing based on whether substance use occurred at

debut. However, participants who reported substance use (alcohol and/or other drugs) during sexual debut were older at first sexual debut than those who were younger at sexual debut. The logistic regression indicated that substance use was not associated with the likelihood of perceiving acceptable timing, controlling for age at first time.

Emotional Reactions to Sexual Debut

We correlated participants' recalled emotional reactions (pleasure, anxiety, guilt) to their sexual debut with perceived acceptability of the timing of sexual debut, as well as with age at sexual debut. Because gender differences have been found in emotional reactions to the first time (e.g., Sprecher, 2014), we conducted the analyses separately for men and women (see Table 2 below).

Perceived acceptability of the timing of sexual debut was associated with each of the emotional reactions to sexual debut for both men and women, with the correlations higher in magnitude for women than for men. Recalling that the experience was pleasurable was associated with the perception that the timing was right (versus it being too soon), for both men and women. Interestingly, anxiety was also associated with the perception that the timing was right (versus it being too soon), for both men and women. Finally, guilt was negatively associated with the perception of acceptability of the timing of sexual debut, meaning that those who believed that sexual debut had occurred too soon experienced more guilt. Age at sexual debut was associated with the emotional reactions only for women in that age at sexual debut was positively associated with recalling that the experience was pleasurable (i.e., women who were older at sexual debut reported more pleasure). In addition, for women, an older age at sexual debut was associated with a lower level of guilt and a higher level of anxiety.

The logistic regressions revealed that each emotion predicted likelihood of perceiving the timing of sexual debut to be acceptable, controlling for age at sexual debut (with significant positive associations for pleasure and anxiety and a negative association for guilt).

Multivariate Analyses

In sum, the analyses presented above show that many background variables and conditions under which sexual debut occurred were associated with the likelihood of perceiving that sexual debut had occurred at the right time, controlling for age at sexual debut. (Note again that the details of these

Table 2. Associations of emotional reactions to the first time with perceived acceptability of timing of sexual debut and age at sexual debut.

	Perceived Acceptability in Timing (Spearman's ρ)		Age at Sexual Debut (Pearson Correlation)	
	Men	Women	Men	Women
Pleasure	.19*	.32*	.06	.20*
Anxiety	.08*	.12*	-.02	.06*
Guilt	-.27*	-.41*	.07	-.13*

The differences between genders in the correlations were significant in every case except for the association between anxiety and perceived acceptability of timing. * $p < .001$.

analyses are presented in online Supplementary Table 7). In a final analysis, we conducted a multivariate logistic regression analysis in which all predictor variables were included in one model to examine which independent variables remained significant predictors of the odds of perceiving that the timing of sexual debut was acceptable (versus not), controlling for age at first sexual debut and all other predictor variables. These results (See Table 3) indicate that age at sexual debut remained a very strong predictor of perceived acceptability of the timing, after controlling for all other variables. In addition, two background variables remained significant predictors of perceived acceptability of the timing: gender (men perceived greater acceptability than women) and religious involvement (less religious participants perceived greater acceptability). In terms of the competence/contextual predictor variables associated with sexual debut, recalling that sex was desired, recalling that the experience was pleasurable, and recalling a lower level of guilt were all associated uniquely with greater perceived acceptability of the timing, controlling for the other variables including age at sexual debut.

Discussion

This study examined the extent to which college students perceived that their first intercourse experience occurred at the “right time,” and evaluated individual, interpersonal, and environmental contexts surrounding the timing of sexual debut. Potential predictors of acceptable timing perceptions were viewed from a behavior (sexual debut) within-

context perspective (Hayes et al., 2012). For example, previous research reporting gender differences in reactions to first intercourse (Palmer et al., 2019; Sprecher, 2014) provided a rationale to explore potential gender differences in the perception of acceptable timing of sexual debut. Although chronological age at first sexual intercourse was expected to covary with acceptable timing evaluations, additional demographic and family variables (such as religiosity and family structure), relationship-level evaluations (such as desire for first intercourse and age-gap between partners), and environmental factors (such as cohort differences) were also explored as potential contributors to acceptable timing perceptions. As would be predicted by the contextual-behavioral perspective, factors well beyond age at sexual debut were associated with evaluations of appropriate timing. Variables across multiple context levels explained emerging adults’ retrospective accounts that first intercourse occurred at the “right time,” as will be discussed further below.

A majority of our participants stated that sexual debut occurred at either the right time (57%) or even later than preferred (5.9%). However, a sizable minority (37%) perceived that they experienced first sex too soon and that they wished that they had waited longer. These percentages are similar to those found in other recent studies involving young adults’ retrospective reports (e.g., Moreau et al., 2019; Palmer et al., 2019; Rouche et al., 2019). We can speculate that some of our participants believed they were “ready” for sexual debut at the time, but subsequently judged debut to have occurred too early.

Table 3. Multivariate logistic regression with acceptability of timing as binary dependent variable.

Independent variable	<i>B</i>	<i>SE</i>	<i>Wald</i>	<i>p</i>	Odds	95% CI
<i>Key other timing variables</i>						
Age at sexual debut	.68	.03	683.78	<.001	1.97	[1.87/2.07]
Year of data collection	.00	.01	.29	.592	1.00	[.99/1.01]
<i>Background variables</i>						
Gender (dummy)¹	.49	.09	30.15	<.001	1.64	[1.37/1.95]
Race (dummy) ²	.03	.11	.08	.774	1.03	[.83/1.28]
Setting during adolescence (dummy) ³	.05	.13	.16	.694	1.05	[.82/1.35]
Religious involvement	-.25	.04	47.96	<.001	.78	[.73/.84]
Parental marital status (dummy) ⁴	.10	.12	.76	.382	1.11	[.88/1.40]
Adolescent family structure (dummy) ⁵	-.07	.12	.36	.547	.93	[.73/1.18]
Family social class index	.08	.04	3.79	.052	1.08	[1.00/1.16]
<i>Competence/Contextual factors related to sexual debut</i>						
Use of contraception (dummy) ⁶	.05	.08	.31	.578	1.05	[.89/1.23]
Recalled desire for sex	.30	.03	125.51	<.001	1.35	[1.28/1.42]
Relationship type (dummy) ⁷	-.10	.08	1.27	.259	.91	[.77/1.07]
Relationship length	-.03	.03	1.62	.203	.97	[.92/1.02]
Age gap (dummy) ⁸	.05	.08	.32	.569	1.05	[.90/1.22]
Substance use (dummy) ⁹	.13	.09	2.19	.139	1.13	[.96/1.34]
Recall of pleasure	.12	.02	29.91	<.001	1.13	[1.08/1.18]
Recall of anxiety	-.01	.02	.35	.554	.99	[.94/1.03]
Recall of guilt	-.36	.02	387.23	<.001	.70	[.67/.72]
Model χ^2 (18) = 2697.57, <i>p</i> < .001, Nagelkerke <i>R</i> ² = .48						

Abbreviations: *B* = unstandardized regression weight; *SE* = Standard error of *B*; *Wald* = Wald chi-square statistic for the independent variable; *p*: Statistical significance for the Wald test; Odds = Odds ratio; 95% CI = 95% confidence interval for the odds ratio. The predictors that were significant in the model (i.e., predicting the odds of perceiving acceptability in timing, controlling for the other variables) are in bold above. Note that the contextual variable of whether there had been pressure to have sex in the relationship was not included because this variable was asked only of the most recent participants. The dummy variables were coded as follows: ¹ 0 = male; 1 = female; ² 0 = Whites/Caucasian; 1 = all other races; ³ 0 = rural, small town, large town or small city, suburb; 1 = large city; ⁴ 0 = parents together; 1 = parents separated or divorced; ⁵ 0 = lived with both parents; 1 = another family structure; ⁶ 0 = used no protection; 1 = used condoms and/or another form of contraception; ⁷ 0 = just met, casual acquaintances, friends, or casual dating; 1 = serious relationship; ⁸ 0 = partner younger to one year older; 1 = partner 2 or more years older; ⁹ 0 = none by either partner; 1 = one or both partners used alcohol or drugs at first time. The N size for this analysis was 5,698 after listwise deletions due to any missing cases on variables.

However, some may not have felt ready at the time of debut but engaged in it or were pressured to have sex. This is an avenue for future research.

Our analysis supported our first hypothesis in which we predicted a positive association between age at sexual debut and perceptions concerning appropriate timing. Specifically, those who were older at sexual debut were more likely to report that debut occurred at the right time, compared to those who were younger at debut. This association is consistent with the findings of previous studies (e.g., Palmer, 2015). An older age at sexual debut appears to result in a more positive sexual debut experience, at least as measured by the acceptability of its timing, likely because of maturation and increased sexual agency acquired over time.

One of the most important contributions of this study is our analysis of whether college students' perceived acceptability of the timing of debut (along with age at sexual debut) has changed over the last three decades. Both the perception of the acceptability of the timing of debut and age at sexual debut fluctuated slightly over time. Both variables were lower during periods of the 1990s decade than the period of the 2000 decade, although age at sexual debut shifted lower again in the 2010 decade. These changes over time were not dramatic, but do suggest that this important transitional event (sexual debut) can be influenced by changing societal norms.

Our hypothesis that women would be less likely than men to report that sexual debut occurred at the right time was also supported by our findings. Specifically, a greater percentage of women than of men reported that they had wished they were older at debut. Our results confirm those of previous research, which also found lower levels of acceptability concerning the timing of debut among women in comparison to men (e.g., Moreau et al., 2019; Palmer et al., 2019; Wellings et al., 2001). This difference was found in our study despite the fact that men and women did not differ in their ages at sexual debut, which has also been found in other research that involved large national samples (Darling et al., 1992; Goldberg et al., 2014; Martinez & Abma, 2020), and likely reflects continued convergence in gender norms for this experience. Gender continued to remain a significant predictor of the perceived acceptability of the timing of sexual debut, even in a multivariate analysis that included not only chronological age but also the other predictors under consideration in this study.

It is intriguing that men and women are similar in their ages at debut but differ in their perceptions of the acceptability of the timing of debut. Why would a given age at sexual debut be deemed acceptable for and by young men, but that same age be deemed less acceptable for and by young women? This question is especially noteworthy given that girls experience the onset of puberty at an earlier average age than do boys (National Institutes of Health, n.d.), suggesting that social, rather than biological, factors account for the gender difference in perceptions of the acceptability of the timing. There is a substantial body of research addressing sexual double standards, which are norms specifying different rules or proscriptions, typically favoring boys' and men's experiences and stigmatizing girls' and women's (Emmerink et al., 2016; Sakaluk & Milhausen, 2012). In short, it may be that greater

stigma against girls and women engaging in sexual activity may affect women's (retrospective) perception of the acceptability of the timing of sexual debut.

We also examined how socio-demographic and family structure variables were associated with the perceived timing of sexual debut. Black participants reported both a lower perceived acceptability of the timing of sexual debut and a younger age at sexual debut than did White and Hispanic participants. Our intersectional analyses indicated that this effect (particularly for age at sexual debut) was driven more by Black men than by Black women. Religiosity had a complex association with the timing of sexual debut. Greater religious involvement was associated with the lower perceived acceptability of the timing of sexual debut, but positively associated with age at sexual debut (consistent with prior research; George Dalmida et al., 2018; Rostosky et al., 2004). Thus, young people who were more heavily involved in religious practices had a slightly later sexual debut, but yet were still more likely to wish they had waited longer.

In terms of other socio-demographic and family variables, our results supported previous research (e.g., Ford & Bowie, 1989; Gordon & DeLamater, 2015; Lee et al., 2018; Sprecher et al., 2019): earlier sexual debut was associated with living in a large city (as compared to rural settings) during adolescence, parents not being together as a couple, and growing up in a family setting other than with parents. These findings as a whole suggest that socio-demographic and family context variables contribute to the timing of sexual debut. However, these family/background variables (other than gender and religiosity) did not affect the perception of acceptable timing of sexual debut after controlling for age at sexual debut (thus, their influence on perceived acceptability of the timing is indirect).

We also examined how perception of non-optimal timing would be associated with other negative individual and relationship-level variables. To some extent, each contextual aspect that we examined was accompanied by the perception that first intercourse happened too soon. More negative emotions recalled at the time of sexual debut, as indicated by less pleasure and more guilt, accompanied the perspective that debut was not acceptably timed. However, perception of non-optimal timing was associated with less anxiety at debut; in other words, perceiving that it was acceptable timing was associated with recalling more (not less) anxiety at the time. The link between negative emotions and timing was especially strong for women who reported that debut happened too soon, in line with previous research (Rouche et al., 2019). Recalling less pleasure and more guilt at the time of first intercourse explained unique variance in the perception of unacceptable timing even when all other contextual variables were included in a multivariate model predicting perceived acceptable timing. Recalling negative emotions at early debut aligns with prior research linking regret with unacceptable timing (e.g., Osorio et al., 2012). What remains unclear is the association of unacceptable timing with reports of lower anxiety, which runs counter to previous research in this area (e.g., Higgins et al., 2010), unless it can be explained by young people bundling anticipatory excitement or "nervousness" before sexual debut

with positive emotions, as others have found (O'Sullivan & Hearn, 2008).

This study contributes to the sexual competence literature – a useful conceptual framework that integrates multiple dimensions of work on sexual debut. *Sexual incompetence* at debut has been linked with poorer emotional, psychological, and physical well-being (Palmer, 2015; Wellings et al., 2001). Given that optimal timing reflects an essential component of sexual competence, the variables reflecting the remaining components (contraceptive use, autonomous decision [approximated as “desire for the experience”], and mutuality in decision [approximated as “no pressure from one partner” for the portion of the sample collected after 2016]) were expected to covary with perceived timing. Perception of unacceptable timing of debut was indeed associated with these three indices of sexual competence. Participants who reported that their first sexual intercourse experience occurred too soon were less likely to use contraceptives, indicated less (autonomous) desire for sex, and felt more pressure (thus, less mutuality) to engage in intercourse than did those for whom timing was perceived as acceptable. Desire for the experience continued to be associated with perceived acceptability of the timing when chronological age was taken into account. Lower desire for the sexual encounter also was uniquely associated with the perception of non-optimal timing over and above all other individual, interpersonal, and environmental factors.

An especially intriguing finding was that relationship status between partners was unrelated to perceived acceptability of the timing of debut. That is, experiencing sexual debut outside of a serious relational context was not associated with the perception of unacceptable timing (contrary to Higgins et al., 2010), nor was a steady, committed relationship the context in which timing was perceived as most acceptable. This finding may reflect significant shifts in recent decades in young people's relationship arrangements, with movement away from a traditional dichotomous classification of relationships as either casual or committed. New constructs of sexual contexts, such as friends with benefits and booty calls, have emerged that cannot be easily classified in either of these traditional forms (Jonason et al., 2011; Wentland & Reissing, 2014). Regardless of the type of relationship (casual versus serious), the perception of non-optimal timing for sexual debut was associated with a larger age gap between the participant and the partner. Participants who described sexual debut with a partner who was two or more years older tended to report that the encounter occurred too soon. Attesting to the need to examine readiness beyond chronological age, an older partner at debut was negatively associated with acceptability of the timing even when age was held constant. Future research examining potential mechanisms underlying the negative relationship between having an older partner and feeling that the “time was right” for sexual debut would certainly help us to understand the dynamics involved.

Strengths, Limitations, and Implications

There are numerous strengths of the current study. The most significant strength is the contribution this research makes to the scant literature on the perceived acceptability of the timing of sexual debut, situated within the larger context of both individual/family background variables and in other aspects of the sexual debut experience. Another strength is the contribution this research makes to the current state of knowledge concerning how these variables are associated with chronological age at debut. A third strength is the size of the sample, with over 6,400 cases included in the analysis. Fourth, the data were collected over 30 years, which allowed us to analyze trends over time in both perceived timing of debut and chronological age at debut.

As is the case with all research, however, there are several limitations to the current study. First, the strength of the analysis of young adult responses collected over 30 years is accompanied by the drawback that the participants provided cross-sectional accounts of their experiences, thereby limiting insights into possible causal links. We note, for example, that the perception of non-optimal timing was accompanied by more feelings of guilt and less pleasure than when sexual debut was perceived as occurring at the “right time.” It is unclear from cross-sectional survey data whether negative emotions occurred during or perhaps only following the first debut experience itself. Retrospective accounts also may be biased by participants' state of mind when completing a survey, especially to the extent that participants were still involved with their first-time partner (McFarland & Ross, 1987). Given that first intercourse is often a particularly salient experience for most, emotions that accompanied the event may be magnified in retrospect to align with participants' current belief system about how sexual debut should be experienced. Reconstructing the event itself, especially to the extent that it took place several years prior, may lead respondents to fill in memory gaps with what they believe “should” have happened that first time (Goldberg et al., 2014).

Another potential limitation is in the sample itself, which was a convenience sample recruited from one U.S. university. There also may have been possible selection biases in responses from a sample of students enrolled in a human sexuality course (e.g., Wiederman, 1999). These students may be more open to exploring sexual issues and feel more comfortable reporting on a survey of their past sexual experiences in comparison to students who did not take the course.

Additionally, limitations in interpreting unexpected findings exist when variables that may account for these effects were not assessed. For example, our finding that higher anxiety was associated with greater acceptable timing (which may seem counterintuitive) may be explained by other unmeasured variables, such as uncertainty about the future or greater awareness of risks, such as infection or unplanned pregnancy. As discussed above, it is possible that heightened expectancy of first intercourse may lower anxiety (Lemay & Venaglia, 2016). In this case, anticipating the certainty of first sex – even in the face of lack of readiness for it – may partially account for this negative association.

With regard to the implications for future research and sex education/sexual health interventions, we suggest that researchers examine more closely the diversity among young adults who believe that their sexual debut had occurred too soon, particularly with longitudinal studies that assess adolescents before and after they make this transition. Specifically, some young adults may have felt that their sexual debut was taking place earlier than they preferred (but engaged in sex anyway), whereas others may have felt at the time that they were ready but later reconstructed their view of the experience. It would be important not only to examine the distinct reasons for these views for each group, but also to assess how the various background and contextual factors considered in this study are associated with the perceived timing for each group.

A better understanding of those who report that debut occurred too soon is also necessary for more effective sex education/sexual health interventions for several reasons. First, these individuals may associate early debut with regret or other negative emotions. This reaction may be especially the case for girls and young women, given that our results indicate that female participants were more likely than male participants to report that sexual debut occurred too soon (despite the lack of a significant difference in chronological age at debut) and to report negative emotions (specifically, less pleasure and more guilt) with sexual debut regardless of perceptions of acceptability of the timing of debut. The greater stigma against girls and women who engage in sexual activity may influence their (retrospective) perceptions of the acceptability of the timing of debut in particular, a phenomenon that should also be examined longitudinally in future research. In addition, in our study, those who reported greater religious involvement were also more likely to report that the timing of sexual debut was too soon, suggesting that religiously based intervention programs should devote more attention to the emotional ramifications of sexual debut within the context of religious beliefs and practices.

As discussed above, young adults may be moving away from the dichotomous notion of relationships (i.e., casual versus serious); future research should explore whether cohort effects may explain the lack of an association between relationship status and perceptions concerning the acceptability of the timing at sexual debut. Future intervention efforts should consider placing more focus on contraceptive use and on empowering the weaker partner in a sexual encounter (regardless of the relationship status of the partners), who are likely women and/or individuals with significantly older partners.

Additionally, future research as well as interventions should consider how both chronological age at debut and acceptability of the timing of debut are uniquely associated with positive health and well-being outcomes, such as sexual agency and engaging in safer sex practices, which in turn would assist in the development of future sex education/sexual health interventions. It would also be interesting to explore how developmental processes, such as maturation, contribute to these outcomes relative to social psychological phenomena, such as perceived stigma and gender socialization. As discussed above, our research suggests that changing societal norms may influence both the chronological age and acceptability of the timing of sexual debut. We encourage future research in which the

effects on debut of these changing norms are examined, along with the effects of national/global societal events, such as economic downturns and global pandemics. These broader social norms and events have ramifications for sex education/sexual health interventions as well; for example, with regard to access to low- or no-cost contraceptives. Finally, the significance of individual/family background variables specifically on age at debut suggests that interventions aimed toward the prevention of early sex should consider the myriad factors that may influence adolescents' experiences surrounding sexual debut.

Conclusion

As cultures and sexual mores shift with time, greater research attention should be devoted to individuals' perception of the appropriateness of the timing of their sexual debut rather than to actual age of debut alone. Our investigation addressing individual and contextual factors spanning three decades contributes new insights into our understanding of sexual competence, a factor that appears to underlie positive experiences of sexual debut. More specifically, we found that various sexual competence indices at the time of sexual debut were predictive of individuals' perception of acceptable timing, suggesting a promising route to intervention focused on attention to contraception use, sexual desire, and mutuality. Overall, this work provides a comprehensive view of the myriad factors surrounding this experience and a preview of the factors that may contribute to later sexual competence and positive sexual perceptions.

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