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Ashrah Lucas[1], François Poulin[1], and Marie-Aude Boislard[2]

[1] Department of Psychology, Université du Québec à Montréal, C.P. 8888, Succursale Centre-ville, Montréal, Québec, Canada, H3C 3P8

[2] Department of Sexology, Université du Québec à Montréal, C.P. 8888, Succursale Centre-ville, Montréal, Québec, Canada, H3C 3P8

According to the social clock and statistical norms, a transition into sexual activity after age 18 years is considered late. This longitudinal study examines whether late sexual transition is related to delays in the achievement of developmental tasks and lower psychological well-being in emerging adulthood for heterosexual individuals. A sample of 300 participants (61.3% women) was assessed annually from age 15 to 22 years and again at age 25, of which 43 reported sexual intercourse at age 19 or older or remained virgins in emerging adulthood. Results indicate that late sexual transition, particularly for men, is prospectively associated with still being at school, working fewer hours per week, being single and having no kids at age 25. It is also positively associated with depression and anxiety symptoms, interpersonal sensitivity, hostility, lower self-esteem, and lower happiness. This study enriches the understanding of slower developmental trajectories and the associations between late sexual transition and subsequent trajectories in emerging adulthood.

KEYWORDS: Coitus, developmental tasks, emerging adulthood, longitudinal, quantitative research, well-being

The transition to active sexuality is both an important milestone (Bérard & Sallé, 2016; Zimmer-Gembeck & Helfand, 2008) and a developmental task of adolescence (Boislard et al., 2016; Tolman & McClelland, 2011). For heterosexual individuals, the first penile-vaginal intercourse, which is the sexual behaviour measured in the study, remains the main and most consensual marker of this transition with a partner (Boislard, 2014; Boislard et al., 2016; Hans & Kimberly, 2011). Indeed, studies consistently show that heterosexual youth tend to hierarchize sexual behaviors, viewing caressing and oral sex as less "serious" and less "likely to count as sex" than intercourse (Cohen & Byers, 2014; Guzzo et al., 2019; Hans & Kimberly, 2011; Horowitz & Bedford, 2017; Horowitz & Spicer, 2013). Furthermore, when heterosexual youth reflect on virginity loss, whether theirs or someone else's, they almost always think of this first penile-vaginal intercourse encounter (Carpenter, 2005; Fuller et al., 2019; Sanders & Reinish, 1999). In industrialized countries, where the first intercourse typically occurs between ages 16 and 18 (Boislard et al., 2016; Harden, 2014; Lambert et al., 2018), initiation to active sexuality at later ages (i.e., age 19 or older) is, in its statistically normative sense, a late sexual transition (LST) (Haase et al., 2012; Yaya & Bishwajit, 2018).

Social norms determine the age at which important life transitions should be made (Sapin et al., 2007). This social structuring allows individuals to keep pace with their peers and be synchronized with them throughout their development (Elder, 1998; Elder et al., 2003; Neugarten, 1981). Social clock theory (Rook et al., 1989) and recent empirical studies (Leroux & Boislard, 2022) suggest that LST can be associated with delays in the achievement of developmental tasks typical of emerging adulthood, such as romantic involvement, and with lower psychological well-being (Gesselman et al., 2017). This may imply that LST could lead the individual to be out of step with their peers not only sexually but could also be associated with other delays in additional areas of life. According to Westernized standard, emerging adulthood is defined as being between the ages of 18 to 29 (Arnett, 2000, 2014).

The current compulsory sexuality paradigm (Gupta, 2015) expects all humans to be inherently sexual, and serves as a regulatory system marginalizing and disregarding all expression of

CORRESPONDENCE concerning this article should be addressed to Ashrah Lucas, PhD, Département de Psychologie, Université du Québec à Montréal, Case postale 8888, Succursale Centre-ville Montréal (Québec), H3C 3P8, 1 (438) 882-8802. E-mail: ashrah_lucas@hotmail.com

non-sexuality, such as asexuality (Przybylo, 2011; Tavares Barreto & Boislard, 2023) and sexual inexperience in adulthood (Lamoureux & Boislard, 2022). As such, individuals whose trajectory evolves outside this sexusociety's norms, like late sexual transitioners, are subject to both compulsory sexuality and social clock stigma. This double stigma has been empirically supported by both quantitative (Barnett et al., 2021; Haase et al., 2012) and qualitative empirical studies (Boislard et al., 2022; Fuller et al., 2019; Lamoureux & Boislard, 2022; Leroux et al., 2023).

Because analysis of LST's determinants is generally derived from cross-sectional research, it is difficult to provide a portrait of late sexual starters' development. The purpose of this longitudinal study is to examine associations between LST and (1) achievement of developmental tasks (i.e., engagement in a professional career, independence, commitment in a romantic couple) and (2) psychological well-being (i.e., negative and positive indicators) during emerging adulthood. Individuals who experienced first intercourse between ages 15 and 18 or younger (i.e., the on-time group) were compared to those who still had not experienced first coitus at age 19 (i.e., off time: the late group). The possibility that these associations differ between men and women based on the notion of a sexual double standard is also explored.

LATE SEXUAL TRANSITION

Up to a decade ago, LST was mainly regarded as a choice based on religious and moral values, on high academic, professional, or personal aspirations, or on the desire to prevent sexually transmitted infections and pregnancy (Boislard, 2014). However, more recent studies reveal that characteristics that are socially depicted as less desirable, notably high body mass index, pubertal timing, lower physical attractiveness, and interpersonal problems such as lack of social support, lack of social integration, or lack of romantic and sexual opportunities also contribute to LST (Gesselman et al., 2017; Haase et al., 2012; Halpern et al., 2006; Haydon et al., 2014; Landor & Simons, 2019; Stranges & Vignoli, 2020). In addition, a recent longitudinal study demonstrated the impact of early interpersonal problems on LST (Lucas et al., 2020). The authors found that socially withdrawn children were less likely to be sexually active in emerging adulthood, as explained by a series of sequential social mediators. Specifically, social withdrawal in childhood hindered positive perceptions of social competence in early adolescence, resulting in fewer friendships with other-sex peers in mid-adolescence and hence fewer opportunities to find a romantic partner in late adolescence, thus favoring a later sexual transition. This developmental cascade illustrates how LST can result from a series of interpersonal difficulties that slow down individual sexual trajectories compared to peers.

THE SOCIAL CLOCK

According to Neugarten (1976), every society has a social clock that implicitly or explicitly dictates the ideal timing – the appropriate age window – for major events, important life transitions, or developmental tasks. Social clock is often described as the barometer of social acceptance. Thus, going through the normative transitions in step with the social clock (i.e., on time) helps individuals evolve in sync with their peers, feel socially adjusted and integrated, and find personal life satisfaction (Pekel-Uludağlı & Akbaş, 2019; Schulenberg et al., 2004). In contrast, individuals who achieve developmental tasks at different times (i.e., off-time) are susceptible to stigma, negative judgments, and social sanctions by their peers and are less likely to receive social support (Goldberg, 2014; Wilson & O'Gorman, 2003). Late sexual starters do not escape this negative appraisal (Fuller et al., 2019; Gesselman et al., 2017). Given that early sexual transition is associated with negative outcomes in young adulthood (Boisvert et al., 2017; Golden et al., 2016; Haase et al., 2012), an LST could also be linked to unfavorable outcomes. Because the transition to active sexuality is a developmental task generally associated with adolescence (Boislard, 2014), LST could be associated with subsequent functioning in emerging adulthood in two ways: (1) by delaying the achievement of other developmental tasks of emerging adulthood and the continuation of a decelerated developmental trajectory, and (2) by undermining psychological well-being. So far, this potential association between LST and delayed developmental tasks has been overlooked. Regarding psychological well-being, some authors have observed interesting links between LST and psychological well-being using cross-sectional research (Fuller et al., 2019; Haase et al., 2012). The following sections discuss how LST might be related to subsequent functioning in emerging adulthood.

DEVELOPMENTAL TASKS IN EMERGING ADULTHOOD

The timing at which individuals achieve developmental tasks influences the timing of task achievements later in life (Elder, 1998; Seiffge-Krenke, 2003). Hence, LST could be associated with the achievement of subsequent developmental tasks in emerging adulthood, such as engagement in a professional career, independence, and commitment in a romantic couple. On the one hand, among these tasks, emerging adults living in industrialized societies are expected to complete their education and settle into a career (Arnett, 2000, 2014; Severy, 2018; Shulman, 2017). Achieving this milestone enables them to become financially independent and leave the parental home (Arnett, 2000, 2014). On the other hand, most emerging adults will establish a stable relationship with a romantic partner at some point in their twenties (Arnett, 2000, 2014; Gómez-López et al., 2019; Halpern & Kaestle, 2014). In fact, even though the growth of single adults (i.e., not involved in a couple relationship) is the most important demographic change in the Western world since the Baby Boom (Beckmeyer & Jamison, 2023; Klinenberg, 2001), most heterosexual youth still follow the "dating-sex-mating" trajectory, which means having a sexual and romantic partner (Donnelly et al., 2001). Heterosexuals who remain virgins in emerging adulthood report that their main struggle is the lack of intimacy with a romantic partner (Leroux & Boislard, 2022).

Could LST be associated with the delayed achievement of additional developmental tasks? Studies reveal that late sexual starters tend to get better academic grades (Rossi et al., 2019) and show greater interest in school (Schvaneveldt et al., 2001). Perhaps, unhampered by romantic entanglements and sexuality, late sexual starters may invest more in their education and, consequently, be more inclined to pursue prolonged programmes of postsecondary studies and defer establishing a career. Lengthy graduate study programmes usually require some financial support from parents (Hamilton et al., 2018; Swartz et al., 2011), which could then postpone financial independence. Pursuing higher education is beneficial in the long term; however, it can limit access to professional, romantic, and family opportunities in the short run (Carruthers, 2018; Ferreira & Costa-Ramalho, 2021; Plotnick, 2007). Finally, although being romantically involved provides the main route to becoming sexually active (Boislard, 2014), many emerging adults prefer to try out sexually with a partner so they can determine their sexual compatibility before committing to becoming a couple (Willoughby, 2012). In fact, during this developmental period, compatibility and sexual self-efficacy impact the desire to couple with a potential love partner (Gesselman et al., 2017; Stewart-Williams et al., 2017). According to researchers, sexually inexperienced adults may be viewed as less desirable and attractive (Gesselman et al., 2017; Stewart-Williams et al., 2017). Considering that late sexual starters have fewer years of sexual experience than their peers, it is plausible that they feel less confident in their romantic lives. Thus, they may be less likely to form a couple and start a family in emerging adulthood (Haase et al., 2012).

PSYCHOLOGICAL WELL-BEING IN EMERGING ADULTHOOD

LST may be associated with lower psychological well-being in emerging adulthood for several reasons. First, it has been previously shown that LST can engender unflattering comparisons that threaten one's self-esteem (Fuller et al., 2019) and feelings of competence (Fleming & Davis, 2018). This dynamic may devolve into anxiety symptoms (Beck et al., 2005; Ollendick & Hirshfeld-Becker, 2002). Second, psychological well-being is not limited to the absence of problems: it may also be expressed through more positive dimensions such as happiness, a form of subjective well-being that refers to general life satisfaction (Rodríguez-Hernández, 2019; Ryan & Deci, 2001). According to Haase and colleagues (2012), delayed sexual experience has been associated with lower subjective well-being since it is correlated to poorer social relations. LST could then also lead to lower happiness. Lastly, we presume that interpersonal problems associated with sexual inexperience in emerging adulthood (Haydon et al., 2014; Lucas et al., 2020) could exacerbate interpersonal sensitivity issues. It echoes the concept of sensitivity to rejection (Gao et al., 2017). Indeed, studies show that sexually inexperienced individuals are more fearful of judgment and mockery from others than their sexually experienced peers (Fleming & Davis, 2018; Fuller et al., 2019). Consequently, the cumulation of these problems could contribute to depression and could also fuel hostile attitudes toward others (Bratich & Banet-Weiser, 2019; Haase et al., 2012; Treuting & Hinshaw, 2001), notably in the form of male misogyny (Jaki et al., 2019) in men who hold women responsible for their lack of sexual opportunities (Bratich & Banet-Weiser, 2019). This resonates with the concept of a sexual double standard that may influence how men and women respectively approach their LST.

THE SEXUAL DOUBLE STANDARD

The sexual double standard in which women are expected to be the sexual gatekeepers and men to be proactive and initiate sex persists today (Boislard et al., 2022; Palit & Allen, 2019). Hegemonic masculinity is generally associated with high sexual desire and the objectification of women (Bell et al., 2015; Connell & Messerschmidt, 2005). Accordingly, the male sexual experience is valued (Hakim, 2011). From adolescence onward, men are socialized to masculine norms, including performing sexually (Luster et al., 2013). Studies have shown that adolescent males with anxiety symptoms and lower self-esteem tend to be sexual late bloomers (Landor & Simons, 2019; Zimmer-Gembeck & Helfand, 2008). Delayed sexuality in men is, in turn, associated with stigma and embarrassment (Carpenter, 2010; Humphreys, 2013) and subsequent sexual dysfunctions (Sandfort et al., 2008). Until recently, and consistent with sexual double standards, LST was found to be less stigmatizing for women (Palit & Allen, 2019). Although three recent studies have shown that women may also experience LST as a stigma (Boislard et al., 2022; Fuller et al., 2019; Leroux & Boislard, 2022), studies have shown that sexually inexperienced men are traditionally more likely to perceive their virginity as a stigma, and women, as a gift for a special romantic partner (Carpenter, 2005, 2010; Humphreys, 2013).

THE PRESENT STUDY

The first objective of this study was to determine whether LST is associated with delayed achievement of developmental tasks in emerging adulthood, specifically at age 25. These tasks concern engagement in a professional career (i.e., education and employment), independence (i.e., financial independence, departure from the parents' home), and commitment in a romantic couple (i.e., involvement in a relationship, cohabitation with a partner, parenthood). The second objective was to determine whether LST is associated with lower psychological well-being in emerging adulthood. Negative indicators (i.e., depression, anxiety, interpersonal sensitivity, hostility) and positive indicators (i.e., self-esteem and happiness) were considered. The third objective was to test the moderating effect of gender on these associations.

These objectives were examined in a longitudinal study. Sexual activity was measured annually from ages 15 to 22, while achievement of emerging adulthood developmental tasks and psychological well-being were examined at age 25, which corresponds to the middle of emerging adulthood (Žukauskienė et al., 2020). Given that the transition to active sexuality after 18 years is considered late according to both social clock and statistical norms (Boislard, 2014; Harden, 2014; Yaya & Bishwajit,

2018), individuals who experienced first intercourse between the ages of 15 and 18 or younger (i.e., on time: the on time group) were compared to those who still had not experienced first intercourse at age 19 (i.e., off time: the late group). In this study, individuals who had their first intercourse at age 14 or younger were removed from the on time group given the documented effect of early sexual transition on later adjustment (Boisvert et al., 2017; Meier, 2007). Aggregating the on time and the early sexual starters into one group could blur the effect of sexual timing. To account for pre-existing levels of psychological well-being, we included depression and self-esteem at age 18 as control variables. Pubertal timing was also included as a control variable because it is likely associated with the age of sexual transition (Zimmer-Gembeck & Helfand, 2008).

We hypothesized that the late group would score lower on the completion of the identified developmental tasks by age 25 compared to the on time group (H1), that the late group would present lower psychological well-being than the on time group (H2), and that this last difference would be greater for men than women (H3). No hypothesis was formulated concerning the moderating effect of gender on the link between LST and the achievement of developmental tasks, given the exploratory nature of examining this effect. However, the literature review still gives some indication as to the moderating effect of gender, with the negative effect of LST potentially being stronger for men compared to women.

METHOD

Participants

The sample initially comprised 390 Grade 6 students (58% girls, *M* age = 12.38 years, *SD* = 0.42) recruited in 2001, attending eight French-speaking elementary schools in the province of Québec, Canada. Approximately 75% of the available student population participated in this study. Most participants were Caucasian and Canadian-born (90%), while the other participants were of Haitian (3%), Latino (3%), Arabic (3%), and Asian (1%) origin. The majority lived in a household with two biological parents (72%) and were considered middle-class (*M* income = $45,000–$55,000 CAD). Participants were assessed several times up to age 25. From the initial sample, 321 participated in the data collection at age 25. Among them, information on age at first intercourse or absence of first intercourse was available for 300. Participants whose first intercourse occurred at 14 years or younger (i.e., 38 females and 20 males; see Measures section) were excluded from the analyses. Finally, two participants were removed from the analyses because their sexual orientation could explain their LST (see Measures section). No differences were found in the demographic variables between retained participants (n = 268; 59% women) and those excluded (n = 132), except for gender.

Design and procedure

This longitudinal sample initially was recruited in Grade 6 following three steps. First, the project was presented to the school officials and Grade 6 teachers who agreed to be part of the study. Second, the project was described to the Grade 6 students in class by graduate research assistants. Third, the students who were interested in the project were asked to bring home to their parents a flyer and a consent form. Only the students who brought back the consent form signed by their parents were part of the study. Parents also provided written consent for their child's participation at each year of the study until age 18, and participants provided their own consent thereafter.

Self-report questionnaires were used to assess the variables. From ages 15 to 17, participants completed the questionnaires in school under the supervision of research assistants. From age 18 onward, most completed them at home using paper questionnaires, with a few (< 5%) by mail. This study was approved by the Institutional Ethics Committee for Research Involving Human Subjects at the authors' university. Participants received financial compensation annually.

Measures

Timing of transition to active sexuality

Participants completed an annual questionnaire on their sexuality from ages 15 to 22. For the present study, the main question was, "Have you ever had intercourse (i.e., vaginal penetration) with someone of the other sex?" Those who answered "yes" then indicated their age at first intercourse. Given the typical discrepancies in reported ages across waves in longitudinal studies of youth sexuality (Palen et al., 2008), we used eight annual assessments to validate the reported ages. In our sample, 58% reported inconsistent ages. These discrepancies were handled using a two-wave data-cleaning procedure (French & Dishion, 2003). When individual response patterns showed discrepancies, they were analyzed by two independent coders according to two rules to calculate the most likely age at first intercourse. (1) The proximal rule was applied for participants who reported two different ages: the earlier age was retained under the assumption of being closer to the actual occurrence. (2) The majority rule was applied when participants reported different ages across the eight assessment waves: the most frequently reported age was retained. Correlations between the reported ages at first intercourse across the eight waves varied from 0.55 to 0.89, all p = 0.001. Participants who reported first intercourse at ages 15, 16, 17, or 18 (i.e., 127 females, 74 males) were assigned to the on time group. Participants whose first intercourse occurred at 19 years or older, including those with no intercourse by age 22 (i.e., 20 females, 22 males), were assigned to the off time, or late, group.

At 22 years, the participants responded to the question, "Have you ever had a sexual experience, other than kissing, with someone of the same sex?"

Achievement of developmental tasks at age 25

Education and employment. Three indicators were used: (1) *Currently studying* ("Are you currently going to school?"; yes/no), (2) *Currently employed* ("Do you currently have a paid

job?"; yes/no), and (3) *Number of hours worked per week* ("How many hours do you work from Monday to Sunday?").

Financial independence. Two indicators were used: (1) *Perception of full financial independence* ("In terms of your financial situation, do you consider yourself: a) completely dependent on your parents?; b) partly dependent on your parents?; or c) completely independent?); and (2) *Departure from the parents' home* ("Have you left your parents' home?" yes/no).

Romantic relationship and parental status. Three indicators were used: (1) *Having a romantic partner* ("Do you currently have a romantic partner?"; yes/no); (2) *Living with a romantic partner* ("Are you living with your romantic partner?" yes/no), and (3) *Parenthood* ("Are you the biological parent of any children?" yes/no). Participants were also asked to report the gender of their partner and 98.6% were not of the same gender as them.

Psychological well-being at age 25

Psychological well-being at age 25 was measured using six (6) indicators. Four were subscales from the *SCL-90–R* (Derogatis & Cleary, 1977). *Depression symptoms* were measured using 13 items (e.g., "Feeling everything is an effort"; $\alpha = 0.87$) that assess clinical symptoms such as dysphoric mood, withdrawal, lack of energy, hopelessness, and suicide ideation. *Anxiety symptoms* were measured using ten items (e.g., "Feeling fearful"; $\alpha = 0.79$) that assess restlessness, nervousness, and tension. *Interpersonal sensitivity* was measured using nine items (e.g., "Feeling inferior to other"; $\alpha = 0.78$) that assess feelings of personal inadequacy, discomfort, and negative expectations during interpersonal interactions. Finally, *hostility* was measured using six items (e.g., "Having urges to beat, injure or harm someone"; $\alpha = 0.75$) that assess feelings of annoyance, frequent arguments, and uncontrollable temper outbursts. Participants indicated their degree of discomfort caused by each symptom over the past week on a scale ranging from 0 (*not at all*) to 4 (*extremely*). Item scores were averaged to compute a score for each subscale.

Self-esteem was measured using the Global Self-Worth subscale of the Self-Perception Profile for Adults revised by Messer and Harter (2012). It contains six items (e.g., "Some adults are very happy being the way they are, *but* other adults would like to be different"; $\alpha = 0.75$). Participants responded on a Likert scale from 1 (*least competent or adequate self-judgment*) to 4 (*most competent or adequate self-judgment*). This subscale assesses self-perceptions of competence and global self-worth in all life domains. Item scores were averaged to obtain a total score. *Happiness* was measured using Peterson and colleagues' (2005) Orientations to Happiness Scale. Hedonic and eudaimonic happiness measures were combined sparingly since they were two positive indicators of well-being. Hedonic happiness contains four items (e.g., "Life is too short to postpone the pleasures it can provide"; $\alpha = 0.74$) rated on a Likert scale from 1 (*never*) to 5 (*always*). Eudaimonic happiness contains five items (e.g., "My life has a long-term meaning"; $\alpha = 0.52$) rated on a Likert scale from 1 (*never*) to 5 (*always*). Item scores were averaged to obtain a total score for each measure. We then calculated the mean of these two variables.

Pubertal timing at age 13

Pubertal timing was measured using the pubertal development scale (PDS; Petersen et al., 1988). Participants indicated on a Likert scale from 1 (*have not begun*) to 4 (*development completed*) the extent to which they had experienced pubertal growth during the previous year. The scale consists of five items for each gender. Internal consistency was acceptable for both boys ($\alpha = 0.63$) and girls ($\alpha = 0.68$) and was similar to other studies (Robertson et al., 1992). The classification of this variable was designed according to the procedure recommended in the literature (e.g., see Ge et al., 2003; Graber et al., 2018). Youths were labeled by dividing the sample into early-maturing, on-time, and late-maturing groups. Participants whose scores were more than one standard deviation above or below the mean of their gender were classified as early or late maturing. Those whose scores were within one standard deviation were labeled as maturing on time.

Control variables at age 18

The Center for Epidemiological Studies-Depression Scale (Radloff, 1977) was used to assess *Depression symptoms* at age 18. It contains 20 items (e.g., "I felt depressed"; "I did not feel like eating; my appetite was poor"; $\alpha = 0.91$). Participants rated the items in terms of frequency over the past week on a Likert scale from 0 (*rarely or none of the time*) to 3 (*most or all of the time*). Items scores were averaged to obtain a total score.

Self-esteem at 18 years was assessed with the Global Self-Worth subscale of the Self-Perception Profile for Adolescents (Harter, 1988). Participants rated five (5) items (e.g., "Some teenagers are often disappointed with themselves BUT other teenagers are pretty pleased with themselves"; $\alpha = .81$) on a Likert scale from 1 (*least competent or adequate self-judgment*) to 4 (*most competent or adequate self-judgment*). Item scores were averaged to obtain a total score.

Analysis

The two groups (i.e., on time and late) were statistically analyzed while accounting for the effect of gender on two series of variables corresponding to the two objectives: achievement of development tasks and psychological well-being. The dichotomous variables were examined separately for women and men for developmental task achievement using chi-square analysis. According to Cohen (1988), an effect size of about 0.20 is considered small, about 0.50 is considered medium, and about 0.80 is considered large. The continuous variables were examined using a (2×2 ANOVA) two-way analysis of variance between sexual timing and gender.

The four negative indicators of psychological well-being (i.e., depression, anxiety, interpersonal sensitivity, hostility) were examined using a two-way multivariate analysis of covariance (2×2 MANCOVA) between sexual timing and gender with depression symptoms at 18 years and pubertal timing as covariates. Pillai's trace (Tabachnick & Fidell, 2013) was used to evaluate the first MANCOVA on the negative indicators of psychological

well-being, with group size considered. Pillai's trace is a robust test of departures from assumptions, with possible values from 0 to 1. Higher values indicated stronger effects in the tested model. We followed the recommendation of Tabachnick and Fidell (2013) for unequal group sizes; the MANCOVAs were rerun using the Type 2 sum of squares instead of the usual Type 3 sum of squares. Interaction effects were decomposed by simple effects tests. The two positive indicators of psychological well-being (i.e., self-esteem and happiness) were subjected to a 2 × 2 MANCOVA (i.e., sexual timing × gender) using self-esteem at 18 and pubertal timing as covariates. Interactive effects were decomposed by simple effects tests. As for the partial eta-squared, an effect size of about 0.01 is considered small, about 0.06 is considered medium, and about 0.14 is considered large (Cohen, 1988).

RESULTS

Achievement of developmental tasks

Table 1 presents the descriptive statistics for the indicators of developmental task achievement at emerging adulthood as a function of LST and gender. For education and employment, LST showed a statistically small-to-moderate significant effect on still being in school at age 25 χ^2 (1, N = 242) = 12.332, $p < .001$, *phi* = 0.226, for both women χ^2 (1, N = 242) = 5.927, p = 0.015, *phi* = 0.201 and men χ^2 (1, N = 242) = 6.465, p = 0.011, *phi* = 0.259. Thus, both women and men in the late group were more likely to be pursuing their studies compared to the on time group. No statistically significant effect was found for employment at age 25 χ^2 (1, N = 242) = 1.154, p = 0.283, for either women χ^2 (1, N = 242) = 0.202, p = 0.653 or men χ^2 (1, N = 242) = 1.051, p = 0.305. Finally, an interaction effect between LST and gender was seen for the number of hours worked per week at age 25 F (1, 219) = 5.931, p = 0.016, with a small-to-moderate effect size (partial eta-square = 0.026). Bonferroni's tests and simple effects tests showed that men in the late group tend to work fewer hours per week than on time men F 1, 219 = 6.714, p = 0.010, with a small-to-moderate effect size (partial eta-square = 0.030).

No statistically significant effect was observed for perceived financial independence χ^2 (2, N = 243) = 2.604, p = 0.272, either for women χ^2 (2, N = 243) = 2.473, p = 0.290 or men χ^2 (2, N = 243) = 0.531, p = 0.767. No statistically significant effect was found for living with parents at age 25 χ^2 (1, N = 243) = 3.184, p = 0.074, either for women χ^2 (1, N = 243) = 2.567, p = 0.109 or men χ^2 (1, N = 243) = 0.503, p = 0.478.

In terms of romantic relationship and parental status, we found a statistically small significant effect of LST on having a romantic partner at age 25 χ^2 (1, N = 243) = 9.161, p = 0.002, *phi* = 0.194 but only for men χ^2 (1, N = 243) = 7.729, p = 0.005, *phi* = 0.284 (small-to-moderate effect size) and not women χ^2 (1, N = 243) = 1.688, p = 0.194. Late men were less likely to be in a couple compared to on time men. A statistically small significant effect was also found for living with a romantic partner at age 25 χ^2 (1, N = 243) = 4.926, p = 0.026, *phi* = 0.142 but again only for men χ^2 (1, N = 243) = 4.544, p = 0.033, *phi* = 0.218 (small-to-moderate effect size), and not women χ^2 (1, N = 243) = 0.639, p = 0.424. Thus, late men were less likely to live with their romantic partner than on time men. Finally none of the late group participants reported being parents at 25. Thus, compared to the on time group, late sexual starters were less likely to be parents.

Psychological well-being

Table 2 presents the descriptive statistics for the variables of psychological well-being at age 25 as a function of LST and gender. A first MANCOVA was conducted on negative well-being

TABLE 1. Descriptive Statistics (% yes; Means and Standard Deviations) for Emerging Adulthood Indicators at Age 25 as a Function of Late Sexual Transition and Gender

	On Time Group			Late Group		
Variables	**Women**	**Men**	**Total**	**Women**	**Men**	**Total**
Education and employment						
Currently studying	27.80	25.70	27.00	55.00	54.50	54.80
Currently employed	92.90	93.20	93.00	90.00	86.40	88.10
Subsample having a job . . .	*N* = 117	*N* = 69	*N* = 186	*N* = 18	*N* = 19	*N* = 37
No. of hours worked per week (*M, SD*)	35.14 (11.38)	39.06 (13.53)	36.58(12.33)	37.91(16.88)	30.66 (10.88)	34.08 (14.30)
Financial independence						
Perception of full financial independence	61.40	59.50	60.70	45.00	54.50	50.00
Departure from the parents' home	63.80	54.10	60.20	45.00	45.50	45.20
Romantic relationship and parental status						
Having a romantic partner	74.00	73.00	73.60	60.00	40.90	50.00
Living with a romantic partner	49.60	43.20	47.30	40.00	18.20	28.60
Parenthood	15.10	8.10	12.50	0.00	0.00	0.00

Note. The "on time group" women column is compared to the "late group" women column. The "on time group" men column is compared to the "late group" men column. The "on time group" total column is compared to the "late group" total column.

TABLE 2. Descriptive Statistics (Means and Standard Deviations) for Psychological Well-Being at Age 25 as a Function of Late Sexual Transition and Gender

	On Time Group			Late Group		
	Women	Men	Total	Women	Men	Total
Variables	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*
Negative indicators						
Depression	1.40 (0.49)	1.13 (0.18)[a]	1.30 (0.42)[a]	1.48 (0.63)	1.61 (0.62)[b]	1.55 (0.62)[b]
Anxiety	1.25 (0.33)	1.13 (0.33)	1.21 (0.34)[a]	1.44 (0.51)	1.35 (0.40)	1.39 (0.45)[b]
Interpersonal sensitivity	1.31 (0.40)	1.15 (0.22)	1.25 (0.35)[a]	1.44 (0.57)	1.39 (0.42)	1.41 (0.49)[b]
Hostility	1.22 (0.33)	1.11 (0.19)[a]	1.18 (0.29)[a]	1.21 (0.26)	1.31 (0.39)[b]	1.27 (0.34)[b]
Positive indicators						
Self-esteem	3.36 (0.60)	3.43 (0.52)	3.38 (0.57)[a]	3.28 (0.70)	3.00 (0.63)	3.11 (0.67)[a]
Happiness	3.87 (0.51)	3.83 (0.55)	3.86 (0.52)[a]	3.73 (0.47)	3.80 (0.55)	3.83 (0.52)[b]

Note. Means with different subscripts within a row are significantly different from one another ($p \leq 0.05$).
The "on time group" women column is compared to the "late group" women column. The "on time group" men column is compared to the "late group" men column. The "on time group" total column is compared to the "late group" total column.

indicators. The multivariate test indicated a statistically significant main effect of LST F (4, 197) = 3.575, p = 0.008, partial eta-square = 0.068 (moderate-to-large effect size). It also revealed a statistically significant interaction effect between LST and gender F (4, 197) = 3.063, p = 0.018, with a small-to-moderate effect size (partial eta-square = 0.059). The main effect of gender itself was not statistically significant F (4, 197) = 1.198, p = 0.313. A statistically significant main effect of the covariate depression symptoms at 18 years was observed F (4, 197) = 13.057, p = 0.000, with a large effect size (partial eta-square = 0.210). Finally, no statistically significant main effect of the covariate pubertal timing was observed F (4, 197) = 0.337, p = 0.853.

The main effect of LST was statistically significant on depression symptoms F (1, 200) = 12.615, p = 0.000, partial eta-square = 0.059 (moderate effect size), anxiety symptoms F (1, 200) = 9.709, p = 0.002, partial eta-square = 0.046 (small-to-moderate effect size), and interpersonal sensitivity F (1, 200) = 9.125, p = 0.003, partial eta-square = 0.044 (small-to-moderate effect size). The late group tended to present more of these symptoms than the on time group.

The interaction effect between LST and gender was statistically significant for depression symptoms F (1, 200) = 6.757, p = 0.010, partial eta-square = 0.033 (small-to-moderate effect size) and hostility F (1, 200) = 4.318, p = 0.039, partial eta-square = 0.021 (small-to-moderate effect size). Simple effects tests indicated a statistically significant effect of LST for men, F (4, 73) = 7.668, p = 0.000, with a large effect size (partial eta-squared = 0.296), but not for women, F (4, 119) = 1.843, p = 0.125. Compared to on time men, men in the late group reported more depression symptoms and hostility.

For the second MANCOVA on the positive indicators of psychological well-being, the multivariate test showed a statistically significant main effect of LST F (2, 198) = 3.764, p = 0.025, with a small-to-moderate effect size (partial eta-square = 0.037). However, the interaction effect between LST and gender was not statistically significant F (2, 198) = 1.270, p = 0.283. Nor was the main effect of gender statistically significant F (2, 198) = 0.375, p = 0.688. A statistically significant main effect of the covariate self-esteem at 18 years was seen F (2, 198) = 15.651, p = 0.000, with a large effect size (partial eta-square = 0.137). Finally, the main effect of the covariate pubertal timing was not statistically significant F (2, 198) = 1.577, p = 0.209. The main effect of LST was statistically significant for the two tested variables. Late sexual starters tended to show lower self-esteem and happiness compared to the on time group.

DISCUSSION

Human beings tend to follow the same rhythm and synchronize with their peers in many aspects of their lives (Elder, 1998; Elder et al., 2003; Neugarten, 1981). According to the social clock, delays can create additional challenges and compromise psychological well-being (Goldberg, 2014; Pekel-Uludağlı et Akbaş, 2019; Rook et al., 1989). The aim of this study was to determine whether LST was associated with delays in the achievement of developmental tasks specific to emerging adulthood and lower psychological well-being at age 25 for heterosexual individuals. LST was operationalized based on penile-vaginal intercourse. We expected the association between LST and lower psychological well-being to be stronger for men than women. This longitudinal study with annual assessments from ages 15 to 25 showed statistically significant associations with several tasks of emerging adulthood and indicators of psychological well-being, particularly for men. The main findings on the whole sample are discussed first, followed by separate discussions for men and women.

LST and delayed development

In line with previous research, which found that late sexual starters generally tend to get better academic grades and be more

interested in their schooling (Rossi et al., 2017; Zimmer-Gembeck & Helfand, 2008), we found that late sexual starters were more likely to be still pursuing their education at age 25. However, LST could result in academic overinvestment, limiting opportunities to meet romantic or sexual partners, and potentially exacerbating interpersonal problems, especially if academic pursuits take a long time. Nevertheless, it is also possible that tertiary education helps meet one's need for valorization: it may compensate for late initiation into the world of romance and sexuality and the stigma that comes with delayed sexuality. Schvaneveldt (2001) found bidirectional relationships between *early* sexual transition and low interest in academic achievement and goals. The present study adds to the knowledge by demonstrating that LST was associated with still being at school at age 25, which could be a proxy for higher academic achievement. However, further longitudinal studies should investigate the bidirectionality of this longitudinal relationship by exploring changes in attitudes about professional and personal achievement among those who remain sexually inactive.

Furthermore, we found that late sexual starters were less likely to be involved in romantic relationships at age 25. This corroborates previous findings that LST is associated with fewer romantic opportunities (Fuller et al., 2019; Landor & Simons, 2019). Previously, Gesselman and colleagues (2017) showed that sexually inexperienced adults are perceived as less desirable partners. Our results add to the idea that a persistent absence of sexual onset may lead to reduced romantic opportunities in adulthood. When pre-existing social withdrawal and isolation in childhood and adolescence persist up to emerging adulthood, romantic opportunities are indeed limited (Barzeva et al., 2019; Bowker et al., 2013; Lucas et al., 2020). Overall, we expected our late sexual starters to follow a generally slower developmental trajectory than those on time participants. This hypothesis was partly supported by their greater tendency to pursue their studies at age 25 and a lower tendency to be full-time employed or involved in a romantic relationship. We thus observe that individuals' LST leads them to be out of step with their peers, not only sexually but also regarding other subsequent delays in their developmental pathway, which is consistent with the social clock theory (Neugarten, 1981; Rook et al., 1989).

LST and psychological well-being

The psychological problems and lower well-being observed in the late group might be associated with relational and emotional challenges due to LST (Gesselman et al., 2016; Haase et al., 2012; Leroux & Boislard, 2022). Incomplete achievement of the markers of adulthood at age 25 appears to subject these late sexual starters to longer phases of exploration and instability. According to Arnett (2000, 2014), these prolonged phases in emerging adulthood may trigger emotional distress. However, other studies show that, as they emerge from this restless period and assume more conventional grown-up roles, individuals may feel more adult-like, with improved well-being (Conley et al., 2014; Johnson et al., 2009; Salmela-Aro et al., 2012). Thus, and in line with the social clock theory (Rook et al., 1989), this multilevel delay (i.e., sexual, professional, romantic) could contribute to feelings of inadequacy, incompetence, negative self-perceptions, and harsh comparisons with same-aged peers. Our findings support this proposal. We found markedly lower psychological well-being in the late compared to the on time group of participants, even at age 25. This corroborates studies that have demonstrated the harmful effects of developmental delays compared to peers (Haase et al., 2012; Pekel-Uludağlı & Akbaş, 2019), particularly in men (Jaki et al., 2019). Hence, an LST may be associated with difficulties beyond the sexual sphere, especially in men. While an LST is not problematic *per se*, it can indicate that someone has not had the same social and developmental opportunities as their peers or at the same time in their development, which can be related to a detrimental effect of social stigma.

Gender differences

Compared to women, men who were late sexual starters reported more depression symptoms and hostility. This could be explained by their perceptions of having failed to meet some criteria of traditional masculinity, that is, sexual experience and professional accomplishment at age 25 (Bell et al., 2015; Connell & Messerschmidt, 2005; Irfan et al., 2020), two domains generally valued among men (Iacovou, 2010). Moreover, according to traditional gendered sexual scripts, men are expected to be assertive and objectify women (Wiederman, 2005). Since they are more likely to perceive LST as a stigma than women (Carpenter, 2010; Humphreys, 2013), this phenomenon might tend to be involuntary in men. In addition, while men may be valued for their academic accomplishments, the status of being a long-time student might cause negative comparisons with their on-time peers who work more and are consequently more able to provide financially. Indeed, according to hegemonic masculinity, a man is expected to be a provider (Connell & Messerschmidt, 2005). Therefore, their derogation from these norms could have negatively affected men with LST self-perceptions and contributed to higher depression symptoms on the one hand and strong feelings of injustice on the other hand, which could translate into hostility toward others. These findings resonate with recent studies on incels (i.e., heterosexual cisgender men who are "involuntarily celibate"), who congregate online and blame society – especially women – for their sexual inexperience (Blommaert, 2018; Bratich & Banet-Weiser, 2019; Jaki et al., 2019; Maxwell et al., 2020).

Although social clock theory (Rook et al., 1989) posits that off-time normative transitions can negatively affect psychological well-being independently of gender, our results show that, unlike men, women who were late sexual starters showed no statistically significant differences from on time women on psychological well-being in emerging adulthood. This concurs with the notion that women, at least those in our sample, may be more comfortable than men with LST (Carpenter, 2002; Humphreys, 2013). According to the theory of gendered sexual scripts (Simon & Gagnon, 1986), women are expected to act as passive gatekeepers, set sexual boundaries, and leverage their erotic capital (Hakim, 2011) to attract men into a romantic

relationship. Hence, in traditional roles, women should not initiate sexual behavior or demonstrate sexual agency (Hakim, 2011; Kirsch & Murnen, 2015; Seabrook et al., 2017). In contrast, men are responsible for initiating sexual activity and showing persistent sexual agency (Kirsch & Murnen, 2015; Seabrook et al., 2017). LST could therefore have a lower impact on women's mental health and well-being than men. Accordingly, probably due to the more passive sexual script offered to women (Kreager & Staff, 2009; Palit & Allen, 2019), our results show that women were less affected than men by LST.

Along with expectations of sexual intimacy and romance to go together, women are increasingly encouraged to pursue university studies (DiPrete & Buchmann, 2013). Therefore, even when they are late in establishing a career, sexually inexperienced emerging adult women appear to escape societal criticism, at least partly, which could help preserve their psychological well-being. While a recent qualitative study showed that the most salient difficulty of late sexual starters was related to a lack of intimacy, rather than virginity per se, for both women and men (Leroux & Boislard, 2022), the male-female difference found in our study adds to the literature on gendered sexuality, whereby gender not only plays a significant role in how sexuality is perceived socially, but it also shapes the sexual and social experiences of individual life trajectories (Carpenter, 2010).

Strengths, limitations, and future directions

A longitudinal study was conducted to span ages 15 to 25. This design presents several advantages. First, we measured the achievement of several developmental tasks in emerging adulthood at a pivotal time (i.e., age 25). This enabled identifying salient variations between participants who reported on time and late timing of sexual transition. This design is rarely used in studies of LST. It thus helps us to paint a better picture of late sexual starters during emerging adulthood. We then considered psychological well-being at 18 years prior to LST. Thus, the association between LST and well-being at age 25 is less likely to be explained by an effect of lower previous well-being on LST.

However, several limitations should be mentioned. First, we included only depression and self-esteem as control variables, and the other indicators of psychological well-being were not measured at age 18. Second, we had to make judgment calls about which reported age of first intercourse was correct through multiple assessments. Asking the question multiple times is a better strategy than asking the question at a single measurement time. Third, we examined the effect of late sexuality using a dichotomous variable to distinguish between on-time sexual behavior (i.e., first intercourse between ages 15 and 18) and late sexual behavior (i.e., first intercourse at age 19 or older). However, it is possible that the effects of delayed sexuality on all the indicators of psychological well-being in emerging adulthood were, in fact, linear. This could mean that the longer the delay, the more pronounced its negative effects. In our sample, too few of the participants underwent the sexual transition at each of the post-18 ages examined (i.e., 83.6% before 18; 4.9% at 19; 3.4% at 20; 1.9% at 21; and 0.4% at 22, with 6.0% still virgin at 22). Moreover, we did not measure sexuality after age 22. Thus, it is possible that the late group also includes individuals who are still virgins at age 25, which could induce bias in our findings given the challenges associated with late virginity (Fleming & Davis, 2018; Fuller et al., 2019; Landor & Simons, 2019; Leroux & Boislard, 2022). This issue should be investigated further in a larger sample. Fourth, our sample was relatively homogeneous: most participants were Caucasian, came from the same city, and were classified as middle class. The fact that we have a homogeneous white population in Québec is a limitation because LST does not have the same meaning and significance in other cultures. For example, in some cultures, virginity until marriage is expected and valued (Alhassan & Dodoo, 2020). Fifth, considering first intercourse as the marker of the transition to active sexuality constitutes a phallo- and heterocentric bias. This type of bias has received much criticism, particularly in the literature on sexual diversity (Dion & Boislard, 2020; Dion & Boislard, 2022; Pham, 2016). Indeed, an increasing number of researchers – especially from the feminist and queer perspectives – are questioning the intercourse imperative and are shedding light on the heteronormative and phallocentric biases implied in using penetrative vaginal sex as "real" sex and all other sexual behaviors as preliminaries, or "foreplay" (Dion & Boislard, 2020, 2022; Pham, 2016; Schick et al., 2016), or even as a strategy to maintain virginity (Cohen & Byers, 2014; Horowitz & Bedford, 2017; Horowitz & Spicer, 2013). Also, while the study has been framed around heterosexual individuals, there is no measure of sexual identity/orientation here. This measure could have helped remove participants who do not identify as heterosexual (e.g., asexual people) and, correspondingly, may experience LST and its social effects differently. Sixth, this longitudinal study started in 2001, decades before our actual great screening and evaluation of gender dysphoria in youth and before the current ongoing conversation on disparities between sex assigned at birth and gender identities. As such, we only asked participants in Grade 6 whether they were boy or girl, a question that would be insufficient (or even obsolete) in today's golden standards of assessing the gender spectrum. Seventh, in this longitudinal study, the last measurement point used in the present study was collected in 2015. It is possible that changes may have taken place in society since then, that norms may have continued to evolve. Indeed, the heterocentric hegemony is much less in the foreground, and individuals are more aware of the diversity of sexual paths (Dion & Boislard, 2022). Moreover, recent data show that more individuals are reaching adulthood without sexual experience with a partner, and so the mean and median ages seem to be shifting to the right (Twenge et al., 2017; Twenge & Park, 2019). Last but not least, the number of participants in the late group is relatively small (i.e., 21 women and 23 men); thus, caution is warranted, as it is necessary to replicate the findings in comparatively larger and more diverse samples. Given the small effect sizes, more studies are needed before drawing conclusions. Precisely, a lot of the observed effect sizes were moderate or large. The problem seems to be that there was not enough statistical power to detect small effects, especially for differences between on-time and late women.

One promising avenue for future research is to identify mediators that could account for the associations found between late sexuality and the achievement of a few criteria, as well as psychological well-being in adulthood. For example, the emphasis on academic and professional success, the number of opportunities to meet romantic partners, and self-confidence could help explain these associations (Gesselman et al., 2017; Stewart-Williams et al., 2017; Zimmer-Gembeck & Helfand, 2008). In addition, it may be useful to measure the achievement of developmental tasks and psychological well-being after age 25 to determine whether these differences between on-time and late sexual starters remain at the end of emerging adulthood. Moreover, there is also literature on commitment readiness (Hadden et al., 2018); it could be a relevant variable to consider in future studies on LST.

Conclusion

Taken together, our results indicate that, to the delayed transition to active sexuality in late sexual starters, we must add delayed achievement of some important developmental tasks in emerging adulthood. This is associated with lower psychological well-being in late sexual starters, particularly for men. This study allows us to emphasize that the support that needs to be provided to a late sexual starter goes beyond the sexual sphere. Moreover, this study could contribute to understand the incels phenomenon given the similarities between the men with LST in our sample and the incels population. The fact that men in the late group show similar characteristics to incels in emerging adulthood could lead us to believe that incels also present social difficulties earlier in their development. Research on incels has bloomed since 2018, and while there are several studies who have examined their echo chamber dynamics and misogynistic discourses, the current study adds to this conversation by empirically showing that LST men are significantly more hostile than on-time men and LST women. This hostility seems to be embedded in a developmental cascade of rejection that had already started in late childhood (Lucas et al., 2020) and continues in emerging adulthood for those whose trajectory has continued to evolve outside social norms expectations (i.e., making friends, dating, engaging in romantic relationships, having sex). However, more longitudinal research on incels is highly needed to fully understand their developmental trajectories and develop interventions tailored to their needs, such as the promotion of social skills and friendships. To our knowledge, this is the first longitudinal study to specifically examine the effects of LST on developmental task achievement and psychological well-being in emerging adulthood. They also contribute to the literature on the social clock and the influence of developmental delays, on the potential effect of social stigma related to sexual inexperience in emerging adulthood, and on how gender roles shape individual psychosexual trajectories.

ORCID IDs

Ashrah Lucas http://orcid.org/0000-0002-2526-7479
François Poulin http://orcid.org/0000-0002-6345-8233
Marie-Aude Boislard http://orcid.org/0000-0003-3628-348X

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