National Research Foundation

SCiENCE MaTTERS

Vol:8 | ISSUE:1

Job turnover:
Good or bad for business?

Uncovering the talent policy gaps

Looking beyond averages for depression

First aid training & teachers' mental health

What's holding back our Grade 8s and 9s?



RURAL VS URBAN EMPLOYMENT

SOUTH AFRICAN NATIONAL SCIENCE MONTH

Science, technology and innovation are for everyone



Minister
Prof. Blade Nzimande

1 – 31 JULY 2026

National launch event:
Vaal University of Technology
Sebokeng
4 July 2026

Focus month:
Nationwide
1 – 31 July 2026

Participation guidelines for National Science Month: www.saasta.ac.za

Making sure it's possible

science, technology & innovation
Department:
Science, Technology and Innovation
REPUBLIC OF SOUTH AFRICA

NRF National Research Foundation | SAASTA South African Agency for Science and Technology Advancement

2030 NDP


GETTY IMAGES

CONTENTS PAGE

Creative Destruction or Just a Reshuffle? Turnover among businesses and jobs in South Africa 2

Attracting and Retaining Talent in South African Cities: A missing strategy for growth 4

Understanding depressive symptoms among South African youth 6

Effects of First Aid Training on Teachers' Mental Health, Knowledge, and Skills 8

Factors Contributing to the Underperformance of Grades 8 and 9 Learners in South Africa 10

Striking Disparities in Employment Across South Africa: Evidence from a new spatial dataset 12

Hidden Health Challenges And Youth Employment Initiatives 16

The Not Talking Is Actually What Kills You 18

Understanding Mental Health Stigma: The experiences of mothers raising children with attention-deficit/hyperactivity disorder 20

Business Incubation Supports Youth Start-Up Enterprises in Mpumalanga 23

SCiENCE MaTTERS

Welcome to the first edition issue of the eighth volume of the National Research Foundation (NRF) Science Matters magazine. This magazine aims to bring you a collection of insightful research articles that address the region's pressing social, environmental, and technological challenges.

This issue explores the factors that shape the wellbeing, development, and future opportunities of South Africans, particularly young people. The featured research article examines learner performance, youth mental health, and the role of teachers in supporting wellbeing within schools. This issue also investigates how cities attract and retain skilled talent; how jobs and businesses are created and lost; and how employment opportunities remain unevenly distributed across the country. Together, these studies highlight the complex challenges affecting education, wellbeing, skills development, and economic opportunity, and offers valuable insights into the conditions needed for young people and communities to thrive.

The NRF would like to thank all the researchers who generously shared their research for this issue of Science Matters, allowing us to showcase the unique perspective of South African scientists and how they make a difference every day.

SCiENCE MaTTERS is produced by:
NRF Corporate Communications Office
Meiring Naude Road, Brummeria, Pretoria
Email: sciencematters@nrf.ac.za
Web: www.nrf.ac.za/science-matters-magazine/

DISCLAIMER: The views expressed in this publication are not necessarily the views of the National Research Foundation or its management or governance structures.

National Research Foundation

CREATIVE DESTRUCTION OR JUST A RESHUFFLE?

Turnover among businesses and jobs in South Africa



The concept of creative destruction explains how the continuous entry and exit of firms drives innovation, productivity, and economic growth. At the same time, this process can result in job losses and firm closures. In South Africa, there are ongoing concerns that the economy lacks dynamism, with claims that business turnover is limited.

There is little evidence on whether businesses and jobs are truly stagnant or whether significant underlying changes are taking place. Most economic analysis focuses on total employment levels rather than shifts in jobs and firms. This makes it difficult to understand whether economic restructuring contributes to growth or simply redistributes existing activity.

A recent study co-funded by the NRF uses administrative tax data from the National Treasury Secure Data Facility to analyse business and job flows in South Africa between 2015 and 2022. The dataset covers approximately 10.4 million employees and 438 000 employer establishments per year. It measures firm births and deaths, branch openings and closures, as well as job creation and job destruction. The analysis includes both firm-level and branch-level dynamics to assess the extent of business turnover and labour market churn in the country.

The findings show that job reallocation rates are approximately 23.9% per year. This means that nearly a quarter of jobs are reshuffled annually. Despite this high level of activity, overall employment growth remains low.

Key findings from the study include the following:

- South Africa has high levels of business and job churn, comparable to international benchmarks
- The firm birth rate is approximately 11% per year, while the firm death rate is 7.3%
- The job reallocation rate is 23.9%, which indicates significant labour market movement
- Business turnover at branch level is high, reaching 32.5% annually
- Job creation and job destruction largely cancel each other out, which results in low net growth

- Most job changes occur within existing firms, accounting for more than 70% of job flows
- New firm formation contributes only a small share of net job growth—around 2.8%
- Overall employment growth is weak, increasing by about 1% per year
- The COVID-19 period led to a sharp increase in firm closures and job losses
- Sectoral changes have not increased the share of tradable industries—an indication of limited structural transformation

There is substantial movement of firms and workers, which suggests a more dynamic system than commonly assumed.

The findings challenge the view that South Africa's economy is stagnant. There is substantial movement of firms and workers, which suggests a more dynamic system than commonly assumed.

However, this activity does not lead to strong economic growth. Instead of driving expansion, firm entry and exit mainly reshuffle existing jobs and businesses. Job gains from new firms are often offset by job losses from firm closures.

The study also shows that most job creation comes from existing firms rather than new ones. This happens through branch expansion and changes within firms. Smaller firms experience higher turnover, but this does not translate into sustained job growth.

Geographically, metropolitan areas show the highest levels of dynamism, with higher rates of job reallocation. However, these areas do not achieve strong job growth. Jobs lost through firm closures often exceed jobs created through new firms, limiting overall progress.

In conclusion, South Africa experiences high levels of business and labour market turnover. This indicates that the economy is more dynamic than commonly assumed.

However, this dynamism does not translate into meaningful economic growth or job creation. Business and job flows largely offset each other, which results in minimal net gains. The findings suggest that the challenge is not a lack of activity, but rather the limited impact of that activity on long-term growth and structural change. SM

Full research study:
https://doi.org/10.1111/saje.70010



ATTRACTING AND RETAINING TALENT IN SOUTH AFRICAN CITIES: A missing strategy for growth

In a global, knowledge-driven economy, cities compete to attract and retain skilled professionals who drive innovation, productivity, and long-term economic growth.

Leading international cities such as Singapore, Helsinki, and New York have implemented deliberate strategies to attract talent through infrastructure development, strategic partnerships, and a higher quality of life.

In South Africa, metropolitan municipalities play a central role in economic development, guided by their Integrated Development Plans (IDPs). However, little is known about whether these cities seek to attract and retain high-level skills as part of their growth strategies.

South African cities face a dual challenge—they must address deep-seated socio-economic inequalities while also competing globally for scarce skills. Despite the recognised importance of human capital in economic growth, in practice it seems that little effort is put into talent attraction and retention within municipal planning.

This gap is concerning given ongoing skills shortages and migration patterns.

This gap is concerning given ongoing skills shortages and migration patterns. For example, cities such as eThekwini report losing skilled professionals to Gauteng and the Western Cape, where opportunities are perceived to be better.

Without clear strategies to retain and attract skilled workers, cities risk weakening their economic competitiveness and long-term development potential.

A research study funded by the NRF assessed whether and how South Africa's eight metropolitan municipalities incorporate talent attraction and retention into their development strategies, particularly their Integrated Development Plans and related economic frameworks.

The researchers conducted a qualitative content analysis of policy documents from all eight metropolitan municipalities in South Africa.

The analysis focused on:

- Integrated Development Plans (2021–2026)
- Economic development and growth strategies

Five key areas were examined:

1. Recognition of skilled labour



2. Incentives for attracting talent
3. Partnerships
4. Quality of life and liveability
5. Sector-specific strategies

The analysis revealed several key findings:

- **Limited recognition of human capital:** Most metros do not treat skilled labour as a central driver of economic development.
- **Strong evidence of skills-driven growth, but weak policy response:** In Cape Town, 79% of economic growth between 2015 and 2017 came from high-skill and high-tech industries. However, this was not matched with clear strategies to retain or attract such talent.
- **Ongoing loss of skilled professionals:** Cities such as eThekwini report out-migration of skilled individuals, yet no concrete policies exist to address this trend.
- **Absence of incentive structures:** None of the eight metropolitan municipalities provide specific financial or non-financial incentives aimed at attracting high-skilled workers.
- **Weak and unstructured partnerships:** While some cities mention collaboration with universities, there is limited evidence of structured partnerships with the private sector to develop or retain skills.
- **Sector strategies lack a skills focus:** Although sectors such as ICT, renewable energy, and business services are identified as growth areas, they are not linked to targeted talent attraction strategies.
- **Quality of life is underutilised as a strategy:** Factors such as safety, housing, and infrastructure are discussed, but not positioned as tools to attract or retain skilled professionals.

The lack of focus on talent attraction is not only a policy gap but also reflects deeper governance challenges. Municipalities operate within a fragmented public sector system characterised by limited resources, weak institutional capacity, and competing priorities.

There is also a perceived trade-off between addressing inequality and promoting economic competitiveness. However, the study argues that this is a false dichotomy. Investment in skills can support inclusive growth by creating jobs, improving productivity, and strengthening local economies.

Political dynamics further shape planning decisions, with a tendency to prioritise short-term, visible projects over long-term investments in human capital.

In conclusion, the research shows that South African metropolitan municipalities are not adequately prioritising the attraction and retention of skilled professionals, despite their critical role in economic development. This gap limits the ability of cities to grow, innovate, and compete globally. While addressing inequality remains essential, it should not come at the expense of building human capital. SM

Full research study:
DOI: 10.1177/09562478231193829

BEYOND AVERAGES:
Understanding depressive symptoms among South African youth

Depression is one of the leading mental health challenges that affects young people in South Africa. Many mental health studies focus on average effects, which can overlook important differences in how depressive symptoms are experienced across the distribution of depressive symptoms.

Mental health disorders are a major contributor to the global burden of disease, especially among young people. In South Africa, depressive symptoms vary across provinces and between urban and rural areas. For example, 25% of rural adolescents in Gauteng report higher levels of depressive symptoms, compared to 4.76% in the Free State. Among urban youth, 23.03% in the Western Cape and 3.85% in Limpopo report symptoms of depression.

Despite these differences, most research relies on average-based methods, which can overlook variations across the distribution of the outcome. At the same time, South African youth face challenges such as unemployment, poverty, and limited access to mental health services. Around 75% of people with mental health conditions in the country do not receive treatment, and the treatment gap is estimated at 92%.

A research study funded by the NRF examined depressive symptoms among South African youth across different levels (quantiles) rather than relying on average effects. The study used data from five waves of the National Income Dynamics Study (NIDS), covering the period 2008 to 2017. The sample included 49 318 individuals aged 15–34 years.

Depressive symptoms were measured using the 10-item Centre for Epidemiological Studies Depression Scale (CES-D 10), with scores ranging from 0 to 30. The average depressive score was 6.48. Quantile regression was used to analyse how different factors affect depressive symptoms at different levels (low, medium, and high – represented by the 25th, 50th and 75th quantiles of depressive symptoms).



The study found that depressive symptoms vary across different groups and levels. Key findings include:

- **Gender:** Females had higher depressive symptom scores across all levels, with stronger effects at higher levels.
- **Education:** Higher levels of education were associated with lower depressive symptoms compared to no schooling.
- **Race:** Compared to Black Africans, Coloured, Asian/Indian, and White groups had lower depressive symptom scores across all levels.
- **Age:** Older youth showed higher depressive symptoms, although the increase slowed at higher ages.
- **Debt:** Having a loan from a loan shark was linked to higher depressive symptoms, especially at higher levels.
- **Employment:** Being employed was associated with lower depressive symptoms.
- **Location:** Living in urban areas was linked to higher depressive symptoms, particularly at higher levels.
- **Smoking:** Smokers had higher depressive symptom scores.
- **Health status:** Better health was associated with lower depressive symptoms.
- **Income:** Higher household income was linked to lower depressive symptoms.

The study also revealed that the average depressive score was 6.48, with scores spanning from 0 to 30. The average participant age was 23.6 years. Approximately 72.48% of the sample were unemployed, 83.20% had completed secondary education, and 85.33% identified as Black African. Notably, the impact of these factors varied across different levels of depressive symptoms, highlighting substantial variation within the population.

The study shows that depressive symptoms among South African youth are not evenly distributed.

Different factors affect individuals differently depending on their level of depressive symptoms. By moving beyond averages, the research highlights important differences within the youth population and shows that relying only on average results can overlook key patterns in mental health. SM

Full research study: https://doi.org/10.1080/23311908.2025.2535660

The study shows that depressive symptoms among South African youth are not evenly distributed.



Effects of Psychological First Aid Training on Teachers' Mental Health, Knowledge, and Skills

Teachers play an important role in supporting learners' mental health. However, there is limited consolidated evidence on how psychological first aid (PFA) training affects teachers' knowledge, attitudes, and ability to support learners.

Mental health challenges in school environments affect both learners and teachers. Teachers are often expected to provide support to learners who experience psychological distress, yet many do not have formal training in mental health support.

Psychological First Aid (PFA) training has been introduced in different countries to improve teachers' ability to respond to mental health needs. However, evidence of its effectiveness across different contexts remains limited.

A recent research study funded by the NRF aimed to systematically map existing literature on the effects of psychological first aid (PFA) training on teachers. The study used a scoping review approach to analyse existing research on PFA training for teachers. The review included studies published between 2010 and 2023, and only



The review identified several effects of psychological first aid (PFA) training on teachers. PFA training improved teachers' mental health knowledge and their understanding of psychological support.

studies published in English were considered. Multiple databases were searched, including PubMed, ProQuest, EBSCOhost, Sabinet, and ScienceDirect.

The study selection process identified seven studies that met the inclusion criteria. The included studies used quantitative, qualitative, and mixed-methods approaches. Data were analysed using descriptive analysis and thematic content analysis to identify key themes.

The review identified several effects of psychological first aid (PFA) training on teachers. PFA training improved teachers' mental health knowledge and their understanding of psychological support. It also increased teachers' confidence in supporting learners and colleagues; helped reduce stigma related to mental health; and raised awareness of mental health issues within schools. However, the review also identified challenges.

Teachers showed reluctance to provide support due to a lack of professional training, and supporting learners' mental health was reported as emotionally demanding. Implementation challenges included limited resources; a lack of training materials and facilitators; and logistical constraints in organising training. The review also found that most studies were conducted in high-income countries and that only seven studies met the inclusion criteria, which limits the scope of available evidence.

In conclusion, the study found that psychological first aid training is associated with improvements in teachers' mental health knowledge, confidence, and attitudes towards supporting learners. At the same time, the findings show that challenges related to resources, training capacity, and context influence how PFA training is implemented across different settings. SM

Full research study: https://doi.org/10.1007/s44217-025-00822-x



Factors Contributing to the **UNDERPERFORMANCE OF GRADES 8 AND 9 LEARNERS** in South Africa

Underperformance among Grades 8 and 9 learners in South Africa remains a persistent challenge. There is a need for clear evidence on the factors that contribute to poor academic performance at this level.

Academic performance in lower secondary school plays an important role in shaping future educational outcomes. In South Africa, learners in Grades 8 and 9 face multiple challenges that affect their ability to perform well. Despite various efforts to improve education outcomes, underperformance in these grades continues to be reported. There is limited consolidated evidence that brings together the different factors influencing learner performance across studies.

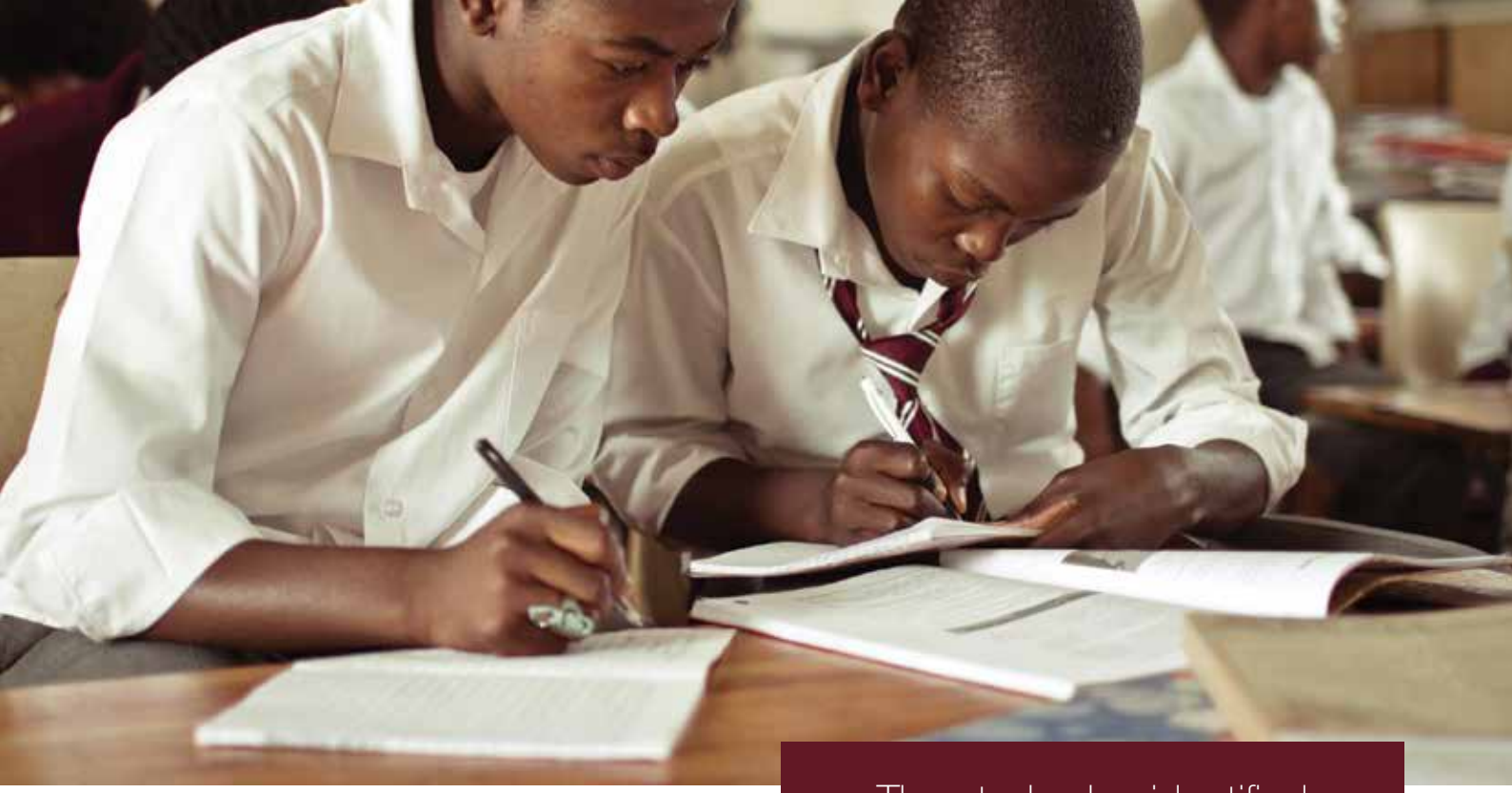
A research study involving the University of Limpopo and the Mopani West District aimed to identify and synthesise factors that contribute to the underperformance of these learners.

The study used a scoping review approach based on the Arksey and O'Malley (2005) framework. The review followed five stages:

1. Identification of the research questions
2. Identification of relevant studies
3. Selection of studies
4. Extraction and charting of data
5. Summarisation and reporting of findings.



The selection process followed PRISMA guidelines. Initially, 409 articles were identified. After removing duplicates, 356 articles remained for screening. Of these, 27 full-text articles were assessed for eligibility, and 15 peer-reviewed studies met the inclusion criteria for the final review. The review focused on studies conducted in South Africa between 2005 and 2023, involving Grades 8 and 9 learners.



The study identified several key factors contributing to learner underperformance, grouped into three main themes.

Firstly, content-related and pedagogical factors include challenges in subjects such as Mathematics, Natural Sciences, and Economics and Management Sciences, which were identified as the most difficult. The study also found a lack of qualified teachers, as well as cases where teachers were teaching subjects they were not trained for.

Limited teaching time, lack of resources, including the absence of laboratories, and weak pedagogical approaches were also identified as contributing factors.

Secondly, learners' personal and social factors include a lack of parental support and involvement, as well as language barriers, particularly limited English proficiency. The study also identified learners' personal and social challenges as factors affecting learning.

Thirdly, school leadership, management, and systemic factors include weak leadership and management practices, lack of performance monitoring, and the absence of structured interventions to address underperformance. Poor school infrastructure, including a lack of science laboratories, was also identified, along with broader system-level challenges affecting school performance.

The study also identified learners' personal and social challenges as factors affecting learning.

The findings indicate that underperformance is linked to a combination of teaching, learner, and systemic factors.

In conclusion, the study found that the underperformance of Grades 8 and 9 learners in South Africa is associated with multiple factors across teaching, learner, and school system levels.

The findings indicate that these factors operate together and contribute to challenges in learner performance across schools. SM

Full research study: https://doi.org/10.1177/21582440251375591

STRIKING DISPARITIES IN EMPLOYMENT ACROSS SOUTH AFRICA: Evidence from a new spatial dataset

A new spatial dataset based on firm-level tax records provides detailed insights into South Africa's economic geography.

The data shows that the five largest metropolitan areas account for almost 60% of total formal employment in the country. This highlights the central role of cities in the economy, while also revealing significant disparities between urban and rural areas.

Despite policy efforts since 1994, many of these inequalities persist. South Africa's spatial inequality is deeply rooted in its history, particularly the legacy of apartheid and colonialism, which excluded the majority of the population from economic opportunities based on location.

Public understanding of these disparities has also been limited by a lack of comprehensive data and analysis.

There is, therefore, a need for clearer evidence to understand how employment and economic opportunities are distributed across the country.

A research study funded by the NRF used a new spatial economic dataset to examine the distribution, structure, and trends of employment across South Africa, with a focus on differences between cities, towns, and rural areas.

The study used a newly developed dataset derived from firm-employee tax records, covering the period 2014 to 2023. The dataset includes employment by location, earnings, industry sector, and firm size. It captures formal sector employment, which accounts for approximately 83% of total employment and 94% of gross domestic product (GDP) in South Africa. The analysis compares employment patterns across different types of settlements, including metropolitan areas, secondary cities, towns, and rural areas.

The research findings show a strong concentration of economic activity in cities. The largest metros dominate the economy, with the top five cities accounting for nearly 60% of formal employment.

There are also stark differences in employment opportunities across settlement types—rural areas have only 5 formal jobs per 100 people, compared to 35 jobs per 100 people in Gauteng metros and 29 jobs per 100 people in coastal metros.

Metropolitan areas have more favourable and diverse economic structures, with stronger private sector activity and better access to infrastructure, skills, and institutions.



Most employment growth has occurred in non-tradable services rather than in sectors associated with higher productivity.



In contrast, many rural areas rely heavily on social grants and remittances due to limited employment opportunities. Across all settlement types, employment is dominated by non-tradable services, such as retail and personal services, while manufacturing plays a relatively small role.

Employment growth in metropolitan areas has been slow. Cape Town, the best-performing city, recorded only 20% employment growth between 2014 and 2023, while Nelson Mandela Bay experienced a 5% decline over the same period.

Most employment growth has occurred in non-tradable services rather than in sectors associated with higher productivity.

Each metropolitan area also has a distinct economic structure. For example:

- Johannesburg is a leading financial centre
- Ekurhuleni specialises in manufacturing and logistics
- Tshwane is dominated by government and professional services
- Cape Town has a diversified, service-based economy

These findings indicate that spatial inequalities are both a result of historical factors and a reflection of ongoing economic disparities. Cities concentrate jobs, infrastructure, and skills, making them key centres of economic activity. At the same time, rural areas remain structurally disadvantaged, with limited access to opportunities.

In conclusion, the study confirms that South Africa remains highly unequal in spatial economic terms, with significant disparities in employment across regions.

Cities offer the greatest opportunities for economic participation, yet their recent performance has been weak. Rural areas continue to face severe employment shortages and limited economic prospects.

A clearer understanding of spatial economic patterns is essential to better understand these disparities and their implications for development. SM

Full research study:
https://doi.org/10.1080/0376835X.2025.2456252

National Research Foundation | SAIAB South African Institute for Aquatic Biodiversity

Research Infrastructure in Support of South Africa's Blue Economy

From rivers and estuaries to coastal waters and deep-sea ecosystems, the National Research Foundation–South African Institute for Aquatic Biodiversity (NRF-SAIAB) is South Africa's leading aquatic biodiversity research institute. It delivers the scientific knowledge needed for the sustainable use and protection of aquatic resources. Through specialised research platforms, national infrastructure and strategic partnerships, NRF-SAIAB provides the evidence base for fisheries management, biodiversity conservation, climate adaptation, aquaculture development and marine spatial planning. By linking science with policy and implementation, the Institute strengthens South Africa's capacity to build a resilient, inclusive and globally competitive Blue Economy.

NRF-SAIAB Research Platforms

Acoustic Tracking Array Platform (ATAP)

ATAP is South Africa's national aquatic animal tracking network, generating long-term movement data across 2,300 km of coastline. Since 2011, the platform has produced over 30 million data records across more than 60 marine and estuarine species, including commercially important fish, sharks, rays and turtles – among them Critically Endangered species. By mapping migration routes, nursery areas and habitat connectivity, ATAP directly informs fisheries regulation, marine protected area design and spatial planning, ensuring science-based ocean stewardship.

Aquatic Ecophysiology Research Platform (AERP)

AERP investigates how aquatic organisms respond to environmental stressors such as climate change, oxygen limitation and pollution. Through experimental and field research, the platform identifies resilience thresholds in key species, providing critical insights for climate adaptation strategies, conservation planning and sustainable resource management.

Aquatic Genomics Research Platform (AGRP)

AGRP applies DNA barcoding, environmental DNA (eDNA) and genomic sequencing to enhance biodiversity monitoring and fisheries science. Its genome-scale research capacity supports conservation, aquaculture, biosecurity and bioprospecting. As a growing national hub for genomic research, AGRP is expanding advanced sequencing and bioinformatics capabilities to strengthen biodiversity monitoring, climate resilience research and innovation within the Blue Economy.

National Collections Facility

The National Collections Facility preserves Africa's aquatic biodiversity – including fish, frogs, diatoms, snails and cephalopods – through curated voucher specimens that underpin taxonomy, species identification and long-term ecological monitoring. Embedded within this Collection, the National Aquatic Biodiversity Biobank preserves linked tissue and DNA samples, extending the scientific value of each specimen into the genomic era. Together, the Collections and Biobank provide a cohesive national resource that safeguards biodiversity knowledge, supports innovation, and ensures global accessibility for conservation planning and sustainable resource use for future generations.

SARChI Chair: Biological Control & Freshwater Alien Invasive Species Management

NRF-SAIAB's SARChI Chair develops sustainable biological control solutions to combat invasive freshwater species, including invasive aquatic weeds. The large-scale release of effective control insects is reducing water


©Michelle Soekoe



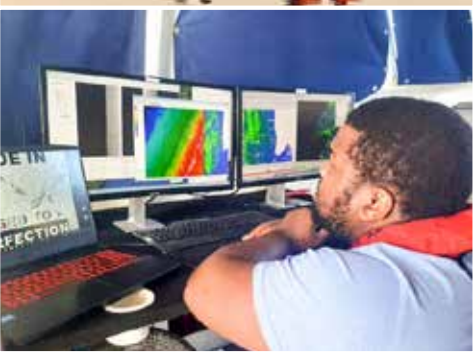
















weeds in dams and rivers, improving water security, dam resilience and ecosystem health. This long-term, evidence-based approach lowers management costs while protecting biodiversity and strengthening national water security.

Coastal and Ocean Sciences Team (COST)

COST is reshaping how urban coastlines are designed and managed. By integrating ecological engineering, Indigenous knowledge, and community partnerships, the team demonstrates how solutions embedded within built infrastructure can help restore ecosystem function in heavily modified environments.

These eco-engineered approaches improve water quality, support biodiversity, reduce contamination risks, and promote sustainable livelihoods, advancing climate-resilient coastal systems within the Blue Economy.

Freshwater Field Unit

The Freshwater Field Unit provides essential biodiversity assessments and field-based monitoring across inland water systems. Its work informs conservation planning, fisheries policy, aquaculture development and water resource management.

Through national partnerships, the Unit is generating critical data on inland fisheries potential and invasive species distribution, supporting food security, rural livelihoods and national development priorities. Ongoing taxonomic research continues to strengthen freshwater biodiversity inventories across southern Africa.

Geophysics Mapping Platform (GeMaP)

GeMaP uses hydroacoustic surveys to map South Africa's seabed and freshwater habitats (at depths of -1 to -850+ metres), guiding biodiversity monitoring and supporting partners including SAEON, Wildtrust, UniZulu and AEON. In 2025, GeMaP supported the NEKTON First Descent Mission in the Comoros. These spatial datasets inform management and monitoring of marine protected areas, coastal lakes, infrastructure planning, fisheries and global ocean mapping, with contributions to Seabed 2030 supporting a sustainable blue economy and ocean governance.

Marine Remote Imagery Platform (MaRIP)

MaRIP uses advanced camera systems to document marine biodiversity and habitats, supporting monitoring, fisheries assessments and conservation across South Africa's oceans. It has supported 96 researchers and 30+ postgraduate students from 18 countries, generating 50 000+ biodiversity records across ~600 species. In 2025, it led one of South Africa's deepest benthic surveys (to 2 350 m) and supported the NEKTON First Descent Mission in the Comoros. Through innovation and training, it advances evidence-based ocean management and builds Africa's marine research capacity.

Seascape Ecology Research Group

The Seascape Ecology Research Group studies how fish interact with their habitats and how climate change and human pressures affect coastal and estuarine ecosystems. By identifying critical nursery and climate-refuge habitats, the group informs fisheries management and national biodiversity planning. Linking seascape ecology science with policy and capacity development promotes ecosystem resilience and sustainable marine resource management.

Closing Statement

Through integrated science platforms, national research infrastructure and strategic partnerships, NRF-SAIAB provides the knowledge systems that enable sustainable growth across South Africa's aquatic environments.

By aligning biodiversity protection with economic opportunity, NRF-SAIAB advances a Blue Economy built on resilience, innovation and evidence-based stewardship.

NRF-SAIAB – Providing Research Infrastructure in Support of South Africa's Blue Economy.

@NRFSAIAB
@NRF_SAIAB
South African Institute for Aquatic Biodiversity

E-mail: saiab@saiab.ac.za
www.saiab.ac.za

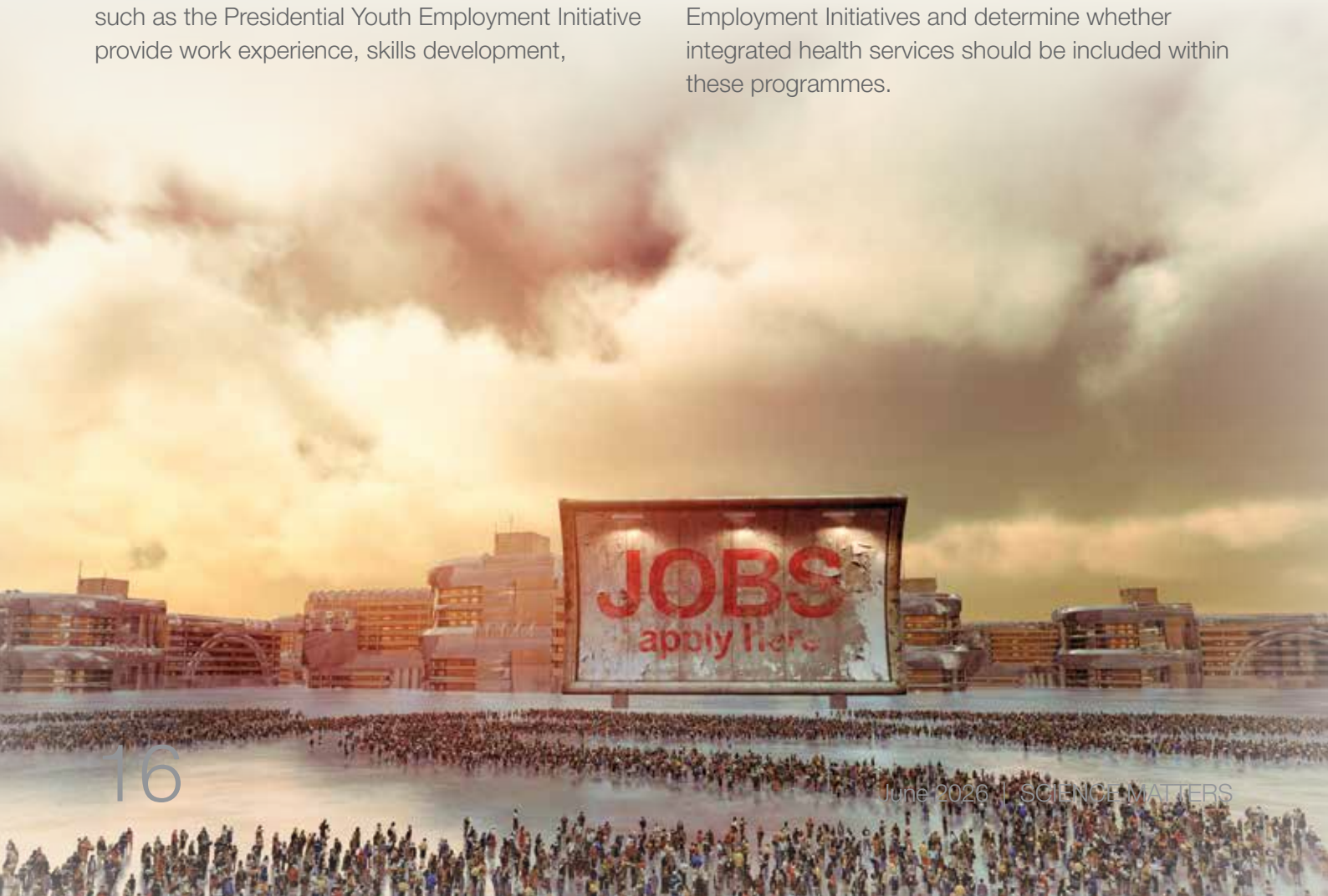
HIDDEN HEALTH CHALLENGES and Youth Employment Initiatives

South Africa faces one of the highest youth unemployment rates in the world. Many young people are not in employment, education, or training (NEET), which puts them at risk of poverty, social exclusion, and poor health.

While Youth Employment Initiatives (YEIs) aim to improve employability and provide pathways into the labour market, little is known about the physical and mental health of the young people entering these programmes.

YEIs have become an important response to South Africa's youth unemployment crisis. Programmes such as the Presidential Youth Employment Initiative provide work experience, skills development, and training opportunities to thousands of young people. However, these programmes typically focus on employment outcomes and rarely consider participants' health and well-being.

A recent study co-funded by the NRF investigated the health status of South African youth joining Youth Employment Initiatives. The study aim was to assess the physical and mental health status of previously unemployed youth joining Youth Employment Initiatives and determine whether integrated health services should be included within these programmes.



To achieve the research aim, the study recruited 193 young people aged 18 to 35 years who had recently joined YEIs in Gauteng Province between 2020 and 2023. Participants completed surveys on their socio-demographic circumstances, food security, health behaviours, stress, anxiety, and depression. A subgroup of 90 participants also underwent physical health assessments, which included measurements of body weight, waist circumference, and blood pressure.

The study revealed several concerning health trends among youth entering employment programmes.

Nearly one-third of participants were either food insecure or at risk of food insecurity. While most participants reported low-risk alcohol consumption, 13% reported potentially hazardous alcohol use.

Eleven percent were current smokers, and younger participants were more likely to report recent use of tobacco products and recreational drugs.

Mental health challenges were particularly prominent. Almost 78% of participants reported moderate to high levels of stress. Younger participants aged 18–24 years reported significantly higher levels of anxiety and depression than those aged 25–35 years. Moderate to severe depression was reported by 42% of younger participants compared to 26% of older participants. Most concerning was that one-third of all participants reported thoughts of suicide or self-harm during the previous two weeks.

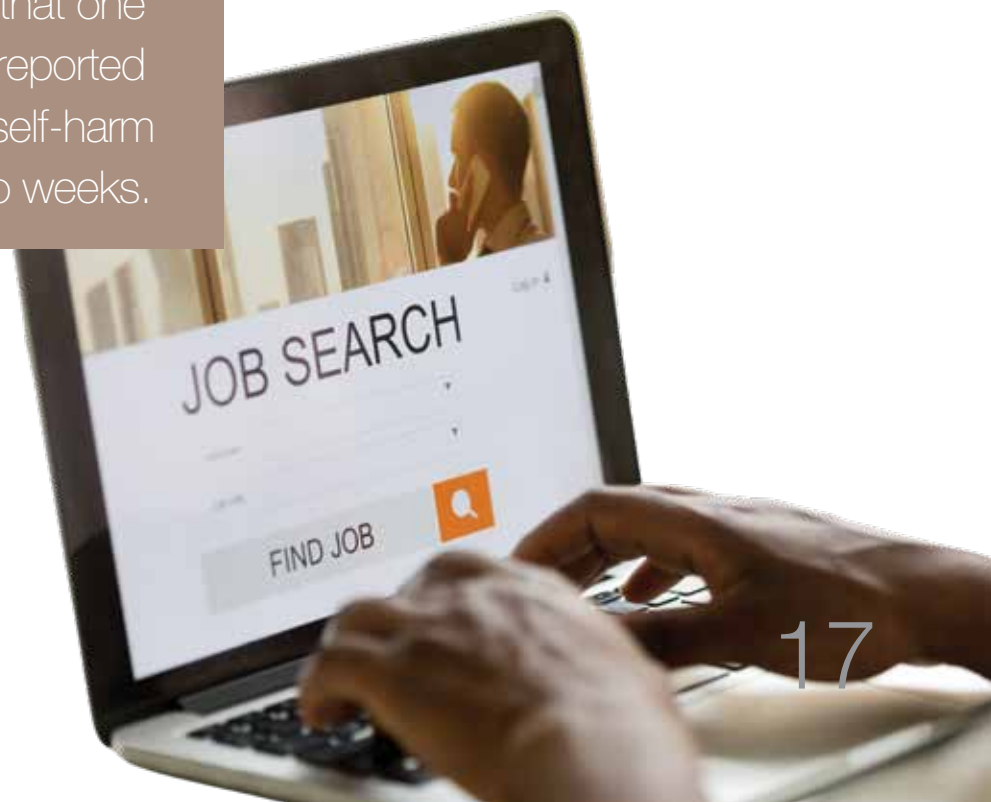
The physical health assessments also revealed important risks. Among participants who underwent cardiometabolic testing, 31% of younger participants were classified as overweight or obese. This figure increased to 68% among participants aged 25–35 years. Additionally, 26% of older participants were classified as hypertensive, placing them at increased risk of future cardiovascular disease.

The findings suggest that many young people entering Youth Employment Initiatives face significant mental and physical health challenges.

High levels of stress, anxiety, depression, suicidal thoughts, obesity, hypertension, and food insecurity may limit their ability to fully benefit from employment opportunities. The researchers argue that YEIs provide a valuable opportunity to integrate health promotion and support services, which could help young people improve both their employability and their long-term health and well-being. SM

Full research study: https://doi.org/10.1093/heapro/daaf061

Most concerning was that one third of all participants reported thoughts of suicide or self-harm during the previous two weeks.



THE NOT TALKING IS ACTUALLY WHAT KILLS YOU

Open communication about sex, sexual health, and relationships is essential in order to make informed decisions, negotiate safer sex, and access healthcare services. However, many young South African women face barriers that make these conversations difficult. Limited communication can increase vulnerability to sexually transmitted infections (STIs), HIV, unintended pregnancy, and poor sexual health outcomes.

Although South Africa has extensive sexual and reproductive health information and services, young women continue to experience high rates of HIV, STIs, and unintended pregnancies. Research suggests that conversations about sex remain heavily stigmatised in many communities, often shaped by cultural norms, family expectations, gender dynamics, and power imbalances. These barriers can prevent young women from seeking information, discussing their needs, or accessing healthcare services.

A recent study supported by the NRF explored the experiences of young South African women and the challenges they face when trying to communicate about sex, sexual health, and relationships.

The study aimed to explore the barriers and facilitators that influence young women's ability to communicate about sex, sexual health, and sexual relationships, as well as how these factors affect access to sexual healthcare services.

The researchers recruited seven isiXhosa-speaking young women aged 21 to 25 years from Cape Town. Participants took part in a six-session art-based engagement programme called Stories from the Edge, where they created large-format paintings reflecting their sexual health experiences. The study also included in-depth interviews, group discussions, field notes, and thematic analysis of participant narratives. The socio-ecological model was used to understand how individual, interpersonal, community, and institutional factors influence communication about sexual health.



"The not talking is actually what kills you," highlighting the importance of communication for protecting sexual health.

The study identified three major themes: barriers to communication; facilitators of communication; and communication relating to healthcare access.

Many participants reported receiving little or no direct communication about sex while growing up. Discussions were often avoided, and sex was treated as a taboo subject. Parents and caregivers frequently warned girls to stay away from boys but provided limited information about sexual health, relationships, or contraception.

Community attitudes also played an important role. Participants feared gossip, judgement, and even punishment if their relationships became known. These social pressures discouraged open conversations and limited opportunities to seek advice or support.

Relationships presented additional challenges. Many young women felt unable to discuss condom use, sexual desires, or sexual health concerns with partners because they feared rejection, conflict, or abandonment. Some described remaining silent in order to maintain relationships, even when this increased their vulnerability to health risks. One participant reflected, “The not talking is actually what kills you,” highlighting the importance of communication for protecting sexual health.

Despite these barriers, the study also identified factors that supported communication:





- Some mothers encouraged their daughters to seek contraception and healthcare services.
- Friends provided trusted spaces for discussion and advice.
- Supportive partners helped create open dialogue about relationships and sexual health.

Participants reported that increased age, maturity, confidence, and self-awareness strengthened their ability to communicate their needs and advocate for themselves.

Accessing healthcare services presented further communication challenges. Many participants associated public healthcare facilities with judgement, breaches of confidentiality, long waiting times, and poor communication from healthcare workers. However, positive experiences with respectful and supportive healthcare providers improved young women’s willingness to seek care and discuss sensitive health concerns.

The researchers conclude that the creation of supportive environments, strengthening communication skills, and the promotion of youth-centred approaches could help young women navigate conversations about sex, relationships, and wellbeing more confidently and improve sexual health outcomes. SM

Full Research study: https://doi.org/10.1080/13691058.2026.2643675

UNDERSTANDING MENTAL HEALTH STIGMA:

The experiences of mothers raising children with attention-deficit/hyperactivity disorder

Mental health stigma remains a significant global challenge, particularly within communities where an understanding of mental illness is limited.

Despite increased awareness of mental health conditions, stigma continues to influence how individuals and families respond to diagnoses such as attention-deficit/hyperactivity disorder (ADHD), a neurodevelopmental condition characterised by inattention, hyperactivity, and impulsivity. In many communities, a limited understanding of mental illness leads to judgement, misinformation, and negative attitudes. This affects help-seeking behaviour, access to services, and treatment decisions.

A recent research study funded by the NRF explored how stigma affects mothers raising children diagnosed with ADHD. The study aimed



Mothers experienced criticism and scrutiny of their parenting, which contributed to emotional strain

to explore the nature of mental health stigma within communities and examine its impact on mothers caring for children diagnosed with ADHD.

To achieve this aim, the researchers used a qualitative descriptive design to capture lived experiences. Ten mothers from various communities in Cape Town were selected using purposive and snowball sampling. Data were collected through semi-structured interviews conducted online and analysed using thematic analysis to identify patterns and themes in participants' experiences.

The study revealed several key findings:

- Mothers experienced stigma and judgement from both family members and the wider community
- Children with ADHD were often labelled as "naughty" or "lazy", rather than being understood as having a mental health condition
- Mothers experienced criticism and scrutiny of their parenting, which contributed to emotional strain
- There was strong disapproval of medication use, including fears that children could become dependent on treatment
- As a result, some mothers discontinued or avoided pharmacological treatment for their children
- Children experienced bullying, social rejection, and exclusion, particularly in school and social settings
- Mothers relied on support systems such as partners, siblings, and close family members to cope with challenges

A key finding of the study was the presence of dual stigma—children experienced stigma related to their diagnosis and behaviour, while mothers experienced stigma linked to perceptions of poor parenting. These two forms of stigma were interconnected and reinforced one another.

In conclusion, the findings highlighted the complex relationship between stigma and caregiving. Mothers were responsible for making decisions about their child's care, but these decisions were often influenced by pressure and judgement from family members, communities, and social networks. In particular, negative attitudes towards medication played a significant role in shaping treatment decisions.

The study also showed that stigma contributed to emotional challenges for mothers, including stress, guilt, and feelings of isolation. At the same time, children with ADHD may experience misunderstanding, labelling, and exclusion, which can affect their social and educational experiences.

Cultural beliefs and community attitudes were found to play an important role in shaping how ADHD is understood. In some cases, behaviours associated with ADHD were interpreted as poor discipline rather than symptoms of a medical condition. This highlights the importance of improving mental health awareness within communities. Creating a more informed and supportive community can help improve both caregiver well-being and outcomes for children with ADHD. SM

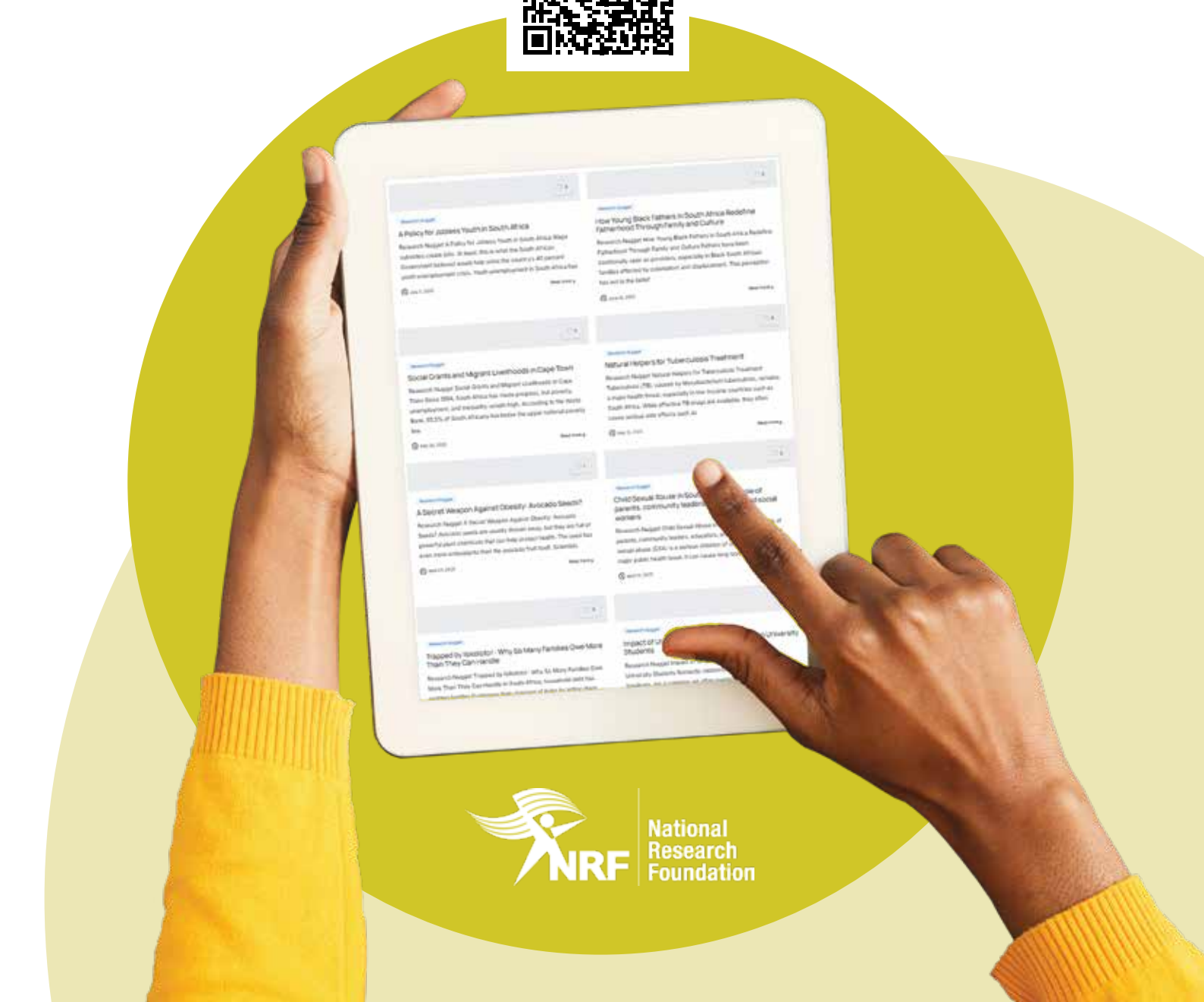
Full research study:
https://doi.org/10.1177/00812463251372999



RESEARCH NUGGETS

Knowledge thrives on curiosity and critical inquiry. Our articles delve into evidence-based research, emerging scientific trends, and expert analyses across a range of disciplines. If you're seeking well-informed perspectives and intellectually rigorous content, we invite you to explore more on our website—where discovery begins and deeper understanding awaits.

Click **HERE** or scan the **QR code**
for more interesting NUGGETS



National Research Foundation



BUSINESS INCUBATION SUPPORTS Youth Start-Up Enterprises in Mpumalanga

Youth unemployment remains a major challenge in South Africa, particularly in districts where economic opportunities, infrastructure, and access to business support are limited.

Young entrepreneurs often struggle with access to funding, business skills, mentorship, and markets which makes it difficult for start-up enterprises to survive and grow.

Business incubation has increasingly become an important strategy for the support of youth entrepreneurship and promotion of local economic development in South Africa. Incubation programmes provide young entrepreneurs with business training, mentorship, networking opportunities, and shared infrastructure aimed at improving enterprise sustainability. A recent South African study examined the role of incubation models in supporting youth start-up enterprises in the Nkangala District Municipality in Mpumalanga Province.

The study aim was to examine how business incubation models contribute to the development and sustainability of youth start-up enterprises within the Nkangala District Municipality.

To achieve its research aims, the study used a qualitative secondary data research design. The researchers analysed municipal planning documents, provincial development reports, government policy documents, and recent academic literature related to youth entrepreneurship and business incubation. Only documents published between 2020 and 2026 were included in the analysis and data were analysed using thematic analysis.

The study found that incubation programmes contribute positively to youth enterprise development by improving financial literacy, business planning, regulatory compliance, and entrepreneurial confidence. Young entrepreneurs who participate in incubation programmes demonstrated improved budgeting skills, stronger operational planning, and greater awareness of business regulations.

Rural youth were found to have less access to incubation opportunities and support networks compared to youth in urban and peri-urban areas.

The findings also showed that incubation programmes strengthen access to mentorship, institutional support, funding information, and professional networks. Mentorship and peer learning helped reduce entrepreneurial isolation while improving operational decision-making and market access.

The study further found that incubation supports innovation and enterprise growth by encouraging product diversification, technology adoption, and stronger participation in local value chains. Youth-owned enterprises that participated in incubation programmes showed increased engagement in sectors such as digital services, agro-processing, and township-based businesses.

However, several challenges continue to affect sustainability, including limited post-incubation funding, weak institutional coordination, rural access disparities, and inadequate infrastructure.

Rural youth were found to have less access to incubation opportunities and support networks compared to youth in urban and peri-urban areas. SM

Full research study:
DOI: https://doi.org/10.51137/wrp.ijarbm.555_



SCiENCE MaTTERS



Join Us on the Science Matters Podcast!

As an NRF-funded researcher, are you ready to share your research insights and contribute to captivating conversations that ignite curiosity worldwide? If so, we're thrilled to invite you to be part of our podcast! Regardless of field or level of expertise, we welcome you to join our guest list. Simply email your research article(s) to sciencematters@nrf.ac.za or M.Sibiya@nrf.ac.za, and let's discuss your work in our studio. We're excited to collaborate with you and delve into the fascinating realms of science together. We look forward to seeing you on our podcast!

NRF Values

Passion for Excellence

World Class Service

People-centred

Respect

Integrity & Ethics

Accountability



science, technology & innovation

Department:
Science, Technology and Innovation
REPUBLIC OF SOUTH AFRICA

NRF National Research Foundation