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Abstract

Understanding the transition to adulthood has important implications for supporting young adults and understanding the roots of diversity in wellbeing later in life. In South Africa, the end of Apartheid means today's youth are experiencing their transition to adulthood in a changed social and political context which offers opportunities compared to the past but also threats. This paper presents the first national level analysis of the patterning of key transitions (completion of education, entry into the labour force, motherhood and marriage or cohabitation), and the association between the different pathways and health amongst young women. With the use of longitudinal data from the South African National Income Dynamics Study (2008-2015), this paper employs sequence analysis to identify common pathways to adulthood amongst women aged 15-17 years at baseline (n=429) and logistic regression modelling to examine the association between these pathways and self-rated health. The sequence analysis identified five pathways: 1. *'Non-activity commonly followed by motherhood'*, 2. *'Pathway from school, motherhood then work'*, 3. *'Motherhood combined with schooling'*, 4. *'Motherhood after schooling'*, and 5. *'Schooling to non-activity'*. After controlling for baseline socio-economic and demographic characteristics and health, the regression results show young women who followed pathways characterised by early motherhood and economic inactivity (1, 3 and 4) had poorer self-rated health compared to women whose pathways were characterised by combining motherhood and economic activity (2) and young women who were yet to become economically active or mothers (5). Therefore, policies should seek to prevent adolescent childbearing, support young mothers to continue their educational careers and enable mothers in work and seeking work to balance their work and care responsibilities. Further, the findings highlight the value of taking a holistic approach to health and provide further evidence for the need to consider work-family balance in the development agenda.

Highlights

- Analysis of sequencing of parenthood, partnership, employment and leaving education
- Identifies five distinct pathways to adulthood for young women in South Africa
- Women who combine motherhood and economic inactivity have poorer self-rated health
- Demonstrates the value of taking a holistic approach to health
- Policy should reduce early fertility and support young mothers into school and work

Keywords

South Africa, young women, transition to adulthood, work and family, wellbeing, self-rated health

INTRODUCTION

There are currently an estimated 1.8 billion young people aged between 10 and 24 years, 90% of whom live in low and middle-income countries (UNFPA, 2014). Young adulthood is characterised by several important transitions that are considered markers of adulthood, especially those related to family formation and the completion of education and entry into the labour force. As the largest ever cohort of young people face the challenges of negotiating their transition to adulthood, there is considerable concern about implications for both short and long-term health.

Potential new roles during the transition to adulthood offer chances for achievement and difficulties for young people creating promises, but also threats, to wellbeing. Graber and Brooks-Gunn (1996) propose the concept of transition-linked turning points whereby experiencing particular transitions at particular points in the life course affects wellbeing. Indeed, in the context of the USA, both Schulenberg et al. (2004a) and Galambos and Krahn (2008), found that success or difficulties in domains of early adulthood (such as education, unemployment or marriage/romantic involvement) were related to trajectories of wellbeing during this period. Such research helps to identify key areas where policy could be implemented to facilitate improvements in adolescent and young adult wellbeing. However, it is well-acknowledged that transitions to adulthood and the significance of the timing and occurrence of different life events are

embedded in socio-cultural and economic settings and vary between contexts (Schulenberg et al., 2004b). Whilst there is a body of evidence on the relationship between transitions to adulthood and wellbeing in high income settings, there is a need to understand the consequences of pathways to adulthood in low and middle-income countries.

This paper presents an exploratory analysis of the patterning of key work-family transitions and seeks to understand how they interact with self-rated health, a well-used subjective measure which relates both to psychological and biological wellbeing (Jylhä, 2009), amongst young women in South Africa. There are well-documented links between socio-economic position, psychosocial wellbeing and social support and self-rated health both internationally and in South Africa (Mansyur et al., 2008, Chola and Alabla, 2013), which are all factors which could link to work-family transitions. Further, self-rated health is not only a useful proxy for contemporary holistic health but also a strong predictor of subsequent morbidity and mortality (Manor et al., 2001, Jylhä, 2009). Therefore, this second element of the paper provides important insights into how the occurrence and timing of events at this critical life stage are linked to current and future health status.

The specific research question are:

- 1) What are the common pathways to adulthood among young women in South Africa focusing on the sequence of events in terms of entry into parenthood, partnership, employment and leaving education?
- 2) Does a relationship exist between young women's pathways to adulthood and their self-rated health?

TRANSITION TO ADULTHOOD AND WELLBEING AMONGST YOUNG WOMEN IN SOUTH AFRICA

Several features of South African society make the analysis of the transition to adulthood amongst young women in this context important and different to other sub-Saharan African countries. The end of Apartheid in 1994 means today's youth are experiencing their transition to adulthood in a changed social and political context (Bray et al., 2010). The introduction of the African School Act in 1996 made education compulsory from Grade 1 to 9 (Heaton et al., 2014). This has resulted in greater equality in access for all races and both genders and South Africa now performs significantly above the regional average in terms of gross enrolment (World Bank, 2016a). Nonetheless, there is high rates of grade repetition and drop out among black and coloured students (Heaton et al., 2014). Furthermore, there is very high youth unemployment, with approximately one in every two 15-24-year olds being unemployed (World Bank, 2016b). Family formation is a further area that makes the transition to adulthood distinct in South Africa. Although South Africa has one of the lowest fertility rates in the region, it has comparatively high childbearing during very early adulthood, the majority of which takes place outside of marriage (Palamuleni et al., 2007). Indeed, marriage rates are extremely low, particularly among Black Africans, and when marriages do occur they tend to be at a later age than in other sub-Saharan African countries (Garenne, 2004). Despite the low marriage rates, non-marital cohabitation remains uncommon (Hosegood et al., 2009).

South African youth are in a unique position having to negotiate the transition to adulthood in a complex and uncertain socio-political environment. Recent studies using data on young people in Cape Town highlight the value of examining multiple transitions together for understanding young people's pathways to adulthood in this context. Biddecom and Bakilana's (2003) study of transitions into sexual activity, parenthood and union, argued that the concept of adolescence being 'demographically dense' does not apply to South Africa with young adults aged 15-22 years in Cape Town experiencing none or few transitions. Where different pathways were identified, these were characterised as being defined by disorder. Goldberg (2013) identified variation in the transition to adulthood with six different pathways

defined for young women. She found family instability, defined as changes in parental co-residence before age 15, were associated with pathways to adulthood which may promote poorer life chances, such as early childbearing, early end to educational career and underemployment. Further, Marteleto et al. (2008) considered the interactions between educational, sexual and reproductive transitions finding that poorer academic performance was associated with earlier sexual debut and earlier end to educational career. The current study will build on these regional studies by not only providing a national analysis of the transitions to adulthood amongst young women, but also examining the implications of these transitions for young women's health.

METHODS

Study design

This paper draws on data from the National Income Dynamics Survey (NIDS). NIDS is a nationally representative panel with data collected in 2008 (wave 1), 2010-2011 (wave 2), 2012 (wave 3) and 2014-2015 (wave 4) (Southern Africa Labour and Development Research Unit, 2016a, 2016b, 2016c, 2016d). Wave 1 included 10,858 households and 28,226 individuals. Details of the NIDS, including design and sampling, have been described in detail elsewhere (Leibbrandt et al., 2009).

Measures

Sequences of the different transitions to adulthood focusing on education, work, parenthood and cohabitation or marriage to a partner were constructed using the biannual data. Education was defined using information on current enrolment status and the level of education currently enrolled in. Individuals who were enrolled in school but had missing information on level of schooling were assumed to be in secondary or lower education. Employment status was categorised as 'economically active' or 'economically inactive' only, where 'economically active' was defined as being self-employed or paid to work on a regular basis. Whilst a range of different work situations exist in South Africa, consisting of

formal and informal labour, and ranging from full-time to casual work, considering this level of detail would significantly complicate the sequence analysis. This is also the reason that the education variable focuses on level of education rather than year/grade of education. Information on education and economic activity were used to create the work trajectories, where at each wave individuals were classified as either economically active, in higher, technical or vocational education, in secondary or lower education or in neither work nor education. Individuals identified as being in education and being economically active (<5% at each wave), were classified as being in their specified level of education.

Family trajectories were created using information on parenthood and partnership. Marriage or cohabitation was defined as living with a partner or being currently legally married. Parenthood was defined as having had a live birth of a child. At each wave individuals were classified as either having never given birth and being married or cohabiting, having never given birth and not being married or cohabiting, having ever given birth and being married or cohabiting or having ever given birth and not being married or cohabiting.

Adolescent wellbeing at wave 4 was measured using self-reported health. Respondents were asked to describe their present health as excellent, very good, good, fair or poor. Small group sizes meant ratings were collapsed to create a dichotomous variable of those who rated their health as either as excellent or very good, compared to those who rated their health as good, fair or poor. One respondent with complete data for the other variables had missing data at wave 1 and was included in the 'good, fair or poor' category for the wave 1 health variable. Covariates included as controls in the analysis of the relationship between pathways and wellbeing were age, race, rural or urban residence, mother's and father's educational status, parental survival, parent co-residency, household wealth and migration history. The parental survival and co-residency variables were derived from the household roster. Individuals with missing information on parental survival were incorporated into the category 'one or both parents deceased or unknown survival status'. The parental education variables were derived from the household roster for young women who were co-resident with their parent(s) and from the questions on non-

resident parents for young women who were not co-resident with their parent(s). Individuals with missing information on parental education were incorporated into the category 'no education or don't know'. The migration variable was derived from information on the year the individual moved to their current suburb. For individuals with no missing data, wealth was estimated using data pertaining to household ownership of durable goods (e.g. computers), dwelling characteristics (e.g. floor types) and access to services (e.g. improved water). Principle component analysis was used to create a wealth score (Filmer and Pritchett, 2001) and this was then divided into tertiles. Individuals with missing data for wealth were then subsequently assigned to a 'don't know' category. All variables were created using wave 1 data.

Sample

The dataset was restricted to 429 women aged 15-17 years at wave 1 for whom complete data were available across all four waves. Of the 849 young women aged 15-17 years at baseline, 457 were followed to wave 4. Probit regression was used to investigate characteristics associated with drop-out. Attrition between waves was associated with race, parental survival and household wealth. 6% (n=26) of young women present in all four waves had missing information for one or more of the variables required to construct their pathways to adulthood and were excluded. The descriptive analyses was weighted using design weights corrected for attrition.

Statistical analysis

Sequence analysis, a statistical technique which compares how similar sequences of events are to each other (Abbott and Hrycak, 1990), was used to identify common groups of work and family event trajectories. The first step was to identify the states which can occur in a sequence. There are 16 possible work-family combinations, or states, which women could occupy. At each wave, an individual's circumstance is represented by three letters. The first letter denotes work status ('S' for secondary education, 'H' for higher education, 'E' for economically active or 'N' for not in employment or education), the second letter denotes childbearing status ('B' for has had at least one birth and 'N' for no births) and

the third letter denotes partnership status ('P' for married or cohabiting and 'N' for not married or cohabiting). Each woman had four of these three letter states, representing their work, childbearing and partnership states at the four waves of data collection, for example:

S-NN, S-NN, N-NN, N-BN

This example represents a woman who was in secondary education for the first two waves of data and has never given birth and is not married or cohabiting, then moves into being in neither education or work in the third wave, then by the last wave had experienced a birth.

The second step was to identify how similar women's sequences were to each other, using a distance matrix which denotes the 'cost' of transforming each sequence to match others. Different algorithms are available to create distance scores. The most widely used is optimal matching (Halpin, 2012) which uses insertion, deletion and substitution to align sequences. However, in this analysis, traditional hamming matching was used, which in contrast to optimal matching does not recognise similarity between sequences slightly out of time. Instead, traditional hamming compares sequences element wise meaning if sequences have similarities at different time points this is not recognised. This was deemed the most suitable form of matching due to the small number of time points (Halpin, 2012). Substitution costs of 1 were used for each possible change. Whilst it is possible to assign different costs to different substitutions based on theory (i.e. if the difference between one state and another is seen to be of greater significance than the difference between two other states), equal substitutions costs were used in this study because the analysis is explorative. The overall measure of similarity is based on the number of changes needed to transform a specific sequence into another. Once measures of similarities are calculated, a distance matrix is available.

The third step was to use cluster analysis (based on Ward's (1963) algorithm) to group together similar sequences based on their calculated distances. Ward's algorithm was selected because it typically produces clusters of a similar size (Assave et al., 2007). Dendrograms were used to show how clusters of

women with similar sequences are clustered together based on distance measures. A visual assessment of the distances suggested a 6-cluster solution may be appropriate. The 6 clusters were then studied to evaluate how similar they were in terms of the dominant transitions experienced by the cluster members. The fifth cluster included women who typically were in secondary school at the first two time points and then did not experience any events in the final two points whilst the sixth cluster included women who typically were in secondary school in the first three time points and then did not experience any events in the final time point. Given that these are very similar trajectories and the sample included women of a range of ages at baseline (15-17 years) who would have had slightly varying correct grade-for-age at each wave, the cluster analysis was revised to include five clusters. This specification collapsed the fifth and sixth clusters from the six cluster specification. The use of both the distance measurements (shown on the dendrogram) and applied knowledge about the nature of transitions to decide on the number of clusters is a common approach amongst studies applying sequence analysis to social science data (see, for example, Bukodi et al., 2016).

The clusters were given descriptive names based on their dominant characteristics. The modal and medoid sequences are presented for each cluster to show the average trajectory of women in each cluster. The modal sequence consists of the most common state at each time point and is simple to interpret. However, because it is based on the most common state at each discrete time point, it is possible that the modal sequence does not represent a sequence of events actually experienced by an individual in the sample (Aassve et al., 2007). Therefore, the medoid sequence, which represents the sequence of events for an individual in the cluster which is least dissimilar from all other individuals in the cluster, was also calculated to check for consistency. Measures of variability from the medoid sequence (mean, minimum and maximum distance) were included to describe the level of similarity amongst individuals in each cluster. Further, index plots, which include a horizontal line for the event sequence followed by each individual colour-coded by their status at each timepoint, were included to illustrate how typical the average sequences were for women in different clusters.

After conducting sequence analysis, logistic regression models were used to examine whether self-reported health at wave 4 was associated with the different pathways to adulthood identified in the sequence analysis whilst controlling for self-rated health at wave 1, to account for prior health status, as well as socio-economic and demographic characteristics at wave 1. Sensitivity analysis was conducted by running an ordinal regression model, with self-report health coded as a three-categorical variable ('excellent', 'very good' and 'good, fair or poor'.) This did not change the conclusion of the results and thus these results are not presented. All statistical analyses were conducted using STATA version 14 (Stata Corp. Inc, TX USA).

RESULTS

Socio-economic and demographic characteristics of young women at baseline (15-17 years)

Table 1 displays the characteristics of the sample at baseline, when the women were aged 15-17 years. The majority were of African race (90%) and had never migrated (76%). Distribution by rural and urban residence was equal. Whilst approximately two-thirds reported both parents being alive at baseline, less than half of the sample lived with both parents at this point, consistent with low rates of parental co-residence in South Africa.

Table 1: Socio-economic and demographic characteristics of young women (15-17 years) in South Africa, 2008-09

	Weighted %*
<i>Age (years)</i>	
15	30%
16	44%
17	26%
<i>Race</i>	
African	90%
Other	10%
<i>Area type</i>	
Rural	50%
Urban	50%
<i>Mother's highest level of education</i>	
Primary	29%
Secondary or higher	54%
None or don't know	16%
<i>Father's highest level of education</i>	

Primary	14%
Secondary or higher	64%
None or don't know	22%
<i>Parental survival status</i>	
One or both parents deceased or survival status unknown	41%
Both parents alive	59%
<i>Shared residency with parents</i>	
Both	36%
Single parent	41%
Neither	23%
<i>Household wealth</i>	
Poor	2%
Middle	38%
Rich	29%
Missing	8%
<i>Migration</i>	
Never	76%
At least once	24%
Total	100%

*Weighted using design weights corrected for attrition. N=429.

Women's trajectories to adulthood

Figures 1 and 2 display young women's family and work trajectories respectively. The sample is homogeneous at wave 1 in terms of work and family with the majority being in secondary or less education, never having given birth and not being married or cohabiting. Movement out of secondary education rose rapidly across the later stages of the observation period, with a large proportion of women moving into the state of being in neither work nor education. However, the proportion of women who were economically active does increase rapidly between the final two observation periods, with approximately one in four young women reporting being economically active by wave 4. Family trajectories are a less complex picture compared to work and education trajectories, and reflects what is already known about young women's lives in South Africa: high levels of early childbearing and low rates of marriage and cohabitation.

Figure 1: Chronogram of work trajectories amongst young women 15-17 years to 21-23 years in South Africa

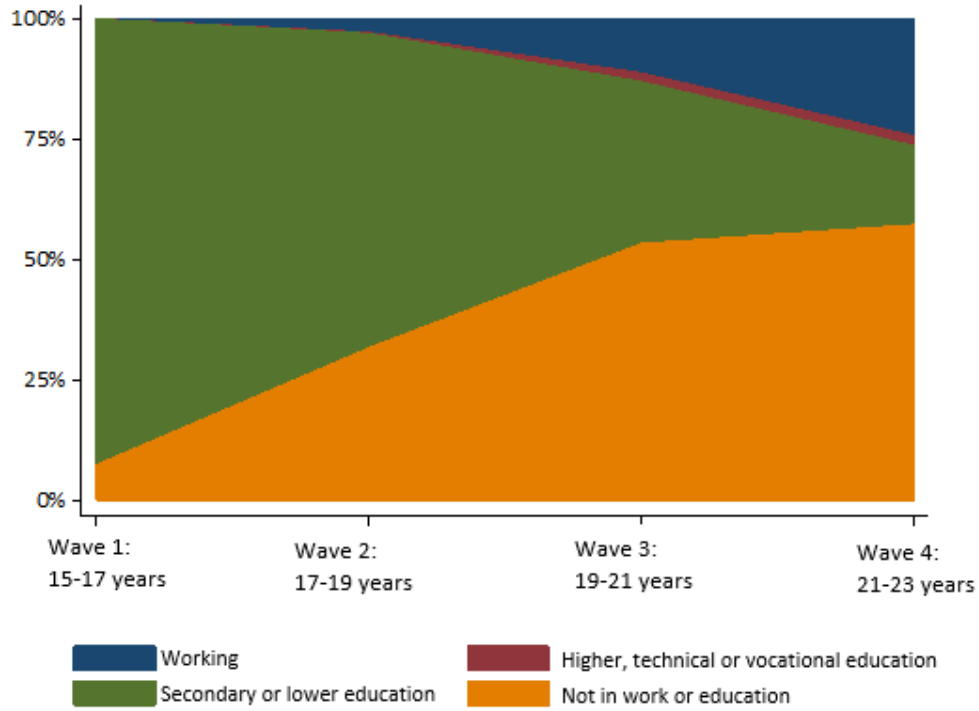
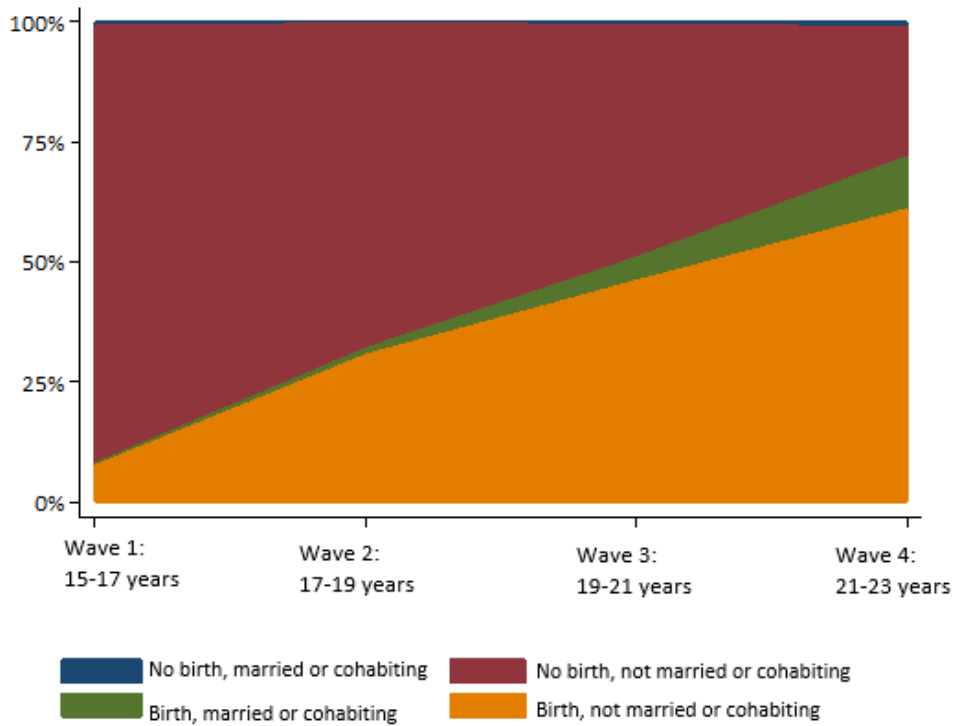


Figure 2: Chronogram of family trajectories amongst young women 15-17 years to 21-23 years in South Africa






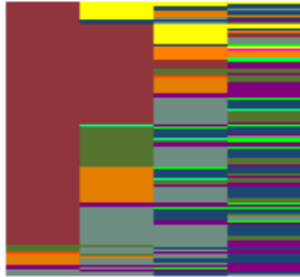






Number of women

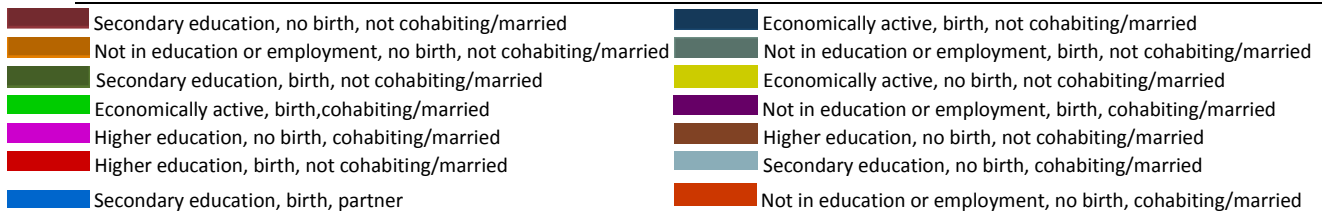
The sequence analysis identified five pathways to adulthood. Table 2 shows the number and percentage of women who followed each pathway, alongside the percentage of women who experienced each event by the end of the time period. Table 3 presents the medoid and modal sequence, which were the same for all pathways indicating they represent consistent 'average' pathways, index plot, and measures of variability from the medoid sequence for each pathway.

Table 2: Typology of young women's work and family transitions in South Africa and summary of whether they ever experienced the transition events.

Work and family transition type	Ever enrolled in secondary education	Ever enrolled in higher or technical education	Ever not in education or employment	Ever employed	Ever had a birth	Ever married or cohabiting	N	%
Non-activity commonly followed by motherhood(1)	85%	6%	100%	25%	55%	11%	47	11%
Pathway from school, motherhood and then work(2)	91%	6%	80%	58%	90%	39%	123	29%
Motherhood combined with schooling (3)	83%	2%	73%	30%	100%	2%	66	15%
Motherhood after schooling (4)	99%	0%	99%	2%	100%	2%	91	21%
Schooling to non-activity(5)	98%	3%	72%	27%	15%	4%	102	24%
Total	93%	3%	83%	31%	72%	14%	429	100%

Table 3: Modal & medoid sequence, index plot and measures of variation from medoid sequence by work and family transition type amongst young women in South Africa

Work and family transition type	Modal & Medoid Sequence	Index Plot	Mean distance from medoid sequence	Min. distance from medoid sequence	Max. distance from medoid sequence
Non-activity commonly followed by motherhood (1)			0.80	0.31	2.95
Pathway from school, motherhood and then work (2)			1.30	0.79	2.30
Motherhood combined with schooling (3)			1.10	0.56	2.00
Motherhood after schooling (4)			0.55	0.23	1.65
Schooling to non-activity (5)			0.71	0.40	2.82
	W1: 15-17 W2: 17-19 W3: 19-21 W4: 21-23	W1: 15-17 W2: 17-19 W3: 19-21 W4: 21-23			



Note: Only 14 of the possible 16 work-family event combinations were experienced by individuals in the sample.

The most common pathway to adulthood, pathway 2, was defined as 'Pathway from school, motherhood and then work'. Just under a third of the sample followed this pathway which is characterised by a modal and medoid sequence of young women having their first child after leaving secondary education, and entering work after childbirth. The large majority, 90%, of women in this pathway became mothers and over half (the largest proportion in all pathways) were economically active at at least one time point. This pathway has the highest mean distance from the medoid sequence, indicating that it is the most diverse pathway. The index plot reveals that many of the women who do not follow the average sequence enter work before becoming mothers, enter work whilst being mothers as well as being married or cohabiting, enter work whilst in partnership but without having become mothers, or are mothers and in partnership but not in work. Thus, whilst they may experience slightly different events and ordering of events, the transitions of women in this pathway are often characterised by entering work, and sometimes partnership, which are rare events amongst young women in South Africa and can be associated with greater economic wellbeing.

Work does not feature in the modal and medoid sequences of any of the other pathways to adulthood. The first and fourth pathways 'Non-activity commonly followed by motherhood' (followed by 11% of sample) and 'Motherhood after schooling' (followed by 21% of the sample) are similar in that they are characterised by moving into a state of motherhood after leaving secondary schooling. The modal and medoid sequences of the two pathways differ in that 'Non-activity commonly followed by motherhood' involves a period between finishing school and motherhood in which the young women are in neither in work or education, and have experienced no family transitions. Whilst 100% of young women in 'Motherhood after schooling' ever had a birth, only 55% of those in 'Non-activity commonly followed by motherhood' do. The greater uniformity in 'motherhood after schooling' pathway is reflected in the index plot which shows all women in the state of having had a birth but not in employment or education and not cohabiting or married by the final time point.

A similar pathway, the third in the table, 'motherhood combined with schooling' was followed by 15% of the sample. What distinguishes this from the 'Motherhood after schooling' pathway is that the average sequence represents women combining having a child with their educational career. Indeed, the index plots clearly illustrate that many more women in pathway 3 combine motherhood and schooling (shown in green) than women in pathway 4. The mean distance from the medoid sequence is 1.1 for pathway 3 compared to 0.55 for pathway 4 indicative of a greater level of variability. The index plot illustrates that whilst many women combine motherhood and schooling in pathway 3, the defining transition of this pathway, there is noticeable variation in the timing of when they combine these two events.

The last identified pathway, 'Schooling to non-activity', was followed by just under one quarter of the sample and is characterised by continued enrolment in secondary or less education throughout the majority of the observed period. Almost all, 98%, of women falling into this category had been enrolled in secondary school at some stage during the time period. The modal and medoid sequence of this pathway is defined by its absence of family or work transition beyond departure from secondary school. Only 15% of women following this pathway ever had a birth, the lowest of all the pathways. The index plot clearly shows why the average sequence is characterised by firstly, leaving school and secondly, not being in work, education, a cohabiting or marital partnership or entering motherhood, as the large majority of women following this pathway only occupy these two states.

Work-family transitions and self-rated health

Baseline self-rated health was not significantly associated with the transition variable ($p=0.131$), indicating that young women were not more likely to follow particular pathways according to their initial health status (results not shown). Logistic regression models showing the adjusted associations between work and family transition typology and self-rated health 'after' the transition (wave 4) are displayed in Table 4. 'Non-activity commonly followed by motherhood' was used as the reference category, and in both models 'Pathway from school, motherhood and then work' and 'Schooling to non-activity' had significantly higher odds of self-reporting excellent or very good health relative to this pathway. None of

the socio-economic or demographic characteristics were significantly associated with self-rated health at wave 4.

Table 4: The associations between self-reported health at wave 4 and work and family transition typology amongst young women in South Africa

Variable	O.R.	95% C.I.	p-value
<i>Work and family transition typology</i>			
Non-activity commonly followed by motherhood 1)	1.0		
Pathway from school, motherhood and then work (2)	3.2	1.5-6.8	0.003
Motherhood combined with schooling (3)	1.6	0.7-3.6	0.261
Motherhood after schooling (4)	1.7	0.8-3.7	0.177
Schooling to non-activity (5)	2.5	1.1-5.6	0.022
<i>Self-related health (wave 1)</i>			
Good, fair or poor	1.0		
Excellent or very good	1.2	0.7-2.0	0.583
<i>Age (years)</i>			
15	1.0		
16	1.3	0.7-2.3	0.352
17	0.8	0.4-1.4	0.435
<i>Race</i>			
African	1.0		
Other	0.9	0.4-2.2	0.887
<i>Area type</i>			
Rural	1.0		
Urban	0.8	0.5-1.4	0.41
<i>Mother's highest level of education</i>			
Primary	1.0		
Secondary or higher	1.0	0.6-1.9	0.892
None or don't know	0.9	0.4-1.7	0.663
<i>Father's highest level of education</i>			
Primary	1.0		
Secondary or higher	2.2	1.0-5.1	0.06
None or don't know	2.1	0.8-5.1	0.111
<i>Parental survival status</i>			
One or both parents deceased or survival status unknown	1.0		
Both parents alive	0.8	0.5-1.5	0.569
<i>Shared residency with parents</i>			

Both	1.0		
Single parent	0.7	0.3-1.4	0.313
Neither	0.8	0.4-1.9	0.698
<i>Wealth</i>			
Poor	1.0		
Middle	1.7	0.9-2.9	0.075
Rich	1.3	0.7-2.6	0.393
Missing	0.9	0.3-2.6	0.899
<i>Migration</i>			
Never	1.0		
At least once	0.7	0.4-1.2	0.167
Constant	0.8	0.2-2.7	0.749

Notes: socio-economic and demographic characteristics as measured at wave 1. 'O.R' denotes 'odds ratio', '95% C.I.' denotes '95% confidence interval'.

DISCUSSION

This study provides the first national level analysis of pathways to adulthood amongst young women in South Africa, and explores the associations with health. The results reveal a diversity of pathways to adulthood and that these pathways do correlate with self-rated health, illustrating the importance of taking a holistic approach to wellbeing (Patton et al., 2014).

Based on empirical evidence from Cape Town, Biddecom and Bakilana's (2003) assert that adolescence and young adulthood are not demographically dense. In contrast, the start of motherhood features prominently in the lives of young women in the analysis presented in this paper: four of the five pathways identified include a birth, and, overall, nearly three quarters of the young women became mothers. This is consistent with analyses of fertility in South Africa which show high rates of childbearing amongst very young women (Palamuleni et al., 2007). High levels of adolescent motherhood have been linked to gender constructions in South Africa, whereby dominant notions of femininity and masculinity results in power imbalances in the negotiation of safe sex (Jewkes et al., 2009). Hallman's (2005) analysis of sexual behaviour among young people in South Africa, identifies that it is the intersections between socio-

economic status and gender which can leave young women from lower socio-economic backgrounds vulnerable. The difference between our picture and that presented by Biddecom and Bakilana (2003) could be explained in part by the fact that Black Africans have a higher fertility rate than other population groups but are underrepresented in Cape Town (Moultrie and Timæus, 2003). However, the results of this paper do support Biddecom and Bakilana's claim in other domains - only 31% of young women made the transition to being economically active and only 14% got married or started cohabiting. Further, some of the pathways are characterised by non-active states especially in terms of work and education. This reality is echoed in the particular concerns about the transition from education to work in South Africa (Lam et al., 2007) and the fact that unemployment disproportionately affects women (Klasen and Woolard, 2009). The World Economic Forum Global Gender Gap Index reveals that the labour market in South Africa is an area of relative gender disadvantage (World Economic Forum, 2016). Gender plays an important role in shaping transitions to economic activity across sub-Saharan Africa, with women typically disadvantaged and occupying lower paid and insecure employment (Arbache et al., 2010).

The analyses of the association between the transition typology and self-rated health identified that young women who followed the 'Pathway from school, motherhood and then work' achieved the best self-rated health. The particularly high wellbeing of women who followed this pathway may reflect their success in achieving both motherhood and employment. This is supported by Varga's (2003) mixed methods study with young women in KwaZulu-Natal which describes how childbearing has important cultural significance but that it needs to be balanced with career aspirations and financial stability. In addition, although it was not reflected in the average sequence, a significant minority of women in the 'pathway from school, motherhood and then work' enter cohabitation or marriage, which research from South Africa has shown is perceived to give women an advantage in being able to provide for their own and their children's material and social support needs (Ntshongwana, 2010).

Women in the pathways where motherhood combined with a lack of employment features prominently (pathways 1, 3 and 4) suffer poorer self-rated health. In pathways 1 and 4 women typically experience

childbirth after leaving education but do not secure employment, whilst in pathway 3 women typically become mothers whilst still in education but also do not secure employment. Varga's (2003) study in South Africa found that when childbearing is earlier in the life course it can be socially and economically expensive and associated with school disruption, economic strain, limited job prospects and emotional distress. This is echoed in the international literature. For example, in their study of transitions to adulthood in the United States, Meadows et al. (2006) conclude that early motherhood can constrain opportunities for young women's social and economic success. Further, research on transitions to adulthood from other contexts suggest young people are particularly vulnerable to poorer wellbeing when the context they find themselves in does not allow them to fulfill their needs (Schulenberg et al., 2004b). In addition to the economic strains associated with unemployment, this may help explain the poorer wellbeing of these groups of young women who become mothers but do not secure work and thus may struggle to provide for their children. Young women who followed pathway 3, 'motherhood combined with schooling', are an interesting group. South Africa is relatively unique in the region because young women can return to school after childbirth. However, recent analyses have shown that girls aged 15-18 years who fall pregnant for the first time are over twice as likely to fail to matriculate (pass the final school exams) (Timæus and Moultrie, 2015). This is likely to curtail the skill and wage level of future employment, and thus motherhood may also have constrained the opportunities of this group of young women.

Young women who follow pathway 5, schooling to non-activity, had the second best self-rated health in the regression models. Whilst women following this pathway had typically not made the transition to motherhood or economic activity, they may be less constrained to achieve these goals if desired and without dependent children may be less exposed to the stress associated with the economic strain of unemployment. This adds weight to the argument that it may not simply be unemployment that is an obstacle to the wellbeing of young women, but unemployment combined with motherhood. Consistent with previous studies, the large majority of young women in this study who became mothers did not enter marriage or cohabitation. Madhavan et al.'s (2013) analysis of two Black rural communities in South Africa

found that the level of financial support provided by fathers for their children can vary considerably, and denial of paternity is not uncommon. This study suggested that young women feel pressured to find work after childbirth if support is not forthcoming from fathers. Thus, there may be particular strains on young women who face the challenges associated with both economic inactivity and motherhood.

This study has a number of limitations that merit discussion. Firstly, in constructing sequences ideally time intervals would be shorter than two years (the period between survey waves) in order to create more nuanced sequences. Retrospective monthly data would have enabled the creation of more detailed sequences, but can suffer from recall bias which is likely to be a lesser concern in panel data like the NIDS. Attrition between waves of the NIDS may have also had implications for the different pathways to adulthood. Young women who were single or double orphans or had missing information on parental survival at wave 1 were more likely to drop-out. Orphanhood is a risk factor for adolescent pregnancy in South Africa (Operario et al., 2007), and Goldberg's (2013) analysis of Cape Town data revealed that family instability during adolescence (a definition which included death of a parent) was associated with more disadvantaged pathways to adulthood characterised by school dropout, early motherhood and unemployment. Those with a race other than black and those from the highest wealth tertile were also more likely to drop-out. As race and wealth remain important in shaping opportunities in South Africa (Seeking, 2008), transitions to higher education and employment are likely to be underrepresented in the analysis. It is also possible that those with complex trajectories are more likely to drop-out of panel data (Aassve et al., 2007). For example, internal labour migration has increased amongst women in the post-apartheid era (Posel, 2004), therefore may be associated with drop-out from the panel data but also transitions into work. Despite these limitations, the NIDS is currently the best available national data source for examining the order and occurrence of work and family events amongst young women in South Africa. Further, an advantage of the prospective design is that it is possible to control for prior wellbeing and thus have more confidence in the results of the analyses examining the relationship between transition pathways and contemporary wellbeing.

The research could also be usefully extended along a number of avenues. The transition to adulthood is gendered (Lloyd, 2005) making the separate analyses of the experiences of females and males important. Our discussion of female pathways to adulthood highlighted the role of gender norms in shaping this transition. Whilst gender frequently focuses on women, gender constructions have also been cited as influencing the experience of young men avoiding responsibility of fatherhood in South Africa, although emerging literature suggests young men are beginning to negotiate meanings of masculinity to take on a more active role (Enderstein and Boonzaier, 2015). The decision to focus exclusively on female transitions in this paper was linked to the paucity of data on parenthood amongst men in South Africa, a research issue which has been discussed in detail elsewhere (Hosegood and Madhavan, 2012). Additionally, in particular for the design of policy interventions, it would be valuable to identify risk and protective factors that mediate the relationships between the pathways and self-rated health, for example, strong extended family or social ties.

Conclusion & Policy Recommendations

Until recently, adolescence health has been a neglected focus in health and wellbeing research and policy. However, there is growing recognition of emerging threats to adolescent wellbeing, and the links to later life health which has resulted in greater attention to this age group, as seen in the development of the Global Strategy for Women's, Children's and Adolescent's Health (Temmerman et al., 2015) and the Lancet Commission on Adolescent Health and Wellbeing (Patton et al., 2014). The results of this study demonstrate that the order and occurrence of events in young adulthood is associated with self-rated health in a middle-income context, and highlight the particular vulnerability of young women who enter into early motherhood but do not secure employment. There are a number of policy implications arising from this core finding for the South African context.

Firstly, policy needs to support young women to achieve their desired timing for work and family transitions. Studies have confirmed that young women in South Africa would prefer to delay motherhood until after the completion of schooling (Madhavan et al., 2013) and ideally after achieving a level of financial security (Varga, 2003). The quality and timing of sex education, and restriction in access to family planning of adolescents remain key explanatory factors for the continued high levels of teenage childbearing (Jewkes et al., 2009). Thus, these are areas which policymakers could directly target to reduce early childbearing. Motherhood can also be a means by which young women in South Africa achieve status in the context of very high female unemployment (Jewkes et al., 2009). Thus, broader policy interventions to tackle youth unemployment, already recognized as a policy priority for supporting youth generally, have a role to play in reducing adolescent fertility.

Secondly, policy interventions are needed to mitigate the negative consequences of early childbearing. The 1996 South African Schools Acts states that schooling must be available for pregnant learners and mothers cannot be excluded from mainstream schooling (Ngabaza and Shefer, 2013). However, the legislation has been inconsistently implemented and young mothers may face stigma and a lack of support upon their return to school and have reduced odds of completing school (Timæus and Moultrie, 2015). Schools need to be supported to universally enforce policies to enable mothers to successfully return to school and to adopt practical measures to support these learners such as flexibility on mothers' attendance and training for teaching staff to reduce discrimination.

Thirdly, there is a need to legislate to support mothers in and into work. The challenges associated with combining work and family are not well recognised in discourses on employment conditions in South Africa, with an implicit assumption that workers will be able to manage care responsibilities and/or can rely on unpaid family support (Mokomane, 2009). Indeed, the South Africa legislative framework has been criticised for making it difficult to combine work and care responsibilities (Dancaster and Cohen, 2010) and this disadvantages young unmarried mothers in an already hostile labour market. Measures such as

the option of assistance with childcare and the ability to request flexible working could help level the playing field. There is currently a legal mechanism to request change in hours on the basis to provide care on the basis of discrimination, but it is expensive, time-consuming and bureaucratic (Mokomane, 2011). Further, given that women disproportionately work in the informal sector, designing policies which include provision for workers outside formal employment is an important consideration.

There have been calls at the international level for the development agenda to more fully consider the role of the family in achieving goals and work-family balance has been highlighted as a particular area of neglect (Mokomane, 2014). Policy tends to target women in either their roles as generators of income, or as the primary caretakers of children. However, the recommendations from this study point to the need to recognise the challenges that young women face in combining education, work and family. Whilst there is a substantial volume of scientific literature which has investigated the interface between work and family (Eby et al., 2005), very little research has been conducted in sub-Saharan Africa and other low and middle-income regions (Aryee, 2005). The unique socio-cultural and economic context in sub-Saharan Africa will result in differences in the experience of the work-family interface compared to young women in the global North (AUTHOR'S WORK) and thus further research is required to inform this area of policy and to ensure it is considered in the development agenda.

REFERENCES

AUTHOR'S OWN WORK

- Abbott, A., and Hrycak, A. (1990). Measuring resemblances in sequence data: An optimal matching analysis of musicians' careers. *American Journal of Sociology*, 96, 144-185.
- Aassve, A., Billari, F.C., and Piccarreta, R. (2007). Strings of adulthood: A sequence analysis of young British women's work-family trajectories. *European Journal of Population*, 23, 369-388.
- Arbache, J.S., Kolev, A., and Filipiak, E. (2010). *Gender Disparities in Africa's Labor Market*. Washington, D.C.: The World Bank.
- Aryee, S. (2005). The work-family interface in urban sub-Saharan Africa: A theoretical analysis. In S. Poelmans (Ed.), *Work and Family: An International Perspective* (pp.209-228). New Jersey: Lawrence Erlbaum Associates.
- Biddecom, A.E., and Bakilana, A. (2003). *Transitions into Sex, Parenthood and Unions among Adolescents and Young Adults in South Africa*. New York: The Alan Guttmacher Institute.
- Bray, R., Gooksens, I., Kahn, L., Moses, S., and Seekings, J. (2010). *Growing up in the new South Africa: Childhood and Adolescence in Post-Apartheid Cape Town*. Cape Town: HSRC Press.
- Bukodi, E., Goldthorpe, J., Halpin, B., and Waller, L. (2016). Is education now class destiny? Class histories across three British birth cohorts. *European Sociological Review*, 32, 835–849.
- Chola, L. and Alaba, O., (2013) Association of neighbourhood and individual social capital, neighbourhood economic deprivation and self-rated health in South Africa—a multi-level analysis. *PLoS One*, 8(7), p.e71085.
- Dancaster, L., and Cohen, T. (2010). Workers with family responsibilities: a comparative analysis to advocate for the legal right to request flexible working arrangements in South Africa. *South African Journal of Labour Relations*, 34, 31-45.

- Eby, L.T., Casper, W.J., Lockwood, A., Bordeaux, C., and Brinley, A. (2005). Work and family research in IO/OB: Content analysis and review of the literature (1980-2002). *Journal of Vocational Behavior*, 66, 124-197.
- Enderstein, A., and Boonzaier, F. (2015). Narratives of young South African fathers: redefining masculinity through fatherhood. *Journal of Gender Studies*, 24, 512-527.
- Filmer, D., and Pritchett, L.H. (2001). Estimating wealth effect without expenditure data – or tears: an application to educational enrollments in states of India. *Demography*, 38, 115-32.
- Galambos, N.L., and Krahn, H.J. (2008). Depression and anger trajectories during the transition to adulthood. *Journal of Marriage and Family*, 70, 15-27.
- Garenne, M. (2004). Age at marriage and modernization in sub-Saharan Africa. *Southern African Journal of Demography*, 9, 59-80.
- Goldberg, R. (2013). Family instability and pathways to adulthood in Cape Town, South Africa. *Population and Development Review*, 39, 231-256.
- Graber, J. A., and Brooks-Gunn, J. (1996). Transition and turning points: Navigating the passage from childhood through adolescence. *Developmental Psychology*, 32, 768-776.
- Hallman, K. (2005). Gendered socioeconomic conditions and HIV risk behaviors among young people in South Africa. *African Journal of AIDS Research*, 4, 37-50.
- Haplin, B. (2012). *Sequence Analysis of Life Course Data: A Comparison of Distance Measures* (Working Paper WP2012-02). University of Limerick: Republic of Ireland.
- Heaton, T.B., Amoateng, A.Y., and Dufur, M. (2014). Race differences in educational attainment of youth aged 7-18 in post-apartheid South Africa: The role of family structure, resources and school quality. *South African Review of Sociology*, 45, 101-121.

- Hosegood, V., and Madhavan, S. (2012). Understanding fatherhood and father involvement in South Africa: Insights from surveys and population cohorts. *Fathering, 10*, 257-273.
- Hosegood, V., McGrath, N., and Moultrie, T. (2009). Dispensing with marriage: Marital and partnership trends in rural KwaZulu-Natal, South Africa 2000–2006. *Demographic Research, 20*, 279–312.
- Jewkes, R., Morrell, R., and Christofides, N. (2009). Empowering teenagers to prevent pregnancy: lessons from South Africa. *Culture, Health & Sexuality, 11*, 675-688.
- Jylhä, M. (2009). What is self-rated health and why does it predict mortality? Towards a unified conceptual model. *Social Science & Medicine, 69*, 307-316.
- Klasen, S., and Woolard, I. (2009). Surviving unemployment without state support: unemployment and household formation in South Africa. *Journal of African Economics, 18*, 1-51.
- Lam, D., Leibbrandt, M., and Mlatsheni, C. (2007). *Education and Youth Unemployment in South Africa* (Southern Africa Labour and Development Research Unit Working Paper Number 22). Cape Town: SALDRU, University of Cape Town.
- Leibbrandt, M., Woolard, I., and de Villiers, L. (2009). *National Income Dynamic Study: Methodology: Report on NIDS Wave 1*. Cape Town: Southern Africa Labour and Development Research Unit, University of Cape Town.
- Lloyd, C. (2005). Growing up global: *The changing transitions to adulthood in developing countries. Panel on Transition to Adulthood in Developing Countries*. Washington, D.C.: The National Academies Press.
- Madhavan, S., Harrison, A., and Sennott, C. (2013). Management of non-marital fertility in two South African communities. *Culture, Health & Sexuality, 15*, 614-628.

- Manor, O., Matthews, S. and Power, C., (2001) Self-rated health and limiting longstanding illness: inter-relationships with morbidity in early adulthood. *International Journal of Epidemiology*, 30(3), 600-607.
- Mansyur, C., Amick, B.C., Harrist, R.B. and Franzini, L., (2008) Social capital, income inequality, and self-rated health in 45 countries. *Social Science & Medicine*, 66(1), 43-56.
- Marteletto, L., Lam, D., and Ranchhod, V. (2008). Sexual behavior, pregnancy, and schooling among young people in urban South Africa. *Studies in Family Planning*, 39, 351-368.
- Meadows, S.O., Brown, J.S., and Elder, G.H. (2006). Depressive symptoms, stress, and support: Gendered trajectories from adolescence to young adulthood. *Journal of Youth and Adolescence*, 35, 89-99.
- Mokomane, Z. (2009). Work-family conflict and gender equality in South Africa. *26th IUSSP International Population Conference*. Marrakech, Morocco. Retrieved from <http://iussp2009.princeton.edu/papers/92530>
- Mokomane, Z. (2011) *Work-family balance: overview of policies in developing countries*. UN expert group meeting. New York: United Nations. Retrieved from: <http://www.un.org/esa/socdev/family/docs/egm11/Mokomanepaper2.pdf>
- Mokomane, Z. (2014). Work-family balance: issues and considerations for the Post-2014 agenda. In J. Griffiths (Ed.), *Family Futures* (pp. 180-2). London: Tutor Rose.
- Moultrie, T.A., and Timæus, I.M. (2003). The South African fertility decline: Evidence from two censuses and a Demographic and Health Survey. *Population Studies*, 57, 265-283.
- Ngabaza, S., and Shefer, T. (2013). Policy commitments vs. lived realities of young pregnant women and mothers in school, Western Cape, South Africa. *Reproductive Health Matters*, 21, 106-113.
- Ntshongwana, P. (2010) *Childcare Challenges Faced by Lone Mothers in South Africa*. Pretoria: Department of Social Development.

- Operario, D., Perrifor, A., Cluver, L., MacPhail, C., and Rees, H. (2007). Prevalence of parental death among young people in South Africa and risk for HIV infection. *Journal of Acquired Immune Deficiency Syndromes*, 44, 93-98.
- Palamuleni, M., Kalule-Sabiti, I., and Makiwane, M. (2007). Fertility and childbearing in South Africa. In A.Y. Amoateng, & T.B. Heaton (Eds.), *Families and Households in Post-Apartheid South Africa: Socio-demographics Perspectives* (pp.113-134). Cape Town: Human Sciences Research Council Press.
- Patton, G.C., Ross, D.A., Santelli, J.S., Sawyer, S.M., Viner, R.M., and Kleinert, S. (2014). Next steps for adolescent health: A Lancet Commission. *The Lancet*, 383, 385-386.
- Posel, D. (2004). Have migration patterns in post-apartheid South Africa changed? *Journal of Interdisciplinary Economics*, 15, 277-292.
- Schulenberg, J.E., Bryant, A.L., and O'Malley, P.M. (2004a). Taking hold of some kind of life: how developmental tasks relate to trajectories of well-being during the transition to adulthood. *Development and Psychopathology*, 16, 1119-1140.
- Schulenberg, J.E., Sameroof, A.J., and Cicchetti, D. (2004b). The transition to adulthood as a critical juncture in the course of psychopathology and mental health. *Development and Psychopathology*, 16, 799-806.
- Seekings, J. (2008). The continuing silence of race: discrimination and diversity in South Africa. *Journal of Contemporary African Studies*, 26, 1-25.
- Southern Africa Labour and Development Research Unit. (2016a). *National Income Dynamics Study 2008, Wave 1 [dataset]. Version 6.1* [Data File]. Cape Town: Southern Africa Labour and Development Research Unit [producer], 2016. Cape Town: DataFirst [distributor], 2016. Retrieved from <http://www.nids.uct.ac.za/nids-data/data-access>

- Southern Africa Labour and Development Research Unit. (2016b). *National Income Dynamics Study 2010-2011, Wave 2 [dataset]. Version 3.1* [Data File]. Cape Town: Southern Africa Labour and Development Research Unit [producer], 2016. Cape Town: DataFirst [distributor], 2016. Retrieved from <http://www.nids.uct.ac.za/nids-data/data-access>
- Southern Africa Labour and Development Research Unit. (2016c). *National Income Dynamics Study 2012, Wave 3 [dataset]. Version 2.1* [Data File]. Cape Town: Southern Africa Labour and Development Research Unit [producer], 2016. Cape Town: DataFirst [distributor], 2016. Retrieved from <http://www.nids.uct.ac.za/nids-data/data-access>
- Southern Africa Labour and Development Research Unit (2016d) *National Income Dynamics Study 2014 - 2015, Wave 4 [dataset]. Version 1.1* [Data File]. Cape Town: Southern Africa Labour and Development Research Unit [producer], 2016. Cape Town: DataFirst [distributor], 2016. Pretoria: Department of Planning Monitoring and Evaluation [commissioner], 2016. Retrieved from <http://www.nids.uct.ac.za/nids-data/data-access>
- Temmerman, M., Khosla, R., Bhutta, Z., and Bustreo, F. (2015). Towards a new global strategy for women's, children's and adolescents' health. *The BMJ*, 351. doi: <https://doi.org/10.1136/bmj.h4414>
- Timæus, I.M., and Moultrie, T.A. (2015). Teenage childbearing and educational attainment in South Africa. *Studies in Family Planning*, 46, 143-160.
- UNFPA. (2014). *The Power of 1.8 Billion: Adolescents, Youth and The Transformation of the Future*. Washington, D.C: UNFPA.
- Varga, C.A. (2003). How gender roles influence sexual and reproductive health among South African adolescents. *Studies in Family Planning*, 34, 160-172.

Ward, J.H. (1963) Hierarchical grouping to optimize an objective function. *Journal of the American Statistical Association*, 58, 236-244.

World Bank. (2016a). *Gross Enrolment Ratio, Secondary, Both Sexes (%)*. Washington, D.C.: World Bank.

Retrieved from <http://data.worldbank.org/indicator/SE.SEC.ENRR>

World Bank. (2016b). *Unemployment, Youth Total (% of Total Labour Force Ages 15-24)*. Washington, D.C.:

World Bank. Washington. Retrieved from <http://data.worldbank.org/indicator/SL.UEM.1524.ZS>

World Economic Forum. (2016). *Global Gender Gap Report 2016*. Switzerland: World Economic Forum.

Retrieved from <http://reports.weforum.org/global-gender-gap-report-2016/economies/#economy=ZAF>