

## **UWL REPOSITORY**

**repository.uwl.ac.uk**

The association between sexual behaviours and initiation of post secondary education in South Africa

Bengesai, Annah, Khan, Hafiz T.A. ORCID: <https://orcid.org/0000-0002-1817-3730> and Dube, Russell (2018) The association between sexual behaviours and initiation of post secondary education in South Africa. *Journal of Biosocial Science*, 51 (1). pp. 59-76. ISSN 0021-9320

<http://dx.doi.org/10.1017/S0021932017000670>

This is the Accepted Version of the final output.

**UWL repository link:** <https://repository.uwl.ac.uk/id/eprint/4136/>

**Alternative formats:** If you require this document in an alternative format, please contact: [open.research@uwl.ac.uk](mailto:open.research@uwl.ac.uk)

### **Copyright:**

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

**Take down policy:** If you believe that this document breaches copyright, please contact us at [open.research@uwl.ac.uk](mailto:open.research@uwl.ac.uk) providing details, and we will remove access to the work immediately and investigate your claim.

**THE ASSOCIATION BETWEEN SEXUAL BEHAVIOURS AND  
INITIATION OF POST SECONDARY EDUCATION IN SOUTH  
AFRICA**

**ANNAH V. BENGESAI<sup>‡</sup>, HAFIZ T.A. KHAN<sup>\*Ψ</sup>, AND RUSSELL DUBE<sup>‡</sup>**

*<sup>‡</sup>College of Law and Management Studies, University of KwaZulu-Natal, South Africa;*

*<sup>\*</sup>The Graduate School, University of West London, St Mary's Road, London W5 5RF, UK;*

*<sup>‡</sup>School of Social Work, Salford University, UK.*

**Summary:** Although young people in South Africa are growing up in an era where their socio-economic circumstances are seemingly better than their parents' generation, they face greater risks in their trajectory to adulthood. This is mainly because the environment in which they are making sexual decisions is also rapidly evolving. Currently, South Africa has the highest prevalence of HIV and AIDS in the world among young people aged 15-24. With this in mind, the present study examined the effect of sexual behaviours initiated in adolescence on the initiation of post-secondary education (PSE). The analysis was conducted using the longitudinal Cape Area Panel Study (CAPS, Waves 1-5), which focused on young people's sexual behaviours in Cape Town, South Africa. The sample was restricted to 3213 individuals who reported sexual debut during adolescence. Using logistic regression models that were fitted separately for males and females, the results reveal that several factors acted as either hindrances or protective factors to PSE enrolment. Early sexual debut (by age 17) was negatively associated with participation in tertiary education. Other variables that had a negative effect include lack of contraceptive use, parenthood, engaging in other risky behaviours and studying for less than an hour a day. Higher levels of parental education (except for paternal education in the female model), urban residence and higher aspirations and analogous behaviours (studying) acted as protective factors and were positively associated with PSE initiation. The paper also points to the relationship between early sexual debut and persistent inequality and provides empirical evidence for re-thinking policy development and implementation around schooling and sex education.

**Introduction**

A key focus of the transformation of higher education agenda in South Africa has been to improve access and participation (Ramathan, 2016). Related to this, is the need to ensure that students make successful educational transitions. Although participation rates during the

---

<sup>Ψ</sup> Associate research fellow at the Oxford Institute of Population Ageing, University of Oxford, UK

teenage years are relatively high in South Africa, there is concern that most young people do not progress to higher school grades and even fewer, to tertiary education (Spaull, 2015). The average number of years of education received by South African young people is estimated to be 10 years, a *status quo* that has been attributed primarily to poor schooling and socio-economic inequality (Spaull, 2015). In this study, an argument is made that the trajectory through schooling is more complex than this and that young people in South Africa face many risks along the life course. Among the many transitions from adolescence to adulthood, sexual debut and/or the establishment of sexually based relationships are the most important dimensions, which also present many dangers (Egondi et al., 2013; Clark & Mathur, 2012; McCarthy & Grodsky, 2011).

Statistics from South Africa reveal that in 2011, approximately 68,000 teenagers fell pregnant (Statistics South Africa, Stats SA, 2013). These numbers do not seem to abate, as the statistics in 2013 showed that more than 99,000 schoolgirls fell pregnant – a rate of about 271 for every day of that year (Stats SA, 2009 & 2013). Regarding HIV and AIDS, the research base shows that there is a higher prevalence amongst young people aged 15-24 years (Shisana et al., 2009). In other words, HIV and AIDS affects young people on the verge of completing high school and making the transition to post-secondary education. By extension, the HIV and AIDS pandemic, together with teenage pregnancy, mean that only a few individuals will make it beyond high school. Clearly, and in the context of Education for All and Sustainable Development Goal 5, adolescent sexual behaviour is one of the biggest threats to access to education and equality of educational outcomes in South Africa.

In line with the growing interest on teen sexuality, this study sought to explore the association between sexual behaviours initiated in adolescence and one academic milestone- the initiation of post-secondary education (PSE). The specific question that this study sought to answer was: What is the association between the timing of sexual debut and the transition to post-secondary education in South Africa? There are several reasons that make PSE an important research focus. Firstly, PSE is a barometer of the skill level of the future workforce of any society (Cutler et al., 2015). Secondly, the available research on returns to education has established higher returns to post-secondary education (May, 2014). Individuals who have some form of PSE are also likely to have better career opportunities and monetary independence (Shaw & Dukes, 2013).

### **Predictors of sexual behaviours and educational attainment**

Prior research, both locally and internationally, identifies the predictors of early sexual debut amongst adolescents (Marston et al., 2013; Parkes et al., 2010). Recurrent themes have focused on gender and economic opportunities, social class, race and level of education. For instance, studies from Southern Africa have linked poverty to reported risky sexual behaviours (Wamoyi et al., 2014; Shisana et al., 2009; Madise et al., 2007) such as casual sex (Tadesse & Yakob, 2015; Lyons et al. 2015) and transactional sex (Ranganathan et al., 2016; Udingwe et al., 2014). Thus, in the case of transactional sex, the need to survive becomes the motivation behind the sexual activity of adolescent girls. Inversely, the research has also established the protective effects of family socio-economic status against early sexual debut (Stephenson et al., 2014).

Family structure is another factor that is commonly associated with both sexual debut and educational attainment. Available evidence has shown that family structure influences both

sexual behaviour and educational attainment (Frantz et al., 2015). Growing up with one or no parent has been shown to be related to early sexual debut, teenage pregnancy and low educational attainment (Mhele & Ayiga, 2014). This is largely because children who grow up in broken families are more likely to have weak attachments and a propensity to engage in risky behaviours (Reichert et al., 2016). In South Africa, as in many developing countries, family structure also presents an emerging social complexity (Posel & Rudwick, 2012). There is a growing prevalence of non-traditional families, characterised by single parenthood or child heads - a situation that has been attributed primarily to the HIV epidemic (Makiwane et al., 2012; Monasch & Boerma, 2004). Thus, if family intactness has a protective effect on young people's sexual behaviours, there is an urgent need for studies that explore the effect of family structure on transitions into adulthood. In addition to family background factors, a negative correlation between early sexual debut and educational outcomes has been documented (Doyle et al., 2012; Frisco, 2008). There is evidence which suggests that while keeping young people in school might not deter them from having sex, it enables them to make better sexual decisions (Marteleto et al., 2008). Similarly, Zuilkowski & Jukes (2012) found that being enrolled in school had protective effects against early sexual debut for girls, although there was mixed evidence for boys. Apart from the key issues highlighted above, there are other emerging social complexities that have compounded the issue of adolescent sexual debut. For instance, in South Africa, non-marital fertility has become more acceptable and has influenced sexual behaviours (De Wet & Gumbo, 2016; Madhavan et al., 2013).

What is clear from all these studies is that early sexual debut during the adolescent years is a common phenomenon. Further, it is a well-established fact that early sexual debut is associated with negative outcomes. However, in this study, an argument is made that the research base has been limited, particularly in South Africa where the focus has been on short follow-up times and the negative associations between sexual activity and immediate outcomes. For instance, South African based studies have explored the association between sexual behaviours and immediate educational outcomes such as school enrolment and drop-out (Marteleto et al. 2008), or the role of peer effects on sexual behaviours and school attainment (Lam, Marteleto & Ranchmod, 2009). Other studies have also documented the negative consequences of teenage pregnancy on educational outcomes (Timeaus & Mouthrie, 2015; Mchunu et al., 2012). However, little is known in South Africa regarding whether these effects continue into young adulthood. Even internationally, the research on associations between teenage sexual debut and subsequent academic underachievement has been modest (Parkes et al., 2010; Spriggs & Halpern, 2008; Frisco, 2008). The work by Bengesai et al. (2017) has attempted to expand on this work by exploring the effect of early sexual debut on the completion of high school in South Africa, measured at age 21. Their study revealed a negative correlation between early sexual debut and high school completion - with individuals who had initiated sex between ages 9-14 displaying the worst outcomes. The current study sought to take this work a step further and interrogate the long-term effects of early sexual debut on the initiation of post-secondary education (PSE) in South Africa.

The theoretical considerations are drawn from problem behaviour theory (Jessor, 1991), which is premised on the belief that failure to effectively negotiate maturational transitions can lead to a constellation of problem behaviours (Spriggs & Halpern, 2008). Such behaviours might include sexual initiation, substance use, crime, and avoidance of studying. Further, individuals who initiate sex early are more likely to lack social bonds with their families and schools – factors that can lead to depressed academic aspirations (Parkes et al., 2010). The theory further posits that it is the balance between the risk and protective factors that determines the outcomes. In this study, the risky behaviour studied is sexual debut, which is expected to co-vary with

other risky behaviours such as substance use and neglecting of school work, while factors such as family background and aspirations are used as protective factors.

## **Methodology**

### ***The Dataset***

This study draws from Waves 1-5 (2002-2009) of the Cape Area Panel Study (CAPS) - a longitudinal survey that was designed to understand the sexual behaviours and educational outcomes of young adults in Cape Town, South Africa. The data was collected through face-to-face interviews and the target population was young people aged 14-22 years. The baseline study (Wave 1) was conducted in 2002 and 4,752 young people between the ages of 14 and 22 from 3,304 households were successfully interviewed. Further details about the sample and design are provided by Lam et al. (2012). The total attrition rate between Waves 1-5 is estimated to be 32%. However, the longitudinal nature of the data allowed for information on sexual debut to be observed over time. Mindful that the focus was on individuals who reported initiating sex during adolescence, a restricted sample of 3213 young people was used and the analysis was undertaken during emerging adulthood (ages  $\geq 21$  years old). The selected characteristics used in the analysis are presented in Table 1 below. The CAPS survey also obtained information about educational attainment, household characteristics and sexual behaviour. This makes it an appropriate data set to investigate the effect of sexual debut on participation in tertiary education.

### **Dependent Variable**

The dependent variable, post-secondary education *PSE initiation* ( $0=no$ ,  $1=yes$ ) indicates whether the individual had received some post-secondary education or not. Table 1 shows that approximately 25% of the individuals who had initiated sex in their adolescent years had initiated post-secondary education by age 21. In South Africa, children generally start school in the year they turn age six (before the 30<sup>th</sup> of June) (Education Laws Amendment Bill, section 5 of Act 50, 2002). Therefore, an individual should finish high school by age 18 or 19. Thus, an assumption is made that by age 21, an individual should have initiated post-secondary education if they completed high school on time.

### **Key Independent Variable**

The key independent variable was age at sexual debut (ASD) and was derived from the question that asked respondents about their age at first sex. This variable was coded as a three-level categorical variable; early debut (9-14 years), normative debut (15-17) and late debut (18-19 years, reference group). These categories reflect the general trends in ASD, which have also been used in previous studies (Khothari et al., 2012; Sandfort et al., 2008). Table 1 shows that the normative ASD was 61.4%, while 25.8% had their debut at ages 18-19. Only 12% had an early sexual debut (9-14 years).

**Table 1 here**

### **Other Independent Variables**

Contraceptive use and parenthood: The most intuitive explanation of the relationship between ASD and educational attainment is the probability of pregnancy, which is mediated by contraceptive usage (Frisco, 2008). Hence, both parenthood and contraceptive non-use were considered as related factors that have an effect on academic achievement. Table 1 shows that more than two thirds of the young people in the survey reported using some form of contraceptive at first sex. Other risky behaviours examined included smoking cigarettes, marijuana or other drugs and drinking alcohol and approximately 49% of the young people had engaged in these behaviours.

Expectation to pass the school leaving examination (also called matriculation) and having career expectations were used as proxy indicators for ‘aspirations’. Individuals with aligned ambitions are also likely to be strategic academically (McCarthy & Grodsky, 2011; Frisco, 2008) and put in the effort to realise their ambitions. Based on this understanding, time spent on school work was included and coded as a dummy to represent ( $= <1 \text{ hour}$ );  $>1 \text{ hour}$ ).

The household characteristics included in this study were: family structure; parental control and parental education; and household income. These variables were carefully chosen in line with previous research (Monserud & Elder, 2011; Frisco, 2008) as well as the theoretical framework adopted. Parental education and household income were used as proxies for family socio-economic status while family structure and parental control were proxies for attachment and transmission of social capital.

In the dataset, both the respondent’s mother’s and father’s education were reported in terms of number of years of schooling. For the analysis, the variables were recoded as a four-level categorical variable (0-7 years=0 schooling), (8-10 years=lower secondary education), (11-12 years=upper secondary education), and (13-16 years=post-secondary/tertiary education). Family structure was coded to represent residence with parents and was coded as i) both parents are non-resident (no parents); ii) one parent is resident (single parent) and iii) both parents are resident. The parental control variable was a summed indicator, which was constructed from the questions asking whether the mother or father shared dinner with the child, spent time and or discussed personal matters as well as whether the parents bought gifts for their children. Household income was logged for skewness.

### **Control Variables**

The study also considered the following demographic variables; population group and place of residence. In the dataset, population group was recorded as a three-level categorical variable; (African ref, Coloured and Indian – merged into one category, and White). Place of residence was transformed into a dummy variable (1=Urban; 2=Non-urban).

### **Analytical Strategy**

There are a number of analytical techniques that can be used with longitudinal data. Some of these include measure the linear associations, capture the sequential nature of the data, or the time to event component or survival analysis (Diggle et al., 2013). While all of these methods have their advantages and disadvantages, data analysis should be guided by the scientific interest. From a conceptual point of view, the present study was interested in the ultimate outcome (initiation of PSE) and the association with sexual debut and other explanatory variables. As well, the dependent variable, PSE initiation was treated as a dichotomous variable

which took the value of either 0 (*No PSE*) or 1 (*initiated PSE*). (0Therefore, a logistic regression model was deemed appropriate. For both males and females, two models were estimated. Model 1 estimated the independent effects of each of the selected variables on the initiation of PSE while controlling for age at sexual debut. Model 2 was adjusted for individual aspirations and family background.

### **Ethical consideration and permission**

The University of Cape Town's Southern African Labour and Development Research Unit gave access to the data while ethical approval was sought from the University of KwaZulu-Natal's research office.

### **Results**

Table 2 reports the means and percentages for all the variables used in the analysis by the key explanatory variable: age at sexual debut (ASD). Regarding educational attainment, there is a higher likelihood of initiating PSE if sexual debut is delayed. Urban youths were more likely to engage in sexual activities, while individuals who delayed sexual debut were more likely to use contraceptives compared to their younger counterparts. There was no significant difference, however, in teenage parenthood across all ASD categories.

**Table 2 here**

There were greater aspirations among individuals who delayed sexual activity and little sexual activity among children whose parents had higher levels of education. In terms of race, Africans and Coloureds were more likely to engage in earlier sex. There was also more sexual activity among urban teens compared to those residing in rural areas. The descriptive statistics in Table 2 also demonstrate a strong association between ASD and the selected variables (p-value <0.001 for all variables).

**Table 3 here**

### ***Regression Results***

Table 3 presents the logistic regression models for post-secondary enrolment for both males and females. The results for the male population are reported first.

Model 1 examines the relationship between sexual behaviours, aspirations and PSE initiation. Model 2 addresses the question of whether the relationship between sexual debut and PSE initiation is attributable to demographic and background factors. In the first model, the probability of initiating PSE was negatively associated with early sexual debut. The odds of initiating PSE were 52% less if sexual debut occurred in pre- and early adolescence (9-14 years) and 47% less if it occurred in the mid-teenage years. Teenage parenthood and contraceptive non-use were also negatively associated with PSE initiation in both models. Substance use had a borderline negative effect (2%) on PSE enrolment in Model 1, which was not statistically significant. In Model 2, substance use reduced the odds of PSE initiation by 28%. Spending less time on homework increased the odds of PSE initiation by about 6% in Model 2, although this effect was not significant in the first model. Aspirations, such as passing

matric, increased the odds by a factor of up to 6 in Model 1 and 2, while having career aspirations increased the odds by about 8% in Model 1, although this effect attenuated to negative in Model 2 (odds, 0.638) when demographic and household characteristics were adjusted for. In Model 2, being White increased the odds of PSE enrolment by 91%, while being Coloured increased the odds by about 11%. Urban dwellers were up to 4.8 times more likely to have better outcomes than their counterparts in other forms of residences. Looking at family structure, the analysis demonstrated that children from both two parents (odds 3.547) and lone parent (odds, 1.415) families are more likely to be in PSE relative to their counterparts who did not reside with either parent. Despite the importance of parental control on educational outcomes as highlighted in the literature, the parental control measure in this study was negatively correlated with PSE initiation for the male population. As expected, levels of parental education had different effects on educational outcomes, with parental PSE (both maternal and paternal) exhibiting the strongest effect on PSE enrolment. Household income was negatively associated with PSE initiation (odds, 0.600).

The general pattern for the female population is similar to that for males with a few exceptions. Both early (9-14 years, odds, 0.616) and typical initiators (15-17, odds, 0.528) had significantly lower odds of making the transition to PSE compared to late initiators. However, this effect seemed to decrease in Model 2 (9-14 years, odds, 0.359; 15-17 years, odds, 0.345) when family background characteristics were factored in. Likewise, teenage parenthood and contraceptive non-use were negatively associated with PSE transition. However, there was a significant difference (in the size of the co-efficient) between male teen parents (odds, 0.572, Model 1; odds, 0.461, Model 2) and female teen parents (odds, 0.303, Model 1; odds, 0.385, Model 2). This demonstrates that the difference in PSE enrolment between males and females is attributable to parenthood. Unlike in the male models, spending less time on homework resulted in negative outcomes for the females, while aspirations such as passing matric or aspiring to have a career increased the odds by a factor of 5.4 (pass matric=yes, Model 1) and 1.5 (career aspirations=yes, Model 2). It is important to note, however, that the addition of the family background factors reduced the size of the effect for the female population from odds 5.822, Model 1 to 2.228, Model 2. Contrary to expectations, both White and Coloured females were less likely to make the transition to PSE relative to their African counterparts. Residence in urban areas had a positive effect (1.353) and just as in the male model, both dual and lone resident parent families were positively associated with PSE enrolment. Parental control increased the odds by about 8.3% while maternal PSE had the strongest effect on female PSE enrolment. Interestingly, paternal PSE was negatively associated with females making the transition to PSE. The effect of paternal high school education was positive but not statistically significant. Individuals in better-off households were significantly more likely to complete matric (70% more) than those in poorer households.

## **Discussion**

In line with the theoretical framework adopted in this study, several factors acted either as hindrances or as protective factors to PSE enrolment. Early sexual debut (by age 17) was negatively associated with participation in PSE. Other variables that had a negative effect include non-contraceptive use at first sex, parenthood, substance abuse and studying for less than an hour a day. Higher levels of parental education (except for paternal education in the female model), urban residence and higher aspirations and analogous behaviours (studying) acted as protective factors and were positively associated with PSE initiation.



While the negative relationship between early sexual debut and educational outcomes has been well researched, there is little consensus as to why this is the case. Some studies from South Africa (Timeaues & Moultrie, 2015; Marteleto et al., 2008) as well as internationally (Frisco, 2008) suggest that the negative correlation between sexual debut and educational outcomes can be explained by the risk it confers to unplanned pregnancies/parenthood. However, the UK study by Parkes et al. (2010) found that while early sexual debut reduced participation in tertiary education, pregnancy did not explain all the gaps. This discrepancy in the findings could be attributed to differences in the levels of education studied as well as the differing contexts. Both Timeaues & Moultrie's (2015) and Marteleto et al.'s (2008) studies focused on high school levels while Frisco's (2008) study was conducted in the United States. There are also scholars who have argued that young people who become preoccupied with sex are less likely to concentrate in class and more likely to engage in other risky behaviours (Pham et al., 2013; Spriggs & Halpern, 2008). This is particularly so when sexual behaviours occur in the context of romantic relationships (Pham et al, 2013; Clark & Mathur, 2012). The evidence from the current study seems to mirror this prior research and demonstrates a significant negative relationship between sexual behaviour, contraceptive non-use, pregnancy, and educational outcomes. Further, individuals who initiated sex in early adolescence (9-14 years) were more likely to spend less time studying relative to those who initiated sex later in adolescence (Table 2). Additionally, the difference in effect size between the male and female figures suggests that pregnancy accounted for significant gaps in PSE initiation between males and females. Despite the diverse explanations in the literature, the current study, taken together with prior research, suggest that early sexual debut is a major and consequential transition in the life course of a young person, with negative implications for first birth/parenthood and academic achievement in emerging adulthood.

It may be noted that the association between enrolling in PSE and sexual debut is not as automatic as it may at first appear (Parkes et al., 2010). Educational attainment has been conceptualised as both a consequence of sexual risky behaviour, as well as an antecedent, (Zuilkowski & Jukes, 2012; Marteleto et al., 2008). For instance, school drop-out has been conceptualised as a causal effect of teenage pregnancy (Rosenberg et al., 2015). At the same time, a higher prevalence of pregnancies have been reported amongst girls who are out of school than those who are in school (Marteleto et al., 2008). Furthermore, evidence emanating from South Africa has indicated that drop-out after Grade 10 is a characteristic phenomenon of the education system (Spaull, 2015). While the present study revealed that sexual debut and pregnancy or parenthood was negatively associated with PSE, the possibility that pregnancy and sexual behaviour may have followed school-leaving cannot be ignored. However, in this study drop-out was not examined as the main outcome, yet the findings suggest that high academic aspirations are beneficial for PSE enrolment. Hence, it can be inferred that young people with high aspirations are likely to persist in school. The analysis undertaken in this study does not however allow for casual inferences to be made, thus future studies should prioritise this.

Perhaps there is need to explore why young people with aligned ambitions are more likely to have better educational outcomes, despite having engaged in other risky behaviours. The results of this study suggest that young people who believe they will pass the high school leaving examination or who aspire to have a career, have better odds of enrolling in PSE even if they have initiated sex early. This finding reinforces the notion that young people with aligned ambitions are more likely to be strategic academically (Frisco, 2008) and that these aspirations may extend to other domains. Spriggs and Halpern (2008) also argue that young

people with aligned ambitions are more likely to postpone sexual activity as a way of safeguarding their future goals. Table 2 illustrates that young people with expectations to pass matric or who have career expectations were more likely to be late initiators, although the percentage difference between early and late initiators was not very great. There is a possibility, therefore, that although sexual activity was initiated early, their personal ambitions might have influenced them to abstain later on. This is only a speculative point given that this study did not examine consistency of sexual behaviour over the period of investigation. Alternatively, the small percentage difference suggests that aspirations account for much of the variation and perhaps have a more direct effect on PSE enrolment.

In South Africa, socio-economic status is more prominent due to the vivid history of racial disparity that was legislated under the apartheid system (Seekings, 2011; Mhlauli et al., 2015). These racial disparities have affected every aspect of life, leaving South Africa with immense income disparities, which rank amongst the highest in the world. In this study, both sexual debut and the initiation of PSE among young people, significantly differed by race and family socio-economic status. For instance, there was a high early sexual debut among Africans, and PSE enrolment among the White males and children of parents with PSE education was elevated. Regarding parental education, there is a consensus that scholarly behaviours are passed down within families from one generation to another (Monserud & Elder, 2011; Bernadi & Requena, 2010). The findings from this study seem to share an affinity with this view as parental PSE (except for parental education in the female model) was found to be the strongest predictor of enrolment in PSE. There are many explanations as to why parental education has a positive effect on educational outcomes. First, parental education is an index of socio-economic status, which potentially leads to better educational outcomes for children (Mutodi, 2014; Martin, 2012; Lundborg et al., 2012)). This is because parental education can generate higher incomes, which can be used to invest in their children. Put simply, more educated and richer parents can provide a better environment for their children's educational achievement (Chevalier et al., 2013). Additionally, educated parents might have learnt positive skills and habits during their schooling that they can transfer to their children through modelling behaviour (Martin, 2012). Recall that Table 2 shows that children of better educated parents had later sexual debuts. By extension, these children are at a lesser risk of sexually transmitted diseases and/or teenage parenthood. Similarly, and as Lundborg et al. (2012) note, education improves productive efficiency so the more educated parents can choose a more favourable mix of inputs in the production of their children's human capital.

One of the assumptions made in this study, in accordance with problem behaviour theory, is that the quality of parenting matters for children's outcomes (McCarthy & Grodsky, 2011; Jessor, 1991). Yet, unlike family structure and parental education, the parental control variable used in this study did not account for much of the variation in educational attainment. The results from this study suggest that parental control only accounted for 8% of the gap in PSE attainment for the females while for the males the effect was negative. However, this finding is consistent with several prior studies, which found weak associations between parental control and educational outcomes (Monserud & Elder, 2011, Crosnoe, 2001). For instance, Crosnoe (2001) found that although important, the effect of parental quality tends to decline as children transition to high school. It can be inferred from the current study that the effect of parenting quality is even weaker at post-secondary level, since at this level children are generally significantly more independent and their behaviour is influenced by diverse institutions.

Another important determinant of children's educational outcomes is family income. In this study, family income had no effect on PSE enrolment for males, while it increased the odds for

the females. This was an unexpected finding given the relevance of socio-economic and finance discrepancies in South Africa. There are several possible reasons as to why the family income variable behaved in this manner in this study. In South Africa, children from disadvantaged families are supported through the National Student Financial Aid Scheme (NSFAS), which makes it possible for them to access higher education (Letseka and Maile, 2008). In addition, male children are more likely than female children to work while studying to supplement their income. Hence, at PSE level, the effect of parental income might be different. Perhaps it is important to explore deeper sociological reasons as to why family income behaved differently for the males and females in this study. In patriarchal societies such as South Africa, girls and young women are often not seen as worthy of investment or protection by their families (Rarieya et al., 2014). Recall that in Table 3 (Model 2, Females), the magnitude of the ASD co-efficient decreased when family background variables were added to the model. Supplementary analyses (available upon request) also show that family income decreased the odds for post-secondary enrolment for the early and typical initiators, suggesting that the gaps in PSE enrolment are to a greater extent attributable to family income. Thus, while female children might still benefit from NSFAS, there are other constraints that might hinder their participation in education.

Overall, the findings from this study suggest that sexual debut associates with PSE enrolment and that the effect varies depending on individual aspirations and family background. Nevertheless, the results should be interpreted in light of the study's limitations. The study population for this study was limited to the Cape Town area in South Africa where the socio-economic dynamics in this province are different from other provinces in South Africa. Thus, the findings, although reflective of a South African dynamic, cannot be generalised to all provinces. Second, the study does not make causal attributions to the relationship between sexual debut and enrolment in PSE. As such, the findings should be read as observed associations.

From a policy perspective, the results from the current study have several implications. Given the negative effect of early sexual debut on academic outcomes, suggesting that late initiators have better outcomes, sexual education must emphasise abstinence especially in the early teens. This should also be accompanied by the inclusion of research-based evidence - (such as provided in this study) in the curriculum to encourage abstinence and goal setting. For instance, these research findings could be incorporated under the topic health, social and environmental responsibility in the Life Orientation Curriculum at the intermediate phase (Grades 7-9). Furthermore, expectations and career aspirations should form the basis of sexual education programmes in schools. Adolescence is an ideal time to focus on career development since it is during adolescence that young people face many changes and make decisions that have the potential to impact on their career aspirations.

### **Acknowledgements**

The research uses data from the Cape Area Panel Study (CAPS) implemented by the University of Cape Town's Southern African Labour and Development's Research Unit. However, the views presented in this paper are those of the authors.

### **Conflict of Interest**

There were no conflicts of interest.

## References

- Bengesai, A.V, Khan, HTA & Dube, R.** (2017). Effect of early sexual debut on high school completion. *Journal of Biosocial Science* **8**, 120.
- Bernardi, F. & Requena, M.** (2010) Inequality in Educational Transitions: the case of post-compulsory education in Spain. *Revista de Educación, numero extraordinario*, 93- 118.
- Chevalier, A., Harmon, C., O' Sullivan, V. & Walker, I.** (2013) The impact of parental income and education on the schooling of their children. *IZA Journal of Labor Economics* **2**(8), 1-22.
- Clark, S. and Mathur, R.** (2012). Dating, Sex, and Schooling in Urban Kenya. *Studies in Family Planning*, **43**(3),161-174.
- Crosnoe, R.** (2001). Academic orientation and parental involvement in education during high school. *Sociology of Education* **74**,210-230.
- Cutler, D., Huang, W. & Lleras-Muney, A.** (2015) When Does Education Matter? The Protective Effect of Education for Cohorts Graduating in Bad Times. *Social Science and Medicine* **127**, 63–73.
- De Wet, N. & Gumbo, J.** (2016) Let's live together first: A longitudinal investigation into whether cohabitation is a precursor to marriage among young urban South Africans. *African Population Studies* 30(2), 2653-2663.
- Diggle,P., Heagerty, P., Liang, K. & Zerger, S.K.** (2013) *Analysis of longitudinal data*. Oxford University Press, Oxford.
- Doyle, A.M., Mavedzenge, S.N., Plummer, M.L. & Ross, D.A.** (2012) The sexual behavior of adolescents in sub-Saharan Africa: Patterns and trends from national surveys. *Tropical Medicine & International Health* **17**(7),796–807.
- Egondi, T., Kabiru, C., Beguy, D., Kanyiva, M. & Jessor, R.** (2013) Adolescent home-leaving and the transition to adulthood: A psychosocial and behavioural study in the slums of Nairobi. *International Journal of Behavioral Development* **37**(4), 298–308.
- Frantz, J, Sixaba, Z. & Smith, M.** (2015) A Systematic Review of the Relationship between Family Structure and Health Risk Behaviours amongst Young People: An African Perspective. *The Open Family Studies Journal* **7**,3-11.
- Frisco, M.** (2008). Adolescents' Sexual Behavior and Academic Attainment. *Sociology of Education* **81**(3),284-311.
- Jessor, R.** (1991). Risk behavior in adolescence: A psychosocial framework for understanding and action. *Journal of Adolescent Health* **12**(8),597-605.
- Lam, D, Ardington,C., Branson,N., Case,A., Leibbrandt,M., Maughan-Brown,M., Menendez,A., Seekings, J., & Sparks, M.**(2012) The Cape Area Panel Study: A Very Short Introduction to the Integrated Waves 1-2-3- 4-5 Data. The University of Cape Town.
- Letseka, M. & Maile S.** (2008) High university dropout rates: A threat to South Africa's future. Pretoria: *Human Science Research Council* **2008**, 1–7.
- Lichter, D., Sassler, S. & Turner, R.** (2014). Cohabitation, post-conception unions, and the rise in nonmarital fertility. *Social Science Research* **47**, 134-147.
- Lundborg, P., Nilsson, A.& Rooth, D.O.** (2014) Parental education and offspring outcomes: Evidence from the Swedish compulsory school reform. *American Economic Journal:Applied Economics* **6** (1), 253–278.
- Lyons, H. A., Manning, W. D., Longmore, M. A., & Giordano, P. C.** (2015) Gender and casual sexual activity from adolescence to emerging adulthood: Social and life course correlates. *Journal of Sex Research* **52**(5), 543–557.

- Madhavan, S., Harrison, A. & Sennott, C.** (2013) Management of non-marital fertility in two South African communities. *Culture, Health & Sexuality* **15**(5),614-628.
- Madise, N., Zulu, E. & Ciera, J.** (2007). Is Poverty a Driver for Risky Sexual Behaviour? Evidence from National Surveys of Adolescents in four African Countries. *African Journal of Reproductive Health*, **11**(3),83-98.
- Makiwane, M.B., Makoe, M., Botsis, H. & Vawda, M.** (2012) A baseline study on families in Mpumalanga. Human Sciences Research Council. *Human and Social Development, Population Health, Health Systems and Innovation*, Pretoria.
- Marston, M., Beguy, D., Kabiru, C. & Cleland J.** (2013) Predictors of sexual debut among young adolescents in Nairobi's informal settlements. *International Perspectives on Sexual and Reproductive Health*, **39**(1),22–31.
- Marteletto, L., Lam, D. & Ranchhod. V.** (2008) Sexual behaviour, pregnancy, and schooling among young people in urban South Africa. *Studies in Family Planning* **39**, 351-368.
- Martin M. A.** (2012). Family structure and the intergenerational transmission of educational advantage. *Social Science Research* **41**, 33–47.
- May, J.** (2014) Income mobility in South Africa. In H, Bhorat., Hirsch, A., Kanbur, R. & Ncube, M. (eds.) *Oxford Companion to the Economics of South Africa*. Oxford University Press, Oxford.
- McCarthy, B. & Grodsky, E.** (2011) Sex and School: Adolescent Sexual Intercourse and Education. *Social Problems* **58** (2),213-234.
- Mchunu, G., Peltzer, K., Tutshana, B. & Seutlwadi, L.** (2012) Adolescent pregnancy and associated factors in South African youth. *African Health Sciences* **12**(4), 426–434.
- Mhele, K. & Ayiga, N.** (2014) Rates and predictors of school pregnancy among black women in the North-West province, South Africa. *Supplement on Population Issues in South Africa* **28**(1), 636-647.
- Mhlauli, M. B., Salani, E. & Mokotedi, R.** (2015) Understanding apartheid in south Africa through the racial contract. *International Journal of Asian Social Science* **5**(4),203-219.
- Mmbaga, E.J., Leonard, F. & Leyna, G.H.** (2012) Incidence and Predictors of Adolescent's Early Sexual Debut after Three Decades of HIV Interventions in Tanzania: A Time to Debut Analysis. *PLOS ONE* **7**(7), 1-9.
- Mojola, S.A.** (2011) Multiple transitions and HIV risk among African school girls. *Studies in Family Planning* **42**, 29–40.
- Monasch, R. & Boerma, J.T.** (2004) Orphanhood and childcare patterns in subSaharan Africa: an analysis of national surveys from 40 countries. *AIDS* **18**(Suppl 2), S55-S65.
- Monserud, M. A., & Elder, G. H.** (2011) Household Structure and Children's Educational Attainment: A Perspective on Coresidence with Grandparents. *Journal of Marriage and the Family* **73**(5), 981-1000.
- Mutodi, P. & Ngirande, H.** (2014) The Impact of Parental Involvement on Student Performance: A Case Study of a South African Secondary School. *Mediterranean Journal of Social Sciences* **5**, 279-289.
- Parkes, A., Wight, D., Henderson, M. & West, P.** (2010) Does early sexual debut reduce teenagers' participation in tertiary education? Evidence from the SHARE longitudinal study. *Journal of Adolescence* **33**(5),741-754.
- Pham, C., Keenan, T. & Han, B.** (2013). Evaluating Impacts of Early Adolescent Romance in High School on Academic Outcomes. *Journal of Applied Economics and Business Research* **3**(1),14-33.
- Posel, D. & Rudwick, S.** (2014) Marriage and ilobolo [bridewealth] in contemporary Zulu society. *African Studies Review* **57**(2),51-72.
- Ramrathan, L.,** (2016) Beyond counting the numbers: Shifting higher education

- transformation into curriculum spaces., *Transformation in Higher Education* 1(1), online, <http://dx.doi.org/10.4102/the.v1i1.6>
- Ranganathan, M., Heise, L., Pettifor, A., Silverwood, R. J., Selin, A., MacPhail, C., Delany-Moretlwe, S., Kahn, K., Gomez-Olive, F. X., Hughes, J. P., Piwowar-Manning, E., Laeyendecker, O. & Watts, C.** (2016) Transactional sex among young women in rural South Africa: prevalence, mediators and association with HIV infection. *Journal of the International AIDS Society* 19 (1), 20749-1-20749-13.
- Rarieya, J., Sanger, N. & Moolman, B.** (2014) *Gender inequalities in education in South Africa. Policy Brief Paper.* Human Sciences Research Council. HSRC, Pretoria.
- Reichert, A., Atkins, L., Ituah, L. & Atkins, R.** (2016) **The Influence of Family Structure on Sexual Health Behavior in Saint Lucia Youth.** *International Public Health Journal* 8(3), 385-393
- Rosenberg, M., Pettifor, A., Miller, W.C., Thirumurthy, H., Emch, M., Afolabi, S.A., Kahn, K., Collinson, M. & Tollman S.** (2015) Relationship between school dropout and teen pregnancy among rural South African young women. *International Journal of Epidemiology* 44(3), 928–936.
- Timaeus, I.M. & Moultrie, T.A.** (2015) Teenage Childbearing and Educational Attainment in South Africa. *Studies in family planning*, 46 (2), 143-60.
- Seekings, J.** (2011). Race, Class, and Inequality in the South African City. In Bridge, G. & Watson, S. (eds) *The New Blackwell Companion to the City*. Wiley Blackwell, Oxford, pp. 532-546.
- Sandfort, T., Orr, M., Hirsch, J. & Santelli, J.** (2008). Long-Term Health Correlates of Timing of Sexual Debut: Results from a National US Study. *American Journal of Public Health* 98(1), 155-161.
- Shaw, S. F., & Dukes, L. L.** (2013) Transition to postsecondary education: A call for evidence-based practice. *Career Development and Transition for Exceptional Individuals* 36, 51–57.
- Shisana, O., Rehle, T., Simbayi, L.C., Zuma, K., Jooste, S., Pillay-vanWyk, V., the SABSSM III Implementation Team** (2009). *Incidence and Communication Survey 2008: A turning tide among teenagers? South African National HIV Prevalence.* Cape Town: HSRC Press.
- Spaull, N.** (2015) Schooling in South Africa: How low-quality education becomes a poverty trap. *South African Child Gauge* 2015, 34-41.
- Spriggs, A.L. & Halpern, C.T.** (2008) Timing of sexual debut and initiation of postsecondary education by early adulthood. *Perspectives on Sexual and Reproductive Health* 40, 152-161.
- Statistics South Africa.** General Household Survey, 2009/2013. Pretoria
- Stephenson, R., Calleen, S. & Finneran, C.** (2014). Community Factors Shaping Early Age at First Sex Among Adolescents in Burkina Faso, Ghana, Malawi, and Uganda. *Journal of Health Population and Nutrition* 32 (2), 161–175.
- Tadesse, G. & Yakob, B.** (2015) Risky Sexual Behaviors among Female Youth in Tis Abay, a Semi-Urban Area of the Amhara Region, Ethiopia. *PLOS ONE* 10(3), DOI: 10.1371/journal.pone.0119050.
- Udigwe, I., Adogu, P., Nwabueze, A., Adinma, E., Ubajaka, C. & Onwasigwe, C.** (2014) Factors Influencing Sexual Behavior among Female Adolescents in Onitsha, Nigeria. *Open Journal of Obstetrics and Gynecology* 04(16), 987-995.
- Wamoyi, J., Wight, D. & Remes, P.** (2014) The structural influence of family and parenting on young people's sexual and reproductive health in rural northern Tanzania. *Culture, Health Sexuality* 17, 718-732.
- Zuilkowski, SS., & Jukes, MCH.** (2012) The impact of education on sexual behavior in

**Table 1: Characteristics of the study population, unweighted (CAPS 2002-2009)**

Characteristics	N	Frequency	Unweighted %	Weighted %
Post-Secondary Education	3213			
Yes		705	21.9	75.1
No		2508	78.1	24.9
Age at first sex	3213			
9-14		451	14.0	12.8
15-17		2021	63.9	61.4
18-19		741	23.1	25.8
Gender	3212			
Male		1488	46.3	49.7
Female		1725	53.7	50.3
Race	3213			
African		1853	57.7	39.4
Coloured		1114	34.7	47.4
White		246	7.7	13.2
Place of Residence	3189			
Urban Formal		2033	63.3	74.1
Other (rural, urban informal)		1156	36.0	25.2
Contraceptive use	2828			
Yes		1850	65.4	69.2
No		978	34.6	30.8
Parenthood	3209			
Yes		1239	38.6	38.4
No		1970	61.4	61.6
Risky Behaviours	3211			
Yes		1228	38.2	48.6
No		1983	61.7	51.4
Homework	3154			
≤1 Hour		1585	50.3	48.4
>1 Hour		1569	49.7	51.6
Expectation to pass matric	2580			
Yes		1801	69.8	68.5
No		779	30.2	31.5
Career Expectations				
Yes		1128	69.5	69.5
No		495	30.5	30.5
N		1623		
Family Structure	3213			
No Parents		966	30.1	26.8
One Parent		1224	38.1	37.0
Both Parents		1023	31.8	36.3
Parental Control	2403			
Maternal Education	2822			
0-7 years		990	30.8	28.5
8-10 years		1137	35.4	34.1
11-12 years		486	15.1	16.3
13-16 years		209	6.5	9.3
Paternal Education	2010			
0-7 years		808	25.1	22.3
8-10 years		647	20.1	20.7
11-12 years		389	12.1	14.8
13-16 years		166	5.2	7.7
Log of Household Income	3213	3213		

**Table 2: Bivariate association (means and percentages) between age at sexual debut and selected variables (weighted) (CAPS 2002-2009)**

Variables	<u>Age at debut</u>			<u>Sig.</u>
	<u>Early debut</u> 9-14 years	<u>Normative</u> 15-17 years	<u>Late debut</u> 18-19 years	
Educational Attainment				
Post-Secondary	18.7	21.0	37.3	***
Enrolment				
Demographic Controls				
Gender				
Male	17.8	63.1	19.1	***
Female	7.9	59.7	32.4	
Race				
African	54.2	41.1	28.0	***
Coloured	41.0	48.2	48.6	
White	4.9	10.7	23.4	
Place of Residence				***
Urban Formal	66.1	72.9	83.0	
Other (Rural, Urban informal)	33.9	27.1	17.0	
Sexual Behaviour				
Contraceptive Use	49.9	68.7	79.5	***
Parenthood	38.9	39.7	35.3	
Other Risky Behaviours (Yes)	49.8	48.6	48.1	
Aspirations				
Homework=<1hour	54.9	49.0	43.6	***
Expect to Pass	68.1	67.2	72.8	
Matric=Yes				
Career Expectation=Yes	67.3	69.4	70.9	***
Household Level				
Family Structure				***
No Parents	28.5	26.5	26.7	
One Parent	38.7	37.7	34.2	
Both Parents	32.7	35.8	39.1	
Maternal Education				***
0-7 years	38.5	34.1	25.1	
8-10 years	39.4	39.9	35.4	
11-12 years	16.5	16.5	23.9	
13-16 years	5.6	9.5	15.5	
Paternal Education				***
0-7 years	38.7	36.0	27.9	
8-10 years	37.4	32.3	27.7	
11-12 years	19.9	21.6	25.7	
13-16 years	4.0	10.1	18.6	
Household Income Logged	10	11	11	***

\*p<0.10, \*\* p<0.05, \*\*\*p<0.005



**Table 3: Odds of completing initiating post-secondary education for individuals who initiated sex during adolescence, CAPS 2002-2009.**

	Males				Females			
	Model 1		Model 2		Model 1		Model 2	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Age at first sex								
18-19 (ref)								
9-14	0.485***	(0.456-0.516)	0.646***	(0.583-0.715)	0.616***	(0.568-0.668)	0.359***	(0.312-0.414)
15-17	0.527***	(0.503-0.552)	0.819***	(0.763-0.879)	0.528***	0.505-0.552	0.345***	(0.321-0.372)
Contraceptive Use								
No	0.569***	(0.542-0.597)	0.844***	(0.779-0.915)	0.513***	(0.485-0.544)	0.688***	(0.616-0.769)
Parenthood								
Yes	0.572***	(0.542-0.603)	0.461***	(0.423-0.503)	0.303***	(0.289-0.317)	0.385***	(0.356-0.413)
Other Behaviours								
No	0.980	(0.944-1.019)	0.719***	(0.676-0.764)	2.113***	(2.024-2.207)	1.303***	(1.203-1.410)
Aspirations								
Homework=<1 Hour	1.020	(0.982-1.059)	1.058**	(1.000-1.119)	0.631***	(0.606-0.658)	0.690***	(0.646-0.736)
Expect to pass matric								
Yes	5.933***	(5.583-6.304)	5.469***	(4.999-5.984)	5.852***	5.443-6.293	2.228***	(2.011-2.469)
Expect a career	1.081***	(1.036-1.139)	0.638***	(0.599-0.679)	1.359***	(1.286-1.436)	1.585***	(1.454-1.727)
Yes								
Demographic controls	-	-			-	-		
Population Group	-	-			-	-		
White	-	-	1.912***	(1.631-2.242)	-	-	0.516***	(0.435-0.613)
Coloured	-	-	1.107**	(1.004-1.220)	-	-	0.475***	(0.420-0.538)
Place of Residence	-	-			-	-		
Urban Formal	-	-	4.821***	(4.302-5.403)	-	-	1.353***	(1.233-1.485)
Family Structure	-	-			-	-		
No Parents (ref)	-	-			-	-		
Both Parents	-	-	3.547***	(3.075-4.091)	-	-	3.114***	(2.722-3.561)
One Parent	-	-	1.415***	(1.223-1.637)	-	-	2.167***	(1.879-2.500)
Parental Control	-	-	0.416***	0.370-0.467)	-	-	1.083***	(1.033-1.136)
Maternal Education	-	-			-	-		
0-7years (ref)	-	-			-	-		
8-10 years	-	-	0.827***	(0.766-0.892)	-	-	2.049***	(1.855-2.263)
11-12 years	-	-	1.514***	(1.386-1.654)	-	-	6.605***	(5.876-7.424)
13-16 years	-	-	6.109***	(5.429-6.875)	-	-	8.318***	(7.232-9.567)
Paternal Education (0-7 years ref)	-	-			-	-		
8-10 years	-	-	2.019***	(1.867-2.183)	-	-	1.655***	(1.508-1.816)
11-12 years	-	-	3.371***	(3.079-3.690)	-	-	1.080	(0.970-1.202)
13-16 years	-	-	3.911***	(3.473-4.404)	-	-	0.614***	(0.530-0.711)
Log of hhlIncome	-	-	0.600***	(0.562-0.641)	-	-	1.695***	(1.586-1.812)
Pseudo R2								
	0.101		0.252		0.149		0.272	

\*p<0.10, \*\* p<0.05, \*\*\*p<0.005