MANUSCRIPT

ABSTRACT

The transition to adulthood has become more prolonged, complex, and risk-laden over the past two decades. These changes may contribute to the decline in wellbeing observed among young adults. We test the role of reaching different transition milestones on life satisfaction by ages 25-26 among men and women born 20 years apart in 1970 and 1989-90, using data from the 1970 British Cohort (men n = 3,764, women n = 4,568) and Next Steps (men n = 3,246, women n = 4,281) studies. We regressed life satisfaction on education, housing tenure, cohabitation with parents, economic activity, relationship status, and parenthood, and tested the role of changes in the prevalence and association of milestones in explaining cohort differences in life satisfaction using decomposition analyses. Home ownership, full-time employment, cohabitation with a partner, and marriage were robust predictors of life satisfaction at ages 25-26 in both cohorts. Comparing cohorts, the association of milestones with life satisfaction was stable among men but differed among women: in the later-born cohort, women no longer benefitted from higher education and further suffered from not being in full-time employment. The findings shed new light on the relationships between young adult transitions and life satisfaction during the third decade of life. These support the argument that decreases in wellbeing may be driven by changes in the prevalence and meaning of these milestones over time, particularly among women.

KEYWORDS

United Kingdom; Life satisfaction; Young adults; Transition to adulthood; 1970 British Cohort; Next Steps

MAIN TEXT

1. INTRODUCTION

Life satisfaction, which refers to how individuals evaluate the quality of their life, represents a key dimension of subjective wellbeing (Diener & Diener 1995, Diener 2012). It is linked to morbidity and mortality through its effect on physical health, sense of control, social participation, and the capacity to avoid unhealthy practices and pursue health promoting activities (Koivumaa-Honkanen et al. 2000, Pavot & Diener 2008, Collins et al. 2009, Kimm et al. 2012, Hülür et al. 2017). A life-course approach to wellbeing is important to understand its lifelong development and to support public health action (Hatch et al. 2007). While subjective wellbeing has been understood to follow a U-shape age trajectory, starting relatively high in early adulthood, decreasing to reach its minimum at ages 45-50, and increasing again up to ages 65-70, more recent research argues that life satisfaction just worsens throughout the life-course (Mroczek & Spiro 2005, Blanchflower & Oswald 2008, Baird, Lucas & Donnellan 2010, Bell 2014). Along this age trend, dissatisfaction in early life is likely to persist across the life-course and predict poorer health outcomes at older ages (Koivumaa-Honkanen et al. 2005).

Time trends across a range of Anglo-Saxon, Nordic, and European countries suggest that young men and women have been experiencing worsening mental health outcomes, including lower levels of life satisfaction, over the past twenty years (Keyes et al. 2014, Cavallo et al. 2015, Calling et al. 2017, Ross et al. 2017, Twenge et al. 2019, Pitchforth et al. 2019, Due et al. 2019). These worrisome trends, however, are not systematic (e.g., Eastern European countries show positive trends) and explanations are lacking (Cavallo et al. 2015). Hypotheses include the rise in social media, the decrease in sleep quality, and the experience of unemployment and poverty in response to economic crises (Calling et al. 2017, Twenge et al. 2019, Gagné, Schoon & Sacker 2021). Using a life-course perspective, these trends compel us to identify the broader social changes which have led young adults to no longer be satisfied with their life in more recent years (Elder, Johnson & Crosnoe 2003).

We draw on two main scholarships to do this. First, we argue that normative expectations regarding the assumption of new social roles in the transition to adulthood are associated with life satisfaction, and that the increase in the number of young people unable to follow traditional timetables has led more of them to experience lower levels of life satisfaction over time. Second, we take into account the considerable changes in the socioeconomic context of transition experiences since the 1990s and argue that, as financial security has become harder to achieve and family transitions have become

further delayed over time, later born cohorts reaching the same milestones experience different levels of life satisfaction compared with earlier born cohorts. To explore this, the current study will be the first that we know of to test changes in the role of the assumption of new adult roles in life satisfaction at ages 25-26 using two large cohorts representative of those born in 1970 and 1989-90 across Great Britain.

1.1. Becoming adults in times of social change

Young adulthood, unlike other life periods, is characterized by the range of transitions occurring across education, employment, family, and housing over a relatively short period of time (Shanahan 2000, Billari & Liefbroer 2010, Buchmann & Kriesi 2011). The key markers associated with the transition to adulthood have been traditionally identified through the "big 5" transition milestones: leaving full-time education, entering paid employment, leaving the parental home to live independently, forming a committed relationship, and parenthood (Shanahan 2000).

To explain the observed regularity in the process of the transition to adulthood, scholars developed the notion of age-based social norms based on the assumption that behaviour that is statistically modal is normative for all individuals (Marini 1984, Neugarten 1996). These norms are reproduced in part by formal and informal social sanctions when major deviations from the prescriptive timetable occur, i.e., when a transition occurs too late or too early such as becoming a teenage parent or failing to leave the parental home (Heckhausen 1999, Elder & Shanahan 2007, Liefbroer & Billari 2010). Other theoretical approaches have downplayed the importance of "objective" transition milestones and highlighted the importance of subjective perceptions of adult independence (Arnett 2000). Evidence however supports that reaching transition milestones and adhering with related norms continues to represent a critical dimension of the transition to adulthood (Shanahan et al. 2005, Benson & Elder 2011, Eliason, Mortimer & Vuolo 2015).

Scholars have used data on young adults' perception of normative ages to assume new social roles to tap into the social norms governing the transition to adulthood (Marini 1984). In the United States, Vespa (2017) found that at least 80% of young adults considered that finishing education, starting full-time employment, leaving the parental home, and becoming financially independent were important for becoming an adult. Less than 50% of them, however, had reached each of these milestones by the perceived normative age, whose average varied from ages 21 to 25 across transitions. Existing age-graded norms, therefore, may be increasingly clashing with the changing timing and patterning of transitions over the past two decades. Employment opportunities in most

Western countries have dramatically changed following the introduction of new technologies, the expansion of tertiary education, the entry of women in higher education and the labour force, and increases in precarious forms of employment in this age group (Schoon & Bynner 2019). Increased difficulties in securing viable employment have also led rising numbers of young people to delay the step into independent living and family formation, leading to rates of home ownership plummeting in younger generations (Stone et al. 2011; ONS 2016, 2019).

Whereas fewer young people succeed in attaining key milestones according to traditional timetables, many continue to hold on to the ideal of achieving these markers before the end of the third decade of life (Vespa 2017). Therefore, the age-graded norms established between the 1950-90s continue to represent powerful socialisation forces, despite representing decreasingly recent demographic trends. Whereas social comparison theory would predict a decreasing influence of transition milestones that have become less salient over time, norms regarding the transition to adulthood appear to remain shaped by tenacious past trends (Festinger 1954).

1.2. Transition milestones and life satisfaction

Four potential mechanisms related to the transition to adulthood may therefore explain decreases in life satisfaction among young adult populations over time: 1) the prevalence of transitions positively associated with life satisfaction has decreased; 2) the positive value young adults put on transitions – and its influence on life satisfaction – has decreased; 3) the tangible benefits of transitions – and its influence on life satisfaction – have decreased; and 4) those who entered transitions associated with life satisfaction have changed (i.e., selection).

The five key social transitions have been extensively studied in association with life satisfaction over the life-course (Clark 2018). Scholars suggest that the U-shape pattern of life satisfaction at different ages is likely explained by the transitions experienced across life periods. Supporting this in the transition to adulthood, Switek & Easterlin (2018) found in Sweden that high life satisfaction at age 30 was largely explained by partnership formation and new parenthood. The decrease in satisfaction at later ages was then explained by the increase in partnership dissolution and the parenting of aging children. Young adults with the lowest levels of life satisfaction have been those who rapidly transitioned into work after mandatory schooling, were disengaged in school and work, experienced poor work conditions or unemployment, and faced family setbacks (i.e., relationship loss, return to the parental home) (Lee & Gramotnev 2007, Liem et al. 2010, Upadyaya & Salmela-Aro 2016, Schoon & Lyons-Amos 2017, Henderson 2019). Therefore, the delays that most young adults have

experienced in more recent years have led the proportion of those reaching positive work and family milestones by the mid-20s to drop, thereby likely affecting levels of life satisfaction in this age group.

The relationship of transitions with life satisfaction is also shaped by social context. Whereas school dropouts are likely to report the poorest wellbeing outcomes, young adults who complete university are likely to experience an immediate decrease in wellbeing as they leave a familiar setting and try to enter the workforce. Those who complete vocational training, however, are likely to experience an increase in wellbeing as they started their transition into work earlier and are now appreciating new employment opportunities (Aronson 2008, Dockery 2010, Symonds et al. 2016, Siembab & Stawarz 2017). These relationships also differ by gender: studies have found that unemployment and higher education tend to be more important for men whereas marriage, social support, and health tend to be more important for women (Aronson 2008, Clark et al. 2008, De Neve & Ward 2017, Joshanloo & Jovanović 2018). Gender stereotypes (e.g., it is acceptable to combine a full-time job with bringing up children for men but not for women) may also exacerbate the impact of the timing and patterning of transitions on life satisfaction (Liefbroer & Billari 2010).

Beyond changes in prevalence, what value young adults put on transitions, what benefits they may reap from them, and which groups may reach them in the first place have therefore also likely changed over the past two decades. Compared to young adults who made the transition to adulthood during the 1980-1990s, those born in the 1990s became of age during the 2008 Great Recession and encountered more problems in establishing themselves in the labour market, i.e., steeper education fees, higher student loan debts, and fewer secure job and housing opportunities (Schoon & Bynner 2017, 2019, Henderson 2019). Higher education has become more commonplace and, not being as distinctive in terms of prestige and work conditions in the short term, may have had decreased value for life satisfaction in more recent years (Boero et al. 2019). Similarly, employment in this age group offers for many decreased benefits over time as it is done in poorer conditions, such as shift work and zero-hours contracts, and with stagnating incomes, which may both relate to life satisfaction (Steel 2011, Henderson 2019, Francis-Devine 2020). In response, family transitions that have become less accessible for later-born cohorts – leaving the parents' residence, cohabitation, parenthood – may be linked to an increased positive influence on life satisfaction if those entering these milestones by the mid-20s are more likely to have sought them and be supported by their social network in more recent years. That is, even if these transitions are associated with the same value over time, those who historically entered them with fewer resources (and did not enjoy optimal satisfaction from their experience) may simply no longer be able to access them in recent years.

1.3. Objectives

The goal of this study is to examine differences in the association between reaching distinct transition milestones by ages 25-26 and life satisfaction across two British cohorts born in 1970 and 1989/90. We first hypothesize that reaching milestones in education, employment, family, and housing by ages 25-26 contributes to feeling more satisfied with one's life at this age. To explain decreases in life satisfaction across generations, we consider changes in: 1) *prevalence*, i.e., milestones traditionally positively associated with life satisfaction (e.g., marriage, home ownership) will be less prevalent in the later-born cohort; 2) *association*, i.e., milestones associated with life satisfaction will present in the later-born cohort: weaker positive associations for transitions that have become less valuable and lost their role in guaranteeing beneficial living conditions (e.g., higher education, full-time employment), and stronger positive associations for transitions that have remained valued but have become more "selected" (e.g., leaving the parental home, cohabitation). We consider how transition milestones influence life satisfaction across generations in men and women separately.

2. METHODS

2.1. Data

We used two datasets to compare the distribution of life satisfaction in young adulthood: the 1970 British Cohort and the Next Steps (NS) studies.

The 1970 British Cohort study recruited 17,196 individuals born during a single week in April 1970 across Great Britain and followed them up to the ages of 46-48 in 2016-18 (Chamberlain et al. 2013, Butler et al. 2016, University of London 2016). The 1970 cohort was designed to study perinatal mortality and progressed to become multidisciplinary, collecting information on health, economic, and social characteristics over time. Cohort members and their parents were invited to participate at the ages of 5, 10, 16, and 26 between April and September 1996. At the age 26 wave, a total of 12,290 cohort members from the birth wave were issued for fieldwork. Participants not contacted included those who had chosen to permanently withdraw from the study, been untraced for a lengthy period, emigrated out of the UK, or were deceased. At the end of the fieldwork period, 8,332 cohort members participated, representing a response rate of 68% among eligible cases.

The Next Steps (NS) study recruited 15,770 young people aged 13-14 in 2004 in England, followed them each year until ages 19-20, and another time at ages 25-26 between August 2015 and September

2016 (Calderwood 2018, University College London 2018). At wave 4 (ages 16-17), it included an ethnic minority boost sample of 352 participants. The Next Steps study was designed to study the successful progression from compulsory education, and changed in scope to include a wider range of outcomes on the transition from education into work and family life. At the ages 25-26 wave, a total of 15,108 cohort members were issued for fieldwork. Participants not contacted included those who chose to permanently withdraw from the study, were in prison, deceased, outside the UK, and identified to be in the armed forces or out of the survey for similar reasons. At the end of the fieldwork period, 7,707 cohort members participated, representing a response rate of 51% among eligible cases.

2.2. Measures

Life satisfaction was measured in the 1970 and Next Steps cohorts with the same question, asking how "dissatisfied or satisfied are you about the way your life has turned out so far?". The 1970 cohort used an eleven-point Likert scale ranging from completely satisfied to completely dissatisfied, and the Next Steps cohort used a five-point Likert scale ranging from very satisfied to very dissatisfied. To derive a comparable measure, we dichotomised the scales and defined participants to be satisfied with life if they selected a response option above the mid-point (i.e., 7-11 out of 11 in the 1970 cohort and 4-5 out of 5 in the Next Steps cohort). For comparison, life satisfaction is measured in: 1) the UK Household Longitudinal Study (UKHLS) with "how dissatisfied or satisfied are you with the following aspects of your current situation?" with one option being "your life overall" (7-point scale); 2) the Household, Income, and Labour Dynamics in Australia (HILDA) survey with "All things considered, how satisfied are you with your life? (11-point scale). Researchers have argued that single items were very strongly correlated with multi-item scales such as the Satisfaction With Life Scale and unlikely to induce substantial error (Magee et al. 2013, Cheung & Lucas 2014). Missingness on this item was low in the 1970 (0.7%) and Next Steps (3.6%) cohorts.

Our main variables included five characteristics encompassing the "big five" transitions: educational attainment, employment status, independent living arrangements, partnership, and parenthood.

Educational attainment was measured using the National Vocational Qualifications (NVQ) scheme: 1) "No qualifications", 2) "NVQ1 – Compulsory Secondary Education (1970) or low-grade General Certificate of Secondary Education (GCSE) (Next Steps)", 3) "NVQ2 – O-levels (1970) or high-grade GCSE (Next Steps)", 4) "NVQ3 – A-levels", 5) "NVQ4 – Further qualification", and 6) "NVQ5 – Degree". Under this scheme, NVQ 1 and 2 refer to different tiers of secondary education training, NVQ 3 to pre-university training, NVQ 4 to sub-degree programs (e.g., short university certificates),

and NVQ 5 to standard undergraduate and graduate degrees. In the age 26 wave of the 1970 cohort, educational attainment was measured with a set of items inducing mis-responses due to ambiguity about the status of a 'diploma', leading researchers to recommend against using information at this wave (Dodgeon & Parsons 2012). Using information collected at later sweeps, we were able to derive the NVQ of 91% of participants at age 26 (80% of those with missing values were lost to follow-up after age 26). In the Next Steps cohort, we used a derived variable created by the study team to measure education at ages 25-26.

Employment status was measured using information derived by the 1970 and Next Steps teams: 1) full-time employed, 2) part-time employed, 3) unemployed, 4) full-time student, 5) other (e.g., at-home, disability, military). Our assessment of living arrangements is based on two indicators: *whether the young person still lives with their parents* and *housing tenure.* These were measured in the 1970 and Next Steps cohorts asking "Do you own or rent your home or have some other arrangement?" and recoded with information from the household grid questionnaire into a single variable: 1) living with parents; 2) without parents, owning; 3) without parents, renting; 4) other (including squatting, rent-free, or other arrangements). *Relationship status* was measured by combining data on marital status and cohabitation into a single variable: 1) single, 2) cohabiting with a partner, 3) married, and 4) divorced, separated, or widowed. *Parenthood* was also measured using the household grid questionnaire into a single variable: 1) no children; 2) one child; 3) two or more children.

To account for confounding, we focussed on three measures of social background and one measure of health in adolescence (Layard et al. 2014, Bannink, Pearce & Hope 2016). We measured *parents' education* based on the highest age when they last left education using data in the age 16 wave (and at birth if data was missing at this wave) in the 1970 cohort and at the baseline wave in the Next Steps (ages <=16, 17-18, >=19). We measured *parents' home ownership* using one item on housing tenure at the age 10 wave (and at birth if data was missing at this wave) in the 1970 cohort and at the baseline wave in the Next Steps (Home owner / Not owner). We finally measured *mother's age at birth* (ages <20, 20-24, 25-29, >=30). To capture participants' health in adolescence, we used two items in the 1970 cohort asked to the cohort members' mother at age 10: "Does your child have any medical condition or illness, any behaviour problem or educational difficulty which you consider to be important?" (Yes / No) and "Does it affect everyday life at home or at school?" with four response options ranging from "No" to "Yes, severely". Similarly, we used in the NS cohort two items asked to cohort members' main parent at ages 13-14: "Does (name) have any long-standing illness, disability, or infirmity?" (Yes / No) and "Does this problem make it harder for (name) to go to school regularly?" (Yes / No). We recoded participants' health in adolescence as: 1) no problem, 2)

problems, no limitations, 3) problems, with limitations. Finally, we considered ethnic group (White / Non-White) as an additional covariate. The distribution of the main variables and covariates is available in Supplementary Tables 1 and 2.

2.3. Statistical analyses

Before the main analyses, we addressed non-response and item missingness. We adjusted for non-response in the 1970 and Next Steps cohorts using inverse-probability weighting. For the Next Steps study, we used the weights created by the Next Steps team to account for non-response, attrition, and its initial sampling design. For the 1970 cohort, we created an inverse-probability weight to account for non-response at age 26 based on nine variables measured at birth: ages at which the father and mother left education, employment statuses of the father and mother, social class of the family, marital status of the mother, sex, country, and birth weight. To account for item missingness, we used multiple imputation by chained equations (MICE) approach to impute 20 datasets with 10 burn-in iterations (Royston & White 2011).

The main analyses were produced in two steps. First, we estimated average marginal effects (AME) from logistic models, regressing life satisfaction on the five transition variables, controlling for social background (i.e., mother's age at birth and parents' education and home ownership in adolescence), adolescent health, and ethnic group, in each sex and cohort separately (Williams 2012). AMEs can be interpreted as the absolute change between the predicted probabilities of the outcome across the categories of an independent variable (in percentage points, p.p.). Compared with odds ratios, AMEs have the benefit of not being affected by residual variance and the inclusion of covariates not related to the independent variable, making them better suited for group comparisons (Mood 2010, Mize et al. 2019). Since entering transition variables in a single model may lead to overcontrol, we first entered them separately in a set of partially-adjusted models and then entered them together in a fully-adjusted model (Elwert & Winship 2014).

Second, we used a decomposition analysis to estimate the extent to which cohort differences in life satisfaction were explained by differences in the prevalence of transition milestones and/or their association with life satisfaction, using the *oaxaca, logit* Stata command (Jann 2008, Rahimi & Nazari 2021). We used a "threefold" decomposition, which divides cohort differences in life satisfaction into three components: 1) the first component represents the proportion of the difference due to group differences in the predictors, entitled the "endowments effect"; 2) the second component represents the contribution of differences in the coefficients; 3) the third component is an interaction term

accounting for the fact that differences in endowments and coefficients exist simultaneously between the two groups (Jann 2008, p. 454-455). One limitation of decomposition analysis is that it provides different results for categorical predictors based on the reference category used. To counter this, we used the specification proposed by Yun (2005) and implemented by Jann (2008) to transform the coefficients so that results are invariant to the choice of the reference category. This transformation, however, implies that the results from the main regression analyses and the decomposition analysis cannot be directly compared.

We made robustness checks to test two issues. First, transition milestones and life satisfaction at ages 25-26 may be determined in part by mental wellbeing in adolescence. We tested this by controlling for the 12-item General Health Questionnaire (GHQ), a common screening tool for identifying minor psychiatric disorders with items such as "Have you recently been feeling reasonably happy, all things considered?", which was measured at age 16 in the 1970 cohort and ages 16-17 in the Next Steps cohort. Controlling for GHQ did not affect the findings. We did not include this variable in the main analyses because of the high level of missing data (55-67%) on this variable in the 1970 cohort. The age 16 wave in the 1970 cohort has a higher level of missing data compared with other waves because there were national teacher strikes limiting data collection during fieldwork (Sullivan et al. 2015). Second, the comparison of the proportions of participants scoring above the life satisfaction scales' mid-point may not be trustworthy when scales differ in length (Chyung et al. 2017). As a sensitivity analysis, we reproduced the main analyses with the full life satisfaction scales using ordinal logistic regression and linear regression. These results also supported well the main findings based on AMEs (linear estimates are reported in Supplementary Tables 3 and 4). All analyses were produced in Stata 16 (Statacorp 2019).

3. Results

3.1. Changes in the prevalence of life satisfaction and transition milestones by ages 25-26 in 1996 and 2015-16

We report in Table 1 proportions for life satisfaction and transition milestones in each cohort after weighting and multiple imputation. Frequencies and missing cases on these variables are detailed in Supplementary Table 1. We summarize in this section differences in prevalence between genders and cohorts, focussing on statistically significant differences.

<Insert Table 1 somewhere here>

Participants were less likely to report being satisfied with life in the Next Steps cohort compared with the 1970 cohort. In the 1970 cohort, 79% of men and 81% of women reported being satisfied with life. In the Next Steps cohort, 68% of men and 75% of women reported being satisfied with life. Regarding milestones, the proportion of young adults with a higher education degree (NVQ 5) increased from 5% to 12%. Differences in employment varied between genders, with young adults now more likely to: 1) work part-time (men: 2% to 7%; women: 13% to 15%), 2) be unemployed (men: 7% to 8%; women: 3% to 6%), and 3) be in full-time studies (men: 3% to 5%; women: 2% to 5%) compared to the 1970 cohort. Home ownership decreased by nearly 60% among men (36% to 16%) and women (44% to 19%) between cohorts. Young adults in the later born cohort were more likely to be single (men: 49% to 68%; women: 35% to 57%) and less likely to be married (men: 24% to 9%; women: 35% to 14%) compared to the 1970 cohort. The proportions of young adults with one child or more than one children, however, did not significantly change.

3.2. Associations between transition milestones and life satisfaction by ages 25-26 in 1996 and 2015-16

Tables 2 and 3 present the average marginal effects (AMEs) of being satisfied with life according to educational attainment, employment status, living arrangements, relationship status, and parenthood among men and women in the 1970 and Next Steps cohorts. We summarize in this section statistically significant differences based on the fully-adjusted models.

3.2.1 1970 cohort in 1996

The five transition variables were each associated with a higher probability of being satisfied with life at age 26 among men and women in 1996. Men and women with a three-year degree had each a higher chance of being satisfied with life compared with those with no qualifications (AME_M = 8.4 and AME_W = 9.9). Compared to those in full-time employment, men and women had a lower chance of life satisfaction if they were employed part-time (AME_M = -10.8 and AME_W = -7.1), unemployed (AME_M = -26.0 and AME_W = -7.6), studying (AME_M = -8.4), or out of the labour force (AME_M = -22.4 and AME_W = -8.1). Men and women owning their home had each a higher chance of being satisfied with life compared to those living with parents (AME_M = 9.2 and AME_W = 6.5). Similarly, men and women with a partner and married had each a higher chance of being satisfied with life compared to those single (in couple: AME_M = 10.5 and AME_W = 12.1; married: AME_M = 10.1 and AME_W = 18.3). Parenthood was not significantly associated with life satisfaction among men whereas

having two or more children was associated with a lower chance of life satisfaction among women (AME = -6.5).

<Insert Table 2 somewhere here>

3.2.2 Next Steps cohort in 2015-16

The five transition variables were also each associated with a higher probability of being satisfied with life at ages 25-26 among men and women in 2015-16. Having a university degree continued to associated with a higher chance of life satisfaction in men (AME = 11.7), but no longer in women (AME = 1.2, 95%CI -6.0; 8.4). Compared to those in full-time employment, men and women again had a lower chance of life satisfaction if they were employed part-time (AME_M = -14.2 and AME_W = -11.4), unemployed (AME_M = -25.5 and AME_W = -26.8), or out of the labour force (AME_M = -26.5 and AME_W = -20.6). Men and women living independently as homeowners continued to report a higher chance of life satisfaction compared to those who lived with parents (AME_M = 12.2 and AME_W = 16.6). In this sample, women living independently as renters now also had a higher chance of life satisfaction compared to those living with parents (AME = 7.3). Cohabitation and marriage continued to be positively associated with life satisfaction at ages 25-26 across genders (in couple: AME_M = 14.8 and AME_W = 9.0; married: AME_M = 21.0 and AME_W = 19.0). Finally, women now had a higher chance of life satisfaction if they had one or two+ children compared to those with no children (one child: AME = 7.6; more than one child: AME = 10.6).

<Insert Table 3 somewhere here>

3.3. Decomposing differences in life satisfaction by ages 25-26 in 1996 and 2015-16

Examining the extent to which changes in the prevalence of transition milestones (Section 3.1) and their association with life satisfaction (Section 3.2) may explain decreases in life satisfaction at ages 25-26 across cohorts, we present detailed results of our decomposition analyses in men and women in Table 4.

Changes in the *prevalence* (labelled 'Means' in Table 4) of three transition characteristics – economic activity, independent living arrangements, and relationship status – contributed to explain differences in life satisfaction among men and women. In keeping with the lower prevalence of full-time employment in men in 2015-16, differences in life satisfaction would be 10% smaller in men if those aged 25-26 had the same employment opportunities across cohorts. That is, the lower prevalence of

full-time employment for men in 2015-16 compared to 1996 explains 10% of the 10.6 percentage-point life satisfaction gap between the two cohorts. In keeping with declines of home ownership, differences in life satisfaction would be 20% smaller in men and 37% smaller in women if those aged 25-26 had the same housing opportunities across cohorts. Finally, with declines in marriage, differences in life satisfaction would be 22% smaller in men and 48% smaller in women if those aged 25-26 had the same marital patterns across cohorts.

Changes in the *association* (labelled 'Coefficients' in Table 4) of three transition characteristics with life satisfaction – educational attainment, economic activity, and parenthood – also contributed to explain differences among women, but not men. The finding that differences in life satisfaction would be 19% smaller if associations for educational attainment were equal across cohorts was attributable to both increased satisfaction among those with no qualifications and decreased satisfaction among those with secondary education (NVQ 2) and further education (NVQ 4). The finding that differences in life satisfaction would be 74% larger if associations for economic activity were equal across cohorts was attributable to increased satisfaction among those in full-employment. Finally, the finding that differences in life satisfaction would be 78% smaller if associations for parenthood were equal across cohorts was attributable to decreased satisfaction among those without children and increased satisfaction among parents with more than one child.

The three-fold decomposition approach also considers the potential for *interactions* between changes in transition characteristics' prevalence and associations with life satisfaction to explain differences between groups (labelled 'Interactions' in Table 4). We found a single significant interaction effect with regard to marriage among men (-16.5%), which suggests that the role of the lower prevalence of marriage in differences between 1996 and 2015-16 was partially offset by its weaker association with life satisfaction compared with other relationship categories.

<Insert Table 4 somewhere here>

4. DISCUSSION

In response to decreases in wellbeing among young adults and changes in the nature of the transition to adulthood over the last twenty years, we explored the associations between transition milestones and life satisfaction in the middle of the third decade of life among two British cohorts born in 1970 and 1989-90. Supporting the literature, we found substantial changes in transitions (i.e., increase in higher education, decreases in full-time employment, home ownership, cohabitation, and marriage)

and a decrease in life satisfaction between cohorts at ages 25-26. In keeping with our first hypothesis, we found support for the argument that the decrease in life satisfaction among young adults may be explained by the decrease in the prevalence of milestones associated with financial security, namely full-time employment (in men only) and home ownership, and positive family milestones delayed or abandoned, namely marriage. Beyond changes in prevalence, we also found support for the second hypothesis when finding that the associations between most transition milestones and life satisfaction had significantly changed among women, but not men, across cohorts. In the 1989-90 cohort, women: 1) no longer benefitted from completing secondary or higher education, 2) further suffered from not being in full-time employment, and 3) further benefitted from not living with parents (although this was not significant in the decomposition analysis) and having children. We discuss in the remainder of this section these findings sequentially.

First, despite the increased requirement for higher education in today's labour market, completing any qualifications was no longer associated with life satisfaction among women aged 25-26 in 2015-16. Similarly, women not in full-time employment reported a relatively lower life satisfaction in 2015-16 compared with 1996, whether they were unemployed and looking for work, in full-time studies, or staying at home taking care of their family. Among men, however, educational attainment and employment status retained similar degrees of association with life satisfaction across cohorts.

For young women who only completed compulsory education (NVQ 2), two parallel changes may explain this decrease. Women have become less likely to be in a family of their own and stay at home with children at this age (ONS 2019). Even when cohabiting with a partner, lower income and poorer work conditions among young men over time have put new pressure on young women to enter the job market and use their qualifications to support their financial security. During this time, however, fewer job opportunities have become available for women who left education before age 18 (UKCES 2015). Regarding further and higher education (NVQ 4-5), the disappearance of their positive association with life satisfaction in women is unlikely to be explained by larger decreases in economic returns compared to men over time. In fact, the short-term benefits of higher education on earnings have been larger in women compared to men in more recent years (Belfield et al. 2018). Women who complete further and higher education, however, may be more likely to work in certain conditions such as longer work hours that hinder their wellbeing compared with men (Belfield et al. 2018, Weston et al. 2019). Since women with higher education have become more likely to simultaneously enter partnership transitions over time, they may have to balance work pressures with new domestic responsibilities in more recent years (Torr et al. 2011, Liu et al. 2020).

Second, we found that women further benefitted from reaching two family milestones, living without parents and having children, in regard to life satisfaction. Regarding the transition out of the parental home, women who lived with parents at ages 25-26 in 1996 could have been more likely to voluntarily do so, building on their parents' support to save money and prepare their other transitions. Supporting this, British "slow starters" were less likely to come from disadvantaged backgrounds in the 1980-90s compared with other young adults (Schoon et al. 2012). In response to lower job and housing opportunities and delays in partnership transitions, young women today may be more likely to keep living with their parents in spite of their expectations. Whereas analyses were adjusted for their current economic activity and relationship status, women living with parents could also include an increasing number who "boomerang" back after a failed transition attempt (e.g., job loss, partner separation), which has been associated with a decrease in mental wellbeing (Copp et al. 2017, Caputo 2018).

The benefit of motherhood on life satisfaction in the Next Steps cohort, however, is less intuitive. A first explanation could be that, in response to public health action and the need for higher education, there have been fewer teenage mothers in the current generation (ONS 2019). Precocious parenthood is linked with considerable social and health consequences, and likely explains part of the negative association found between having 2+ children and life satisfaction among women in the 1970 cohort (Berrington et al. 2005). Supporting the different experience of multiparity in the 1970 cohort, we found that women were more likely to have had 3 or more children in the 1970 cohort compared with the Next Steps sample. A second explanation could include changes in the relationship between recent motherhood and life satisfaction over time, as mothers in the Next Steps cohort were markedly more likely to report higher life satisfaction if they were with children below age 2 compared with the 1970 cohort. Compared to those childless, parents are expected to report higher wellbeing in the years before and after childbirth, lower wellbeing when children become school aged, and higher wellbeing again once their children leave home (Umberson et al. 2010, Myrskylä & Margolis 2014). The benefit of motherhood on life satisfaction at ages 25-26 could therefore be attributed to the higher number of recent mothers who deliberately wanted to enter a traditional family pathway at this age compared with the 1970 cohort (Schoon et al. 2012).

4.1. Strengths & Limitations

This study builds on the multidisciplinary nature and large scale of the 1970 British Cohort and Next Steps datasets to develop robust evidence with regard to precision and representativeness on the role of transition milestones on life satisfaction in generations born in 1970 and 1989-1990.

We note six limitations. First, whereas life satisfaction was asked at comparable positions across questionnaires, differences in interview mode may have influenced responses (self-completed on paper in the 1970 cohort *versus* self-completed online, assisted over phone or face-to-face in the Next Steps cohort). Whereas interview mode is unlikely to influence the reporting of transition milestones (and confound their relationship with life satisfaction), social desirability bias may have led more in the Next Steps sample to report higher life satisfaction. Second, transition milestones and life satisfaction were measured at the same point, precluding us from drawing causal relationships from most associations. Third, we did not consider the timing of transitions despite their importance for life satisfaction (Clark et al. 2008). In particular, addressing timing would have helped improve our interpretation of the relationship between parenthood and life satisfaction, and nuance the role of trajectories in education, employment, and housing. Fourth, we caution that covariates were not identical across datasets. In particular, the ages at which adolescent variables were measured (e.g., ages 10 in the 1970 cohort and ages 13-14 in the Next Steps cohort) may influence to different degrees the covariate-adjusted associations between transition milestones and life satisfaction. Covariates may also refer to different contexts across cohorts. For instance, the minimum age for mandatory schooling increased from 15 to 16 in 1972 in the UK. This means that the parents of 1970 cohort participants who finished education at age 16 were categorized in the "mandatory or less (ages ≤16)" group despite having done one extra academic year, whereas this misclassification was not an issue for the parents of Next Steps participants who finished education at age 16 after the 1972 law passed. Fifth, we highlight that differences between the 1970 and Next Steps cohorts may be the product of cohort and period effects in keeping with the aftermath of the 2008 Great Recession: i.e., despite the presence of an overall cohort trend, young adults in the years before or after 2015-16 may have fared better than the Next Steps cohort members surveyed in 2015-16. Finally, our study focused on young adults in the UK and may thus not be generalisable to other countries, particularly if demographic trends differ (Billari & Liefbroer 2010). Despite differences in the prevalence and timing of transition markers, Schulenberg & Schoon (2012) argued that these were associated with life satisfaction in a consistent way across the UK, the United States, and Finland. New studies should confirm the extent to which our findings match the experience of young adults in other countries reporting similar trends for transition milestones and life satisfaction over time.

4.2. Conclusion

Young adults across a range of Western countries are reporting decreasing levels of life satisfaction over time. Our comparison of two British generations that navigated this life period support that these

decreases may be driven by broader social changes re-defining how many are reaching key transition milestones and the magnitude of their influence on life satisfaction, particularly among women, in the third decade of life. Policies dedicated to promoting wellbeing among young adults should ensure viable employment prospects for all as well as appropriate support for young families, in particular regarding their housing needs.

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TABLE 1
Sample characteristics of the 1970 British Cohort (1996) and Next Steps (2015-16) studies, ages 25-26.

Variable	1970 British Cohort Study *N* = 8,332		Next Steps *N* = 7,707	
	Men *N* = 3,764 (%)	Women *N* = 4,568 (%)	Men *N* = 3,426 (%)	Women *N* = 4,281 (%)
Life satisfaction				
Satisfied with life	79.1	81.2	68.5	74.9
Not satisfied with life	20.9	19.8	31.5	25.1
Education (NVQ)				
No qualifications	12.2	13.1	9.3	8.6
NVQ 1: CSE / GCSE	7.7	9.1	17.5	13.3
NVQ 2: O-level / GCSE	29.4	32.2	26.3	23.9
NVQ 3: A-level	15.7	12.3	15.5	17.4
NVQ 4: Higher qual.	29.6	27.9	19.2	24.5
NVQ 5: Degree	5.4	5.3	12.3	12.3
Economic activity				
FT employed	83.0	63.0	75.0	57.9
PT employed	2.5	13.1	7.2	17.3
Unemployed	7.6	2.9	9.1	6.3
FT student	3.2	2.1	4.2	5.1
Other	3.6	18.9	4.4	13.5
Independent living				
Living with parents	25.5	17.4	26.6	19.7
Without parents, owning	35.7	44.4	15.1	18.5
Without parents, renting	27.3	30.4	34.3	43.6
Other	11.6	7.7	24.1	18.2
Relationship status				
Single	50.2	35.0	64.5	53.9
In couple	24.1	24.9	27.4	32.1
Married	23.6	35.4	7.7	12.9
Div./Sep./Widowed	2.0	4.7	0.3	1.1
Living with children				
No children	83.0	68.3	84.2	67.3
One child	11.5	17.2	9.2	16.3
More than one child	5.6	14.5	6.6	16.4

Life satisfaction was defined as selecting a response option above the scale mid-point (i.e., 7-11 out of 11 in the 1970 cohort and 4-5 out of 5 in the Next Steps cohort). Estimates are adjusted for attrition and missingness using weighting and multiple imputation. Unadjusted descriptives are presented in Supplementary Table 1. NVQ: National Vocational Qualification; FT = Full-time; PT = Part-time.

TABLE 2
Transition milestones and life satisfaction at age 26 in the 1970 British Cohort Study (1996).

	M *N* = 3,764				**F** *N* = 4,568			
	Partially-adjusted		**Fully-adjusted**		**Partially-adjusted**		**Fully-adjusted**	
	AME	**95%CI**	**AME**	**95%CI**	**AME**	**95%CI**	**AME**	**95%CI**
Education (NVQ)								
No qualifications (ref.)	---	---	---	---	---	---	---	---
NVQ1: CSE	-0.5	-8.1; 7.0	-2.3	-9.2; 4.6	**8.2**	**2.4; 13.9**	**5.4**	**0.1; 10.7**
NVQ2: O-level	4.9	-0.3; 10.1	1.4	-3.5; 6.2	**9.8**	**5.3; 14.4**	**6.2**	**2.1; 10.4**
NVQ3: A-levels	**9.1**	**3.5; 14.7**	3.9	-1.4; 9.3	**10.5**	**5.3; 15.7**	**5.2**	**0.2; 10.3**
NVQ4: Further education	**9.5**	**4.2; 14.7**	**5.9**	**0.9; 10.8**	**14.9**	**10.2; 19.5**	**10.6**	**6.1; 15.0**
NVQ5: Degree	**9.2**	**1.7; 16.7**	**8.4**	**1.9; 15.0**	**12.8**	**6.1; 19.6**	**9.9**	**3.6; 16.2**
Economic activity								
FT employed (ref.)	---	---	---	---	---	---	---	---
PT employed	**-14.3**	**-24.1; -4.5**	**-10.8**	**-20.1; -1.5**	**-6.0**	**-9.8; -2.3**	**-7.1**	**-11.4; -2.9**
Unemployed	**-35.6**	**-42.2; -29.1**	**-26.0**	**-32.3; -19.7**	**-11.6**	**-19.7; -3.5**	**-7.6**	**-15.1; -0.1**
FT student	**-12.7**	**-21.6; -3.9**	**-8.4**	**-16.4; -0.4**	1.7	-5.7; 9.2	4.6	-1.6; 10.9
Other	**-32.3**	**-41.3; -23.3**	**-22.4**	**-30.8; -13.9**	**-11.4**	**-14.9; -7.8**	**-8.1**	**-12.5; -3.8**
Independent living								
Living with parents (ref.)	---	---	---	---	---	---	---	---
Without parents, owning	**19.9**	**16.4; 23.3**	**9.2**	**5.1; 13.3**	**17.1**	**13.5; 20.6**	**6.5**	**2.4; 10.6**
Without parents, renting	2.7	-1.6; 6.9	-1.9	-5.9; 2.2	**4.2**	**0.2; 8.2**	2.3	-1.6; 6.2
Other	**6.4**	**1.1; 11.7**	2.8	-1.9; 7.6	**9.1**	**3.7; 14.6**	3.5	-1.5; 8.5
Relationship status								
Single (ref.)	---	---	---	---	---	---	---	---
In couple	**14.9**	**11.8; 18.0**	**10.5**	**6.7; 14.2**	**12.6**	**9.4; 15.8**	**12.1**	**8.2; 15.9**
Married	**16.5**	**13.4; 19.6**	**10.1**	**5.6; 14.6**	**17.7**	**14.9; 20.5**	**18.3**	**14.7; 22.0**
Div./Sep./Widowed	-10.3	-22.1; 1.5	**-11.2**	**-21.9; -0.6**	-5.4	-12.2; 1.5	-0.2	-6.8; 6.4
Living with children								
No children (ref.)	---	---	---	---	---	---	---	---
One child	**5.8**	**1.9; 9.7**	-2.3	-7.6; 3.1	**-3.0**	-6.3; 0.2	-1.9	-5.8; 2.0
More than one child	4.2	-1.4; 9.8	0.4	-6.5; 7.3	**-8.0**	-11.9; -4.1	**-6.5**	**-11.5; -1.6**

Estimates represent average marginal effects (AME) from logistic models produced in 20 imputed datasets and weighted for attrition, regressing life satisfaction (Satisfied / Not satisfied) on milestones separately ("partially-adjusted") and together ("fully-adjusted"). Models controlled for mother's age at birth, highest age left education among parents, housing tenure at age 10, health limitations at age 10, and ethnic group. Bolded coefficients were statistically significant at the .05 level. CI = Confidence interval.

TABLE 3
Transition milestones and life satisfaction at ages 25-26 in the Next Steps study (2015-16).

	M *N* = 3,426				F *N* = 4,281			
	Partially-adjusted		Fully-adjusted		Partially-adjusted		Fully-adjusted	
	AME	95%CI	AME	95%CI	AME	95%CI	AME	95%CI
Education (NVQ)								
No qualifications (ref.)	---	---	---	---	---	---	---	---
NVQ1: GCSE Low	1.8	-7.5; 11.0	-2.3	-11.1; 6.6	-5.3	-14.2; 3.5	-3.4	-11.2; 4.5
NVQ2: GCSE High	6.5	-1.7; 14.6	-1.8	-9.5; 5.9	-1.4	-9.0; 6.2	-5.9	-12.9; 1.1
NVQ3: A-levels	4.1	-4.4; 12.7	-2.2	-10.4; 5.9	3.1	-4.4; 10.6	-2.0	-9.0; 5.1
NVQ4: Further education	**10.6**	**2.6; 18.7**	3.6	-4.1; 11.3	4.5	-2.9; 11.9	-0.4	-7.5; 6.6
NVQ5: Degree	**18.3**	**9.9; 26.8**	**11.7**	**3.5; 19.8**	4.8	-2.9; 12.5	1.2	-6.0; 8.4
Economic activity								
FT employed (ref.)	---	---	---	---	---	---	---	---
PT employed	**-19.4**	**-27.5; -11.2**	**-14.2**	**-22.1; -6.3**	**-7.4**	**-12.8; -2.0**	**-11.4**	**-17.0; -5.9**
Unemployed	**-32.7**	**-41.7; -23.6**	**-25.5**	**-34.1; -16.9**	**-27.7**	**-36.7; -18.7**	**-26.8**	**-35.2; -18.3**
FT student	**-10.8**	**-20.6; -1.1**	-9.0	-18.3; 0.3	-5.2	-12.3; 1.8	-5.3	-11.9; 1.2
Other	**-33.4**	**-45.6; -21.1**	**-26.5**	**-37.9;-15.2**	**-9.4**	**-15.5; -3.2**	**-20.6**	**-28.6; -12.6**
Independent living								
Living with parents (ref.)	---	---	---	---	---	---	---	---
Without parents, owning	**24.9**	**19.1; 30.7**	**12.2**	**5.3; 19.1**	**27.2**	**22.4; 31.9**	**16.6**	**11.0; 22.2**
Without parents, renting	**12.4**	**6.9; 17.9**	2.1	-3.5; 7.5	**13.0**	**8.3; 17.6**	**7.3**	**2.7; 12.0**
Other	2.1	-4.0; 8.1	0.4	-5.0; 5.9	**6.8**	**1.2; 12.4**	**5.6**	**0.6; 10.6**
Relationship status								
Single (ref.)	---	---	---	---	---	---	---	---
In couple	**20.9**	**16.4; 25.4**	**14.8**	**9.2; 20.4**	**15.6**	**11.8; 19.4**	**9.0**	**4.7; 13.4**
Married	**27.8**	**22.0; 33.7**	**21.0**	**13.3; 28.7**	**24.1**	**20.3; 27.9**	**19.0**	**14.3; 23.7**
Div./Sep./Widowed	**-35.2**	**-67.5; -2.9**	**-36.3**	**-68.1; -4.4**	-15.8	-35.5; 3.8	-12.9	-32.7;7.0
Living with children								
No children (ref.)	---	---	---	---	---	---	---	---
One child	**11.4**	**4.4; 18.5**	1.0	-8.4; 10.3	4.0	-1.2; 9.1	**7.6**	**2.0; 13.2**
More than one child	**12.2**	**4.5; 19.9**	1.7	-9.0; 12.4	**7.2**	**2.0; 12.3**	**10.6**	**4.6; 16.6**

Estimates represent average marginal effects (AME) from logistic models produced in 20 imputed datasets with survey information, regressing life satisfaction (Satisfied / Not satisfied) on milestones separately ("partially-adjusted") and together ("fully-adjusted"). Models controlled for mother's age at birth, highest age left education among parents, housing tenure at ages 13-14, health limitations at ages 13-14, and ethnic group. Bolded coefficients were statistically significant at the .05 level. CI = Confidence interval.

TABLE 4
Decomposition of differences in life satisfaction, 1970 British Cohort and Next Steps studies.

	Men 1996 minus 2015-16 (Difference: 10.6 p.p.)			**Women 1996 minus 2015-16 (Difference: 6.3 p.p.)**		
	Means %	Coefficients %	Interactions %	Means %	Coefficients %	Interactions %
Education (NVQ)	-2.8	3.4	5.6	-3.9	**19.4**	-0.1
No qualifications	-0.4	-1.7	-0.5	0.9	**-11.9**	-3.7
NVQ1: GCSE Low	3.1	-3.9	2.1	0.8	0.9	-0.2
NVQ2: GCSE High	-0.8	2.8	0.3	**-3.8**	14.3	2.8
NVQ3: A-levels	-0.1	6.7	0.1	0.2	-3.2	0.5
NVQ4: Further education	1.6	3.1	1.6	0.5	16.3	1.4
NVQ5: Degree	-6.1	-3.6	2.0	-2.5	3.0	-1.0
Economic activity	**10.1**	5.6	0.5	5.8	**-73.6**	-5.0
FT employed	**8.9**	6.9	0.7	**7.7**	**-73.5**	-4.1
PT employed	-0.2	0.9	-0.6	-0.3	-13.8	2.0
Unemployed	1.2	-2.4	0.4	**4.9**	6.8	-2.3
FT student	-0.4	0.2	0.1	**-2.2**	3.9	-1.3
Other	0.7	0.4	-0.1	**-4.3**	3.0	0.7
Independent living	**20.4**	-3.3	-1.3	**36.9**	-1.2	-17.0
Living with parents	0.4	0.8	0.0	**1.9**	11.4	-0.8
Without parents, owning	**15.5**	0.0	0.1	**31.2**	-17.2	-14.3
Without parents, renting	1.1	-11.2	2.3	**1.0**	-3.1	0.6
Other	3.5	7.1	-3.7	**2.8**	7.7	-2.6
Relationship status	**21.8**	-28.1	-10.3	**47.8**	-33.8	1.4
Single	2.0	-12.7	2.8	**11.8**	-31.1	6.5
In couple	-3.3	-7.7	0.9	-2.9	2.9	-0.4
Married	**27.6**	-8.2	**-16.5**	**45.5**	-6.7	-6.9
Div./Sep./Widowed	**-4.5**	0.5	2.6	**-6.7**	1.1	2.2
Living with children	0.0	10.9	-0.7	-1.8	**78.0**	2.7
No children	0.1	12.4	-0.2	-0.8	**103.1**	0.9
One child	0.0	-1.7	-0.4	0.2	-1.2	0.0
More than one child	-0.1	0.3	0.0	-1.2	**-23.9**	1.8

Estimates are based on the fully-adjusted models in Tables 2 and 3. A positive estimate indicates a decrease in cohort differences whereas a negative estimate indicates an increase in cohort differences. Examples: 1) differences in life satisfaction for men in 2015-16 compared to 1996 would be 10.1% smaller if they had the same distribution of economic activity between cohorts; 2) differences in life satisfaction for women in 2015-16 compared to 1996 would be 73.6% larger if economic activity was associated to the same degree with life satisfaction between cohorts. Bolded coefficients are statistically significant at the .05 level.