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REPORT

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Looking for the future – Hope and adolescent risk behaviour in rural KwaZulu-Natal, South Africa

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ABSTRACT

We investigate the relationship between hope and risky behaviour and the role of migration among young people in northern KwaZulu-Natal, South Africa. We use data from a cohort of $n = 5248$ adolescents and young adults (AYA) aged 13–35 recruited and followed up in 2017–2019. We conducted a structured quantitative survey to assess levels of hope among AYA using a validated tool/scale. 44% of participants were aged 13–17 years, 63% were still in school, 66% were from rural areas, and 26% were from food insecure households. The mean hope total score was 31.7. The mean hope score was lower for females compared to males −0.43(95%CI; −0.64, −0.21) and lower for those out of school and not matriculated compared to those in school −0.72(95%CI; −1.1, −0.32). Young people who had experienced violence had a lower mean hope score than those who had not −0.28(95%CI: −0.50, −0.06). Those out of school, matriculated and unemployed were more likely to migrate than those in school (aOR = 1.60, 95%CI; 1.25, 2.05). AYA who were food insecure were also more likely to migrate (aOR = 1.23, 95%CI; 1.05, 1.43). Our findings suggest a need for structural interventions that address employment and education needs and harmful gender norms for older AYA.

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Introduction

Many different definitions have been put forward to understand the concept of `hope' focussing on the cognitive pathways that promote one's belief and possibility to achieve a desired goal (Lopez et al., 2003). Edwards and McClintock (2018) offer the following definition `hope is the perceived ability to produce energy and avenues around obstacles to work towards goals' (p. 96), which suggests the motivation to move forward, rather than a passive wish for better things. As such, as Pleeging et al. (2022) observe, hope can provide an incentive for human behaviour: `Hope can entice people to invest in their future, for example through a business, an education, in living healthily, accepting treatment for a disease […]. Such a hopeful motivation for behaviour requires belief in and the imagination of a certain good or desire' (p. 1682). The thing that may be desired, that may be hoped for, is shaped by the context. Bryant and Ellard (2015), for example, writing

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about disadvantaged young Australians, describe how the challenges that the young people were experiencing in what were their present circumstances shaped and curtailed their vision of their adulthood. Even so, they hoped for more security, more happiness, in an imagined future. Appadurai (2004), writing about aspiration (which, while similar to hope, has been characterised as a strong desire to achieve a particular goal (Lybbert & Wydick, 2017)), observes that poverty and deprivation limit the opportunities that people may have to aspire and plan for a better future. In South Africa, a place where the scars of apartheid still influence access to services and resources, Boyce and Harris (2013) noted a continued `negative association between hope levels and membership of groups that have historically been relegated to the margins of South African society' (p.594). Those people who considered themselves more disadvantaged compared to others were found, in Boyce and Harris' study, to have lower levels of hope. A lack of hope in the future affects self-esteem, self-worth and risk-taking (Ngwenya et al., 2021) – and, as Groenewald and colleagues (2023) note – the level of hope affects decision-making about risk: 'adolescents described young people who misused substances as having "no hope" or associated hopelessness with engagement in adverse behaviours' (p. 2).

A lack of opportunities – for both education and employment – can push young people to move from their home place, particularly if that home is in a remote rural location (Chimbindi et al., 2018). Migration brings with it risks for young people – who may struggle to find safe accommodation, money and food (Bernays et al., 2020; Ngwenya et al., 2023). They may also be encouraged by people they meet, perhaps driven by the need to make money or find something to eat, to take up behaviours which can affect their health and wellbeing (Ajaero et al., 2018). James et al. (2017) describe how having feelings of hopelessness and sadness were associated in a cohort of South African adolescents with multiple forms of risk, suggesting that experiencing risk (forced sex, bullying, for example) may lead to feeling hopeless; but lacking hope may promote taking risks, such as binge drinking or having risky sex.

In a 2017 study (Desmond et al., 2019) amongst 503 adolescents and young people (both male and female) in uMkhanyakude district, KwaZulu-Natal, we found that those with less hope were more likely to engage in higher risk behaviour. We build from that research to trace the relationship between levels of hope and migration, and risky sexual behaviour among ~5000 young people (aged 13–35) in the district in 2017 and 2018.

In this paper, we focus on hope and risk behaviour among young people growing up in one of the poorest districts in South Africa, uMkhanyakude District in KwaZulu-Natal Province. Further, we explore the role of migration in hope and risky behaviours among young people. The district is predominantly rural, with high levels of unemployment among young people (60% in 2023 – despite recent small increases in employment (IOL, 2023; SA News, 2023)) and an HIV incidence rate of >5% per annum among adolescent girls and young women. Although HIV incidence has been declining in the recent past among the general population it still remains high in young women (Akullian et al., 2021; Chimbindi et al., 2018; Gareta et al., 2021; Lewis et al., 2022). In 2015 51.7% of 15–19 and 20–24 year olds reported recent migration from the district (Chimbindi et al., 2018).

Methods

Study site

The Africa Health Research Institute (AHRI) is located in Hlabisa sub-district in uMkhanyakude district, northern KwaZulu-Natal. AHRI runs a health and demographic surveillance site which covers ~800km^2 with a population of approximately 140,000 members of 12,000 households (Gareta et al., 2021; Herbst et al., 2015). As a result of the poverty and high unemployment in the area described above, most people rely on social grants as their primary source of income and remittances from migrant workers (Dzomba et al., 2022; Sinyolo et al., 2016). Migration for education,

from rural areas to towns like Mtubatuba within the district, as well as districts nearby, is widely practiced (Muhwava et al., 2010).

Study design

We used data from a representative cohort of adolescents and young adults (AYA) who were recruited and followed up as part of the impact evaluation of the Determined, Resilient, Empowered, AIDS-Free, Mentored and Safe (DREAMS) multilevel HIV prevention programme rolled out in uMkhanyakude district (Birdthistle et al., 2018; Zuma et al., 2022). We recruited a closed cohort of 5248, which included 2184 adolescent girls and young women (AGYW) aged between 13 and 22 who were recruited for the DREAMS impact evaluation, 2488 adolescent boys and young men aged 13–35 and 576 women aged 24–30 who were recruited for assessing population-level impact of the DREAMS programme. We incorporated the hope score questions in the questionnaire for this cohort. The cohort was selected at baseline using a random stratified sample from the AHRI census of age-eligible household residents in 2017 and 2018 (Birdthistle et al., 2018). The sample was stratified by age (13–17, 18–22, 24–30) for females and 13–35 for males and by 45 geographic areas. We used follow-up data from a nested cohort of 2184 AGYW aged 13–22 years, enrolled in 2017 and $n = 3064$ young people aged 13–35 enrolled in 2018. We recruited the 13–22 AGYW nested cohort to age into 15–24 over two years for the purposes of the DREAMS impact evaluation.

Interviews were conducted between 2017, 2018 and 2019 in the local language isiZulu using a structured quantitative questionnaire programmed in REDCap (Harris et al., 2009). The interview included questions on socio-demographics, general health, exposure to DREAMS interventions, sexual behaviour and history. Questions to assess levels of hope among young people living in this high HIV prevalence setting, in the context of combination HIV prevention interventions roll-out, were embedded in the evaluation surveys in the follow-up in 2019. The hope questions focussed on how AYA think about themselves and how they generally do things.

Measures

There were two outcomes. The primary outcome of interest was a Hope score. The outcome was based on endline follow-up data (2019). The scale was based on work we did in 2016–2017 in the same study area to investigate young people's understandings and experiences of hope, in relation to sexual risk behaviour (Desmond et al., 2019). We began with the Snyder Hope Scale (Snyder et al., 1996) – which had been validated for use in South Africa (Boyce & Harris, 2013). We conducted a qualitative methods study to check the cognitive understanding of the statements and concepts used in the original scale. As we explain in Desmond et al. (2019), our concern was that the Snyder Hope Scale focussed on hope as an individual construct, rather than a collective, shared concept, a concern also expressed by other researchers studying hope in Africa (Abler et al., 2017; Hansen et al., 2020). We found that the young people we interviewed 'often focussed on the future, on how to make it better than the past, and on their ability to influence the future, as factors shaping risk related decisions'. (p.6). In contrast, the focus of the Snyder scale looked at how past experiences might prepare individuals for current challenges. We therefore reframed the hope scale around a focus on the future, incorporating the young people's idea of hope being in someone or something associated with positive future changes.

The instrument consisted of eight questions with a five-point Likert scale. The response options included strongly agree (5), agree (4), not sure (3), disagree (2) and strongly disagree (1). As item scores range from one to five, the hope total score ranges from a possible minimum of eight to a maximum of 40, indicating the highest level of hope. The hope score was calculated as the sum of the relevant eight item scores, with higher scores indicating greater individual hope. The statements used to generate the Hope score are as follows:

(a) I generally feel hopeful about my future.
(b) The future will take care of itself.
(c) Having hope helps me cope with day-to-day challenges.
(d) I have set long-term goals for my life.
(e) I believe that if I work hard today, I can achieve my long-term goals.
(f) I am confident that I can get the things that I hope for.
(g) It is easy for me to stick to my aims and accomplish my goals.
(h) I am confident that I could deal efficiently with unexpected events.

The secondary outcome was migration. Migration status was defined as having ever moved in or out of the demographic surveillance area in the past year.

The explanatory variables of interest included in the analysis encompass socio-demographic characteristics such as age, sex, a composite variable of education and employment categorised as still in school, out of school and not matriculated, out of school and matriculated but unemployed, and out of school, matriculated and employed. Other variables included migration, geographic location (rural or urban) and food insecurity which was defined as any report of skipping meals due to insufficient funds to buy food in the past 12 months.

Behavioural characteristics included the use of condoms in the past three months, engagement in transactional sex or commercial sex work (Kyegombe et al., 2021) in the past 12 months. This was based on answering yes to any of the following questions that have been validated in our setting (Wambiya et al., 2023): 'Having sex with anyone because you needed (or your partner provided) a material item that was important to you in the past 12 months' and/or 'having sex with other people for a living' (for women), In the past 12 months, have you provided a woman who is not a sex worker with help for sex? and/or have you paid for sex (for men), smoking and alcohol use.

Other characteristics comprised: the HIV status of the participant which was based on the dried blood spot (DBS) samples which were taken for HIV testing and the experience of common mental disorders (CMD), which were assessed using the validated 14-item Shona Symptom Questionnaire (Mthiyane et al., 2021; Patel et al., 1997). A cut-off score of $\geq$ nine indicated the experience of CMD. All explanatory variables were measured at baseline in 2017 and 2018.

Statistical analysis

First, we summarised the socio-demographic, behavioural, and clinical features of young people. We assessed the distribution of the hope score using gender-stratified histograms. The reliability of the hope score was evaluated using Cronbach's alpha. Linear regression was employed to estimate the mean difference in the hope score based on socio-demographic, behavioural and clinical characteristics of interest. We conducted a multivariable linear regression to estimate the adjusted mean difference in the hope score for the identified characteristics, controlling for socio-demographic participant variables including sex, age, education and employment composite variable, food insecurity and geographical location.

Additionally, we conducted a secondary analysis to determine the factors associated with migration. We used logistic regression to determine the factors associated with migration and this association was quantified using odds ratios (OR) and 95% confidence intervals (CI) adjusting for socio-demographic characteristics of the participants including sex, age, education and employment composite variable, food insecurity and geographical location. We also assessed whether the association between hope score and migration differs by age and sex. We fitted a linear regression model with the hope score as the outcome and included an interaction term between migration, age and sex. All statistical analyses were conducted in R software.

Ethics

The DREAMS Partnership impact evaluation protocol was approved by the AHRI Somkhele Community Advisory Board, the University of KwaZulu-Natal Biomedical Research Ethics Committee (BFC339/19), the London School of Hygiene & Tropical Medicine Research Ethics Committee (REF11835) and University College London (18321/001). For participants aged below 18 years, written parental consent and participant assent was obtained prior to participating; participants aged 18 years or older provided written consent.

Results

Participants

Figure 1 indicates the recruitment and follow-up of participants into the study. Out of those eligible, 5248 individuals (83.7%) agreed to participate in the study. Among them, 2184 were enrolled in 2017, and 3064 were enrolled in 2018. A total of 4104 AYA were retained in 2019 and 4098 (99.9%) were included in the analysis. Among the cohort enrolled in 2017, 1712 individuals (78.4%) were retained during the second-year follow-up while for the cohort enrolled in 2018, and 2392 individuals (78.1%) were retained in the second year of follow-up (Figure 1).

Description of participants

Among the 4098 young people who were followed up in 2019, 52.6% (2157/4098) were female and 47.4% (1941/4098) were male. The median age was 18 years. Mobility was similar between men and women with 35.4% having migrated in the past year. Forty-four percent were aged between 13 and 17 years, 63.0% were still in school, 66.0% resided in the rural areas, 26.2% self-reported food insecurity, 16.2% screened positive for CMD and 17% were living with HIV. Table 1 provides a description of the characteristics of the young people both overall and stratified by sex.

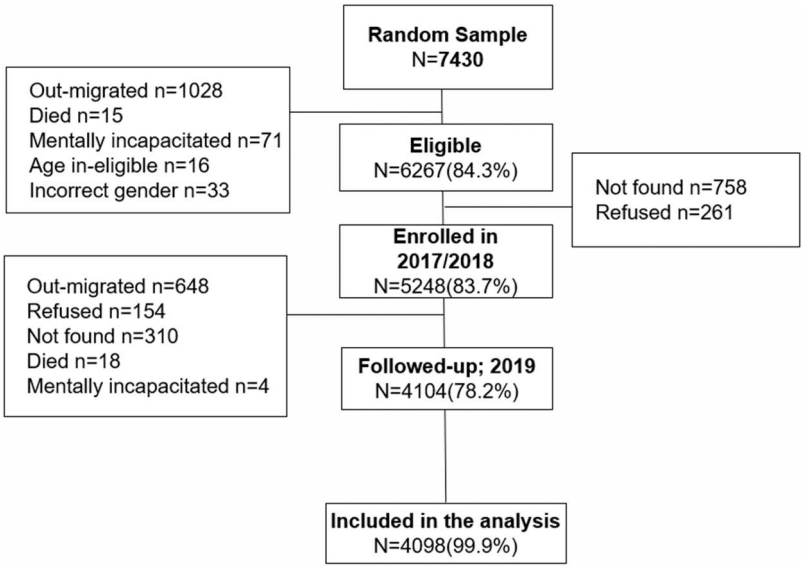

Figure 1. Flow chart of recruitment and follow-up 2017–2019.

Table 1. Descriptive summary of socio-demographic, sexual behavior and clinical features among young people.

Characteristic	Overall $N = 4098$[1]	Sex		p-value[2]
		Women, $N = 2157$[1]	Men, $N = 19411$	
Participant age	18.0 (15.0, 23.0)	18.0 (15.0, 22.0)	18.0 (16.0, 25.0)	<0.001
Ever migrated in the past year				0.700
Never migrated	2606 (64.6%)	1384 (64.9%)	1222 (64.3%)	
Ever migrated	1427 (35.4%)	749 (35.1%)	678 (35.7%)	
Age categories				<0.001
13–17	1803 (44.0%)	971 (45.0%)	832 (42.9%)	
18–24	1394 (34.0%)	780 (36.2%)	614 (31.6%)	
25+	901 (22.0%)	406 (18.8%)	495 (25.5%)	
School & employment composite variable				<0.001
Still in school	2577 (63.0%)	1368 (63.5%)	1209 (62.4%)	
Out of school and not matriculated	622 (15.2%)	302 (14.0%)	320 (16.5%)	
Out of school, matriculated and unemployed	635 (15.5%)	399 (18.5%)	236 (12.2%)	
Out of school, matriculated and employed	257 (6.3%)	84 (3.9%)	173 (8.9%)	
Location				<0.001
Rural	2703 (66.0%)	1529 (70.9%)	1174 (60.5%)	
Peri-Urban or Urban	1394 (34.0%)	627 (29.1%)	767 (39.5%)	
Food insecurity				<0.001
No	3020 (73.8%)	1508 (70.1%)	1512 (78.0%)	
Yes	1070 (26.2%)	644 (29.9%)	426 (22.0%)	
Consistent condom use				0.010
No	3225 (78.7%)	1731 (80.3%)	1494 (77.0%)	
Yes	872 (21.3%)	425 (19.7%)	447 (23.0%)	
Transactional sex				0.800
No	3885 (94.8%)	2043 (94.7%)	1842 (94.9%)	
Yes	213 (5.2%)	114 (5.3%)	99 (5.1%)	
Experienced violence				<0.001
No	2604 (63.5%)	1440 (66.8%)	1164 (60.0%)	
Yes	1494 (36.5%)	717 (33.2%)	777 (40.0%)	
Ever smoked cigarettes				<0.001
No	3599 (88.0%)	2086 (96.9%)	1513 (78.1%)	
Yes	492 (12.0%)	67 (3.1%)	425 (21.9%)	
Alcohol use				<0.001
No	2486 (60.8%)	1568 (72.9%)	918 (47.3%)	
Yes	1605 (39.2%)	584 (27.1%)	1021 (52.7%)	
Common mental disorders				<0.001
No	3434 (83.8%)	1716 (79.6%)	1718 (88.5%)	
Yes	664 (16.2%)	441 (20.4%)	223 (11.5%)	
HIV Status				<0.001
Negative	3344 (81.6%)	1730 (80.2%)	1614 (83.2%)	
Living with HIV	575 (14.0%)	381 (17.7%)	194 (10.0%)	
Unknown	179 (4.4%)	46 (2.1%)	133 (6.9%)	

[1]Median (IQR); *n* (%).
[2]Wilcoxon rank sum test; Pearson's Chi-squared test.

Men and women had significant differences in the following areas. Men were more likely than women to be employed (8.9% compared to 3.9%); live in an urban setting (39.5% compared to 29.1%), smoke (21.9% compared to 3.1%), and report drinking alcohol (52.7% compared 27.1%). Women were more likely to report food insecurity (29.9% compared 22.0%), CMD (20.4% compared to 11.5%) and living with HIV (17.7% compared to 10%). Overall, experience of violence was high among young people, and higher among men than women. Buying or selling sex was similar between men and women (5.2%) (Table 1).

Table 2 presents a summary of responses to the eight hope statements. The findings reveal a high level of agreement regarding the positively framed statements, with more than 80% either agreeing or strongly agreeing with these. Conversely, there is a substantial level of disagreement among participants regarding the statement which suggests a lack of control over one's future – `The future will take care of itself' – with 42% either disagreeing or strongly disagreeing with it, and 50% agreeing or strongly agreeing with it.

Table 2. Descriptive summary of hope questions.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
The future will take care of itself	11%	31%	7.8%	43%	7.5%
I am generally feeling hopeful about my future	0.2%	1.2%	3.8%	67%	27%
Having hope helps me cope with day-to-day challenges	0.4%	1.6%	4.3%	72%	22%
I am confident that I can get the things that I hope for	0.4%	2.4%	7.2%	72%	18%
It is easy for me to stick to my aims and accomplish my goals	0.7%	4.2%	8.0%	71%	16%
I believe that if I work hard today, I can achieve my long-term goals	0.2%	1.3%	4.6%	72%	22%
I have set long-term goals for my life	0.2%	1.8%	3.2%	72%	23%
I am confident that I could deal efficiently with unexpected events	0.8%	2.5%	9.0%	73%	15%

Distribution of the hope score

Histograms showing the hope total scores, and the score stratified by gender, are shown in Figure 2. The mean hope total score was 31.7 and the mean hope score was slightly higher among males (31.9) compared to females (31.5) ($p < 0.001$). Overall, 99% of scores are concentrated in the range of the scale that is above 21, the mid-point between least and most hopeful. The Bartlett test of sphericity for the hope score items was highly significant ($p < 0.001$), indicating homogeneity of variance by items. The overall Cronbach's alpha (α) was 0.76 and was 0.77 among males and 0.74 among females which indicates a good reliability of the total hope scale both overall and when stratified by gender.

Factors associated with hope.

In the unadjusted model, the mean hope score was 0.13 lower for young people who had ever migrated compared to those who had never migrated −0.13(95%CI; −0.35,0.09), however there was no evidence of a statistically significant difference in mean hope score between the two groups

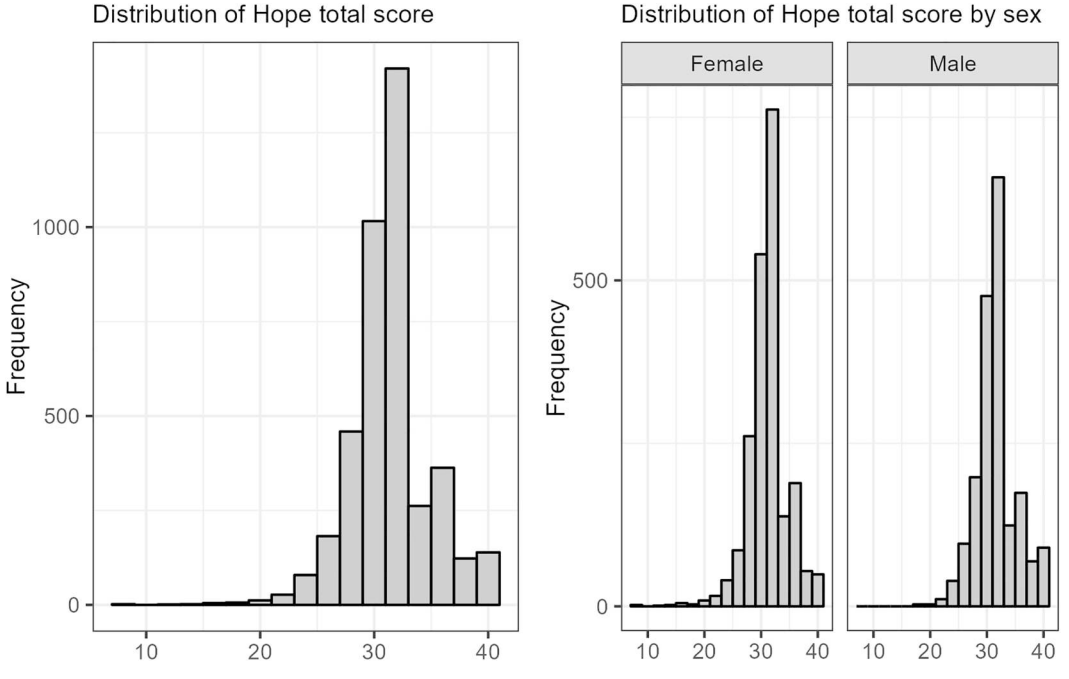

Figure 2. Distribution of the hope score, overall and by gender.

($p = 0.250$). In the unadjusted model, there was strong evidence of an association with being female, out of school and not matriculated, older age, food insecurity, alcohol use, smoking cigarettes, violence, and common mental disorders and a lower hope score.

In the adjusted model, after adjusting for age, sex, food insecurity, education and employment and location there was no evidence of a difference in the mean hope score between those who had ever migrated and those who never migrated. In the adjusted model there remained strong evidence of an association between being female, out of school and not matriculated, food insecure, living in a peri-urban or urban area, experience of violence, smoking cigarettes and a lower hope score (Table 3).

The mean hope score was 0.43 lower for females compared to males −0.43(95%CI; −0.64, −0.21) and the mean score was 0.72 lower for those out of school and not matriculated compared to those

Table 3. Factors associated with hope score among young people.

Characteristic	**Overall $N = 4098$[1]	Univariable model		Multivariable model	
		Coefficient (95%CI)	*p*-value	Coefficient (95%CI)[2]	*p*-value
Ever migrated in the past year			0.260		0.885
Never migrated	31.76 (3.40)	Ref		Ref	
Ever migrated	31.63 (3.51)	−0.13(−0.35, 0.09)		−0.02(−0.25, 0.21)	
Age categories			**<0.001**		0.103
13–17	31.93 (3.46)	Ref		Ref	
18–24	31.58 (3.38)	−0.35(−0.59, −0.11)		−0.26(−0.55, 0.02)	
25+	31.36 (3.63)	−0.58(−0.86, −0.30)		−0.45(−0.89, −0.01)	
Sex			**<0.001**		**<0.001**
Male	31.89 (3.50)	Ref		Ref	
Female	31.51 (3.45)	−0.38(−0.59, −0.17)		−0.43(−0.64, −0.21)	
School & employment composite variable			**<0.001**		**<0.001**
Still in school	31.85 (3.39)	Ref		Ref	
Out of school and not matriculated	30.81 (3.70)	−1.04(−1.35, −0.74)		−0.72(−1.1, −0.32)	
Out of school, matriculated and unemployed	31.80 (3.54)	−0.05(−0.35, 0.25)		0.29(−0.11, 0.68)	
Out of school, matriculated and employed	31.95 (3.31)	0.09(−0.35, 0.54)		0.35(−0.20, 0.91)	
Location			0.065		**0.041**
Rural	31.76 (3.42)	Ref		Ref	
Peri-Urban or Urban	31.55 (3.58)	−0.21(−0.44, 0.01)		−0.24(−0.46, −0.01)	
Food insecurity			**<0.001**		**0.016**
No	31.80 (3.47)	Ref		Ref	
Yes	31.36 (3.45)	−0.43(−0.68, −0.19)		−0.30(−0.55, −0.06)	
Consistent condom use			0.984		0.099
No	31.68 (3.48)	Ref		Ref	
Yes	31.69 (3.46)	0.00(−0.26, 0.26)		0.23(−0.04, 0.51)	
Transactional sex			0.426		0.807
No	31.70 (3.48)	Ref		Ref	
Yes	31.50 (3.45)	−0.19(−0.67, 0.28)		0.06(−0.42, 0.54)	
Experience of Gender-based violence (GBV)			**0.022**		**0.012**
No	31.78 (3.52)	Ref		Ref	
Yes	31.52 (3.40)	−0.26(−0.48, −0.04)		−0.28(−0.50, −0.06)	
Ever smoked cigarette			**0.011**		**0.047**
No	31.73 (3.48)	Ref		Ref	
Yes	31.31 (3.42)	−0.42(−0.75, −0.10)		−0.36(−0.72, −0.01)	
Alcohol use			**0.020**		0.054
No	31.78 (3.45)	Ref		Ref	
Yes	31.52 (3.49)	−0.26(−0.48, −0.04)		−0.23(−0.46, 0.00)	
Common mental disorders			**0.047**		0.481
No	31.73 (3.50)	Ref		Ref	
Yes	31.44 (3.34)	−0.29(−0.58, 0.00)		−0.11(−0.40, 0.19)	
HIV status			0.128		0.809
Negative	31.72 (3.46)	Ref		Ref	
Living with HIV	31.42 (3.57)	−0.30(−0.61, 0.01)		0.08(−0.25, 0.40)	
Unknown	31.85 (3.41)	0.13(−0.39, 0.65)		0.14(−0.39, 0.67)	

[1]Mean (SD).
[2]CI = Confidence Interval.
Adjusted model; adjusted for age, gender, education & employment, food insecurity, location.

in school −0.72(95%CI; −1.1, −0.32). The mean hope score was 0.24 lower for those who resided in peri-urban or urban areas than those who resided in rural areas −0.24(95%CI; −0.46, −0.01) and those who had ever smoked cigarettes had 0.36 lower mean hope score compared to those who never smoked cigarettes −0.36(95%CI; −0.72, −0.01). Young people who experienced any form of violence had a mean hope score which was 0.28 lower than those who did not experience violence −0.28(95%CI: −0.50, −0.06) (Table 3).

Factors associated with hope score stratified by sex

Among men, the mean hope score was 0.84 lower for those aged over 25 years, compared to those aged 13–17 −0.83(95%CI; −1.50, −0.16) and the mean hope score was 0.49 lower for those who resided in peri-urban or urban areas than those who resided in rural areas −0.49(95%CI; −0.81, −0.17). Men who experienced any form of violence had a mean hope score which was 0.48 lower than those who did not experience violence −0.46(95%CI:−0.77, −0.14).

Among women, the mean hope score was 0.99 lower for those who were out of school and not matriculated compared to those in school −0.99(95%CI; −1.50, −0.45) and the mean hope score was 0.34 lower for those who ever used alcohol compared to those who did not use alcohol −0.34(95%CI:−0.67, −0.01). The mean hope score 0.43 higher for women who used condoms consistently compared to those who did not use condoms consistently 0.43(95%CI: 0.04, 0.82). (Table 4).

Factors associated with migration among AYA

There was strong evidence of an association of older age with migration (adjusted (a)OR = 3.00, 95%CI = 2.28,3.96) comparing AGYW aged 25 years and above with those aged 13–17 years. There was also strong evidence of an association between education and employment and migration, with AYA who were out of school and matriculated and unemployed or employed more likely to migrate compared to those in school (aOR = 1.60, 95%CI; 1.25, 2.05) and (aOR = 1.85, 95%CI; 1.32, 2.59). AYA who were food insecure were more likely to migrate (aOR = 1.23, 95%CI; 1.05, 1.43). Other covariates associated with migration were having used alcohol and smoking (aOR = 1.18, 95%CI; 1.02,1.37) and (aOR = 1.75, 95%CI; 1.40,2.18) respectively, experience of gender-based violence (aOR = 1.19, 95%CI; 1.04, 1.37), and experience of CMD (aOR = 1.37, 95%CI; 1.10, 1.59) (Table 5).

Association between hope score and migration by age and sex.

We investigated whether the association between the hope score and migration differs by age and sex. The mean hope score was 0.25 lower for those who had ever migrated among females aged 13–17 years −0.25(95%CI; −0.71, 0.23) and 0.18 lower among males in the same age group −0.18(95% CI; −0.76,0.40). However, there was no evidence of a difference in the mean hope score between the those who had ever migrated and those who had never migrated among females and males aged 13-17. There was also no evidence of a difference in the mean hope score between those who had ever migrated and those who had never migrated among females and males aged 18–24 years and those above 25 years (Figure 3).

Discussion

In this representative sample of adolescents and young men and women living in uMkhanyakude, a rural area of KwaZulu-Natal where one in three has ever migrated, we did not find an association between mobility and hope. We did find a high level of social deprivation, particularly amongst those who had migrated: one in four experienced food insecurity and one in three experienced

Table 4. Factors associated with hope score among men and women.

Characteristic	Overall: Men $N = 1941$[1]	Multivariable model Coefficient (95%CI)[2]		Overall: Women $N = 2157$[1]	Multivariable model Coefficient (95%CI)[2]	*p*-value
Ever migrated in the past year			0.912			0.725
Never migrated	31.98 (3.53)	Ref		31.56 (3.27)	Ref	
Ever migrated	31.81 (3.40)	0.02(−0.32, 0.36)		31.46 (3.61)	−0.06(−0.37, 0.26)	
Age categories			**0.048**			0.688
13–17	32.21 (3.64)	Ref		31.70 (3.28)	Ref	
18–24	31.88 (3.33)	−0.37(−0.79, 0.05)		31.35 (3.40)	−0.17(−0.57, 0.22)	
25+	31.36 (3.41)	−0.83(−1.50, −0.16)		31.35 (3.88)	−0.18(−0.77, 0.42)	
School & employment composite variable			0.023			**<0.001**
Still in school	32.09 (3.53)	Ref		31.64 (3.25)	Ref	
Out of school and not matriculated	31.10 (3.55)	−0.36(−0.99, 0.27)		30.50 (3.84)	−0.99(−1.50, −0.45)	
Out of school, matriculated and unemployed	31.96 (3.51)	0.44(−0.19, 1.07)		31.70 (3.56)	0.19(−0.32, 0.70)	
Out of school, matriculated and employed	31.86 (2.93)	0.45(−0.30, 1.19)		32.12 (3.99)	0.58(−0.30, 1.50)	
Location			**0.003**			0.796
Rural	32.10 (3.56)	Ref		31.50 (3.28)	Ref	
Peri-Urban or Urban	31.56 (3.37)	−0.49(−0.81, −0.17)		31.52 (3.83)	0.04(−0.28, 0.36)	
Food insecurity			0.123			0.078
No	31.98 (3.53)	Ref		31.62 (3.41)	Ref	
Yes	31.57 (3.34)	−0.30(−0.67, 0.08)		31.23 (3.51)	−0.29(−0.62, 0.03)	
Consistent condom use			0.854			**0.030**
No	31.94 (3.54)	Ref		31.47 (3.41)	Ref	
Yes	31.72 (3.35)	0.04(−0.36, 0.44)		31.65 (3.56)	0.43(0.04, 0.82)	
Transactional sex			0.808			0.860
No	31.89 (3.49)	Ref		31.52 (3.45)	Ref	
Yes	31.74 (3.61)	0.09(−0.62, 0.80)		31.30 (3.31)	0.06(−0.60, 0.72)	
Experience of Gender-based violence(GBV)			**0.005**			0.495
No	32.06 (3.52)	Ref		31.56 (3.50)	Ref	
Yes	31.63 (3.44)	−0.46(−0.77, −0.14)		31.41 (3.34)	−0.11(−0.42, 0.20)	
Ever smoked cigarette			0.054			0.953
No	32.06 (3.49)	Ref		31.50 (3.45)	Ref	
Yes	31.28 (3.47)	−0.41(−0.82, 0.01)		31.49 (3.13)	0.03(−0.82, 0.87)	
Alcohol use			0.526			**0.043**
No	32.08 (3.52)	Ref		31.61 (3.40)	Ref	
Yes	31.71 (3.47)	−0.11(−0.45, 0.23)		31.20 (3.51)	−0.34(−0.67, −0.01)	
Common mental disorders			0.439			0.699
No	31.93 (3.51)	Ref		31.53 (3.48)	Ref	
Yes	31.52 (3.35)	−0.19(−0.69, 0.30)		31.40 (3.34)	−0.07(−0.44, 0.29)	
HIV status			0.827			0.908
Negative	31.92 (3.52)	Ref		31.54 (3.40)	Ref	
Living with HIV	31.56 (3.42)	0.04(−0.51, 0.59)		31.35 (3.64)	0.09(−0.32, 0.50)	
Unknown	31.95 (3.38)	0.20(−0.43, 0.82)		31.59 (3.52)	0.02(−1.0, 1.0)	

[1]Mean (SD).
[2]CI = Confidence Interval.
Adjusted model; adjusted for age, gender, education & employment, food insecurity, location.

violence. We found strong evidence for an association between these structural factors and less hope, including being a woman, being out of school and not matriculated, poverty, experience of violence and living in more urban areas. In relation to risky health related behaviours, 14% of this study population were living with HIV. After adjustment, lower levels of hope were associated with cigarette and alcohol use, but were not associated with HIV, common mental disorders, or risky sexual behaviours (condom-less sex or transactional sex). There was a similarly strong relationship between mobility and structural factors (being out of school and not matriculated, unemployment, poverty, experience of violence, CMD, alcohol and smoking).

Table 5. Factors associated with migration among young people.

Characteristic	Overall Ever migrated, $N = 1427$ (35%)[1]	Univariable model Coefficient (95% CI)[2]	*p*-value	Multivariable model OR (95%CI)[2]	*p*-value
Age categories			**<0.001**		**<0.001**
13–17	458 (25.7%)	Ref		Ref	
18–24	437 (31.8%)	1.34(1.15, 1.57)		1.08(0.90, 1.31)	
25+	532 (60.5%)	4.42(3.73, 5.26)		3.00(2.28, 3.96)	
Sex			0.706		0.418
Male	678 (35.7%)	Ref		Ref	
Female	749 (35.1%)	0.98(0.86, 1.11)		1.06(0.92, 1.22)	
School & employment composite variable			**<0.001**		**<0.001**
Still in school	674 (26.5%)	Ref		Ref	
Out of school and not matriculated	285 (47.1%)	2.47(2.06, 2.96)		1.27(0.99, 1.64)	
Out of school, matriculated and unemployed	314 (50.3%)	2.81(2.35, 3.36)		1.60(1.25, 2.05)	
Out of school, matriculated and employed	152 (59.6%)	4.09(3.14, 5.34)		1.85(1.32, 2.59)	
Location			**0.017**		0.916
Rural	912 (34.1%)	Ref		Ref	
Peri-Urban or Urban	515 (37.9%)	1.18(1.03, 1.35)		1.01(0.87, 1.16)	
Food insecurity			**0.022**		**0.009**
No	1022 (34.4%)	Ref		Ref	
Yes	403 (38.3%)	1.19(1.02, 1.37)		1.23(1.05, 1.43)	
Transactional sex			**0.007**		0.415
No	1335 (34.9%)	Ref		Ref	
Yes	92 (44.2%)	1.48(1.11, 1.96)		1.13(0.84, 1.53)	
Experience of Gender-based violence (GBV)			0.192		**0.015**
No	886 (34.6%)	Ref		Ref	
Yes	541 (36.7%)	1.09(0.96, 1.25)		1.19(1.04, 1.37)	
Ever smoked cigarette			**<0.001**		**<0.001**
No	1164 (32.8%)	Ref		Ref	
Yes	259 (53.8%)	2.39(1.97, 2.89)		1.75(1.40, 2.18)	
Alcohol use			**<0.001**		**0.029**
No	772 (31.5%)	Ref		Ref	
Yes	650 (41.3%)	1.53(1.34, 1.74)		1.18(1.02, 1.37)	
Common mental disorders			**<0.001**		**0.003**
No	1150 (34.0%)	Ref		Ref	
Yes	277 (42.3%)	1.42(1.20, 1.68)		1.33(1.10, 1.59)	
HIV status			**<0.001**		0.321
Negative	1085 (32.9%)	Ref		Ref	
Living with HIV	269 (48.3%)	1.91(1.59, 2.29)		1.13(0.93, 1.39)	
Unknown	73 (41.5%)	1.45(1.06, 1.97)		0.88(0.63, 1.23)	

[1]*n* (%).
[2]OR = Odds Ratio.
Adjusted model; adjusted for age, gender, education & employment, food insecurity, location.

We found an overall high hope score and level of agreement of hope scores among young people in this setting. This may reflect the general cultural and positive outlook on life that young people have which may be influenced by the social values and traditions that these predominantly rural and conservative community members hold.

Previous studies have shown that people who move for work or study are aspirational, may improve their life chances and thus have potentially more 'hope' in their future (Kleist & Thorsen, 2017; Seeley et al., 2023; Vigh, 2009; Walker & Mathebula, 2020). In this rural setting we did not find that this was the case. This may partly reflect that we included both those who had moved away from their homes and those who had moved back to their homes and so any improvements in life chances from mobility may have been diluted when those who have been disappointed (Dako-Gyeke, 2016) returning to a setting where youth unemployment is high (Chimbindi et al., 2018). Also, we found that many of the structural factors associated

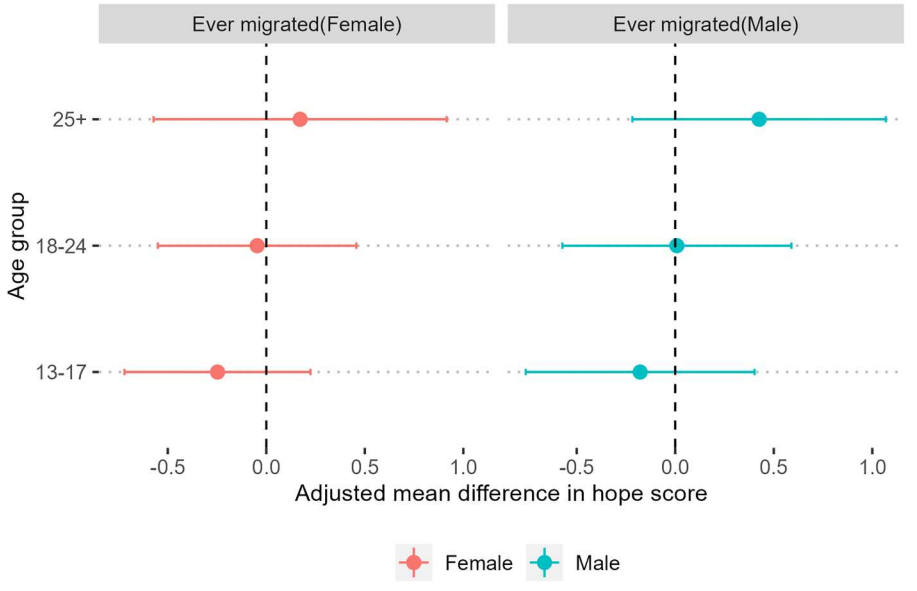

Figure 3. Association between hope score and migration by age and sex.

with less hope (being out of school and not matriculated, unemployment, poverty, experience of violence) were also more common amongst those who migrated, suggesting that the structural vulnerabilities, and thus hope, of AYA were not resolved by mobility. This is in keeping with qualitative findings from our setting that have shown the urban and peri-urban areas that young people move to find work or study are more violent and less socially cohesive places where they feel isolated and bereft of the social networks they left behind (Ngwenya et al., 2023; Zuma et al., 2021). This may suggest that mobility in this population of AYA does not enhance life chances and thus hope.

Other research has pointed to the relationship between structural factors such as poverty, limited secondary school education and high levels of violence and insecurity, especially for women, being associated with less hope (Bryant & Ellard, 2015; Mkwananzi & Wilson-Strydom, 2018; Theron, 2016). Our findings emphasise the critical importance of wider structural interventions for improving the life chance of adolescents and young adults through education, employment and livelihoods. We found that being a woman is associated with significantly less hope, even after adjusting for other structural factors. This is in keeping with the wider feminist literature that emphasises the different ways that gender norms impact on young women's experience of violence and life chances and expectations for the future (Bhana & Anderson, 2013; Chimbindi et al., 2020; Gibbs et al., 2012). This emphasises that any interventions to improve life chances for AYA will need to be delivered through a gendered lens, and also tackle harmful gender norms, gender-based violence and sexual reproductive health rights (Jewkes et al., 2014; Levy et al., 2020).

Whilst our findings did not show that less hope was associated with riskier sexual behaviours, we did find that smoking and alcohol use were associated with less hope. This mirrors qualitative findings of work with mobile AYA that showed that they were more likely to engage in smoking and drinking from boredom (Bernays et al., 2020; Danya & Eileen, 2018; Ngwenya et al., 2023). Most young people who migrate for better schools live alone in rented rooms. These rooms act as boarding houses and these AYA often engage in risky behaviours such smoking, alcohol and drug misuse and transactional sex (Dlamini et al., 2023; Mfeka-Nkabinde et al., 2023). These behaviours were reported to have increased during the COVID-19 pandemic because they were adopted

as a way to cope with the anxiety and uncertainty during that time. Chimbindi and colleagues (2023) show how understanding the complex relationship between hope and health behaviours for adolescents can inform sexual and reproductive interventions that address how young people understand themselves, their perception of risk and their future.

Strengths and limitations

The strength of our study was our ability to prospectively measure the association between mobility and the other explanatory factors and a validated measure of hope in a representative sample of adolescents and youth. With an over 80% response rate and over 99% contributing to the outcome we are confident that our sample is representative of the experience of AYA in this poor rural community of South Africa. However, our study was observational, and we did not include the direction of mobility, nor the type and reason for mobility in our exposure and so we cannot exclude the possibility that mobility for work or for education would have a positive impact on hope. Another limitation is that we did not track 'dose' of mobility as an exposure and counted any mobility over the past 12 months as an exposure. A further limitation is the challenge of measuring hope with a scale (Pleeging, 2022), complementary qualitative methods research can provide a more nuanced understanding of this concept in the study setting (Desmond et al., 2019).

Conclusions and implications for the future

In this representative sample of AYA in a rural and poor community of South Africa, we did not find an association between mobility and hope. Young women, who were living in poverty, had left school without matriculating, had experienced violence, and were residing in small urban and peri-urban areas had less hope. Mobility itself was associated with these structural factors. This suggests a need for more fundamental structural interventions that improve retention in education, employment and livelihood, whilst tackling gender norms and reduce gender-based violence for older adolescents and youth. Building social capital, support and opportunities for the growing number of AYA moving to peri-urban and urban areas in search of work, education and better life is crucial for the future wellbeing of AYA.

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Author contributions

F.M. and N.C. prepared the first draft. K.B., T.Z., M.S. and J.S. reviewed drafts and contributed to the analysis and writing. All authors approved the final version of this paper.

Data availability statement

The data associated with this paper can be accessed from the analytical datasets through the AHRI data repository https://data.ahri.org/index.php.home

Disclosure statement

No potential conflict of interest was reported by the author(s).

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