



National  
Research  
Foundation

25

# SCIENCE MATTERS

Vol:6 | ISSUE:3

**LOW SODIUM SALT  
SUBSTITUTES VS COMMON SALT**

**FEMALE SOCIAL  
ENTREPRENEURS  
IN AFRICA**

**Harnessing Innovation in  
the Informal Food Sector  
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**CATALYSE  
FINANCIAL  
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**HOW TO STRENGTHEN SA's  
DIGITAL TECHNOLOGY ECOSYSTEM**



*Celebrating 25 Years of Research,  
Innovation, Impact and Partnerships*



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## SCIENCE MATTERS

Welcome to the third edition of the sixth volume of Science Matters where we delve into pressing socio-economic issues, including innovation, entrepreneurship, financial inclusion, and public health. This edition features a collection of insightful articles funded by the National Research Foundation (NRF), showcasing how various sectors, such as entrepreneurship, public health, digital technology, and informal economies, are harnessing innovation to overcome significant challenges.

Innovation should not only serve the elite or well-developed regions but also benefit underserved, marginalised, and rural populations. The articles in this issue emphasise inclusive innovation, highlighting examples such as financial technologies that are transforming rural South Africa and informal food sectors that adapted during times of crisis. By understanding the importance of inclusivity, researchers can design solutions that reach a broader spectrum of people, ensuring that socio-economic progress is more equitable.

Furthermore, educating researchers about innovation and resilience in socio-economic development equips them to create practical solutions, respond to global challenges, collaborate across disciplines, and contribute to policies that foster stronger, more inclusive societies.

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:  
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# Low Sodium Salt Substitutes vs Common Salt: Results of taste and visual tests in South African adults

Salt consumption is a critical dietary factor contributing to the rising burden of non-communicable diseases such as hypertension and cardiovascular disease, particularly in South Africa.

**H**igh sodium intake is linked to elevated blood pressure, while potassium intake has been shown to lower blood pressure. Potassium-enriched low-sodium salt substitutes (LSSS), which replace a portion of sodium chloride (NaCl) with potassium chloride (KCl), are being considered as a solution to reduce sodium intake and improve public health outcomes. However, the acceptability of these substitutes, especially in terms of taste and appearance, has not been widely tested among South African populations.

A study funded by the NRF examined how different potassium-rich, low-sodium salt substitutes tasted and looked compared to regular table salt. The goal was to compare the taste and visual perception of these potassium-enriched LSSS with regular salt

(100% NaCl) among South African adults. The study involved a double-blind taste and visual test with 56 adult participants from Soweto, Johannesburg. Participants were recruited through a local youth community center and met the eligibility criteria of being aged 18 or older and free of any known kidney diseases or food allergies.

The salt substitutes tested included four formulations:

- 35% KCl/65% NaCl
- 50% KCl/50% NaCl
- 66% KCl/34% NaCl
- 100% KCl

Participants were provided with water crackers to sample the salts, along with a lemon-lime palate cleanser between tastings. They were asked to rank the salts based on taste perception and their willingness to use each substitute. After the taste test, participants visually inspected and identified the five salts.



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## Research results

In terms of taste ranking, common salt (100% NaCl) received the highest top-2-box score for taste at 54.9%. However, the 50% KCl / 50% NaCl blend performed well, with 45% of participants rating it as “fantastic” or “really good.” In contrast, only 12% of participants gave high ratings to the 100% KCl formulation, while 51% rated it as “not very good” or “awful.” The 35% KCl and 66% KCl blends received mixed reviews, with responses split between positive and negative ratings.

When examining overall taste perception, 62% of participants expressed a liking for the 50% KCl blend, stating that they would be happy to use it or that it tasted like regular salt. In contrast, 71% of participants indicated they would not eat or did not like the 100% KCl formulation. As with the taste ranking, the 35% KCl and 66% KCl blends received mixed feedback, with some participants finding them acceptable and others not.

When participants were asked how likely they were to use the substitutes, 57% ranked the 50% KCl blend as the most or second-most likely to use. In comparison, 56% of participants said they were least likely to use the 100% KCl formulation, and 54% ranked the 66% KCl blend similarly low for future use.

In the visual identification test, most participants accurately identified 100% NaCl and 100% KCl by appearance, with 57.3% and 36.4% correctly identifying these formulations, respectively. However,

distinguishing between the other blends (35%, 50%, and 66% KCl) was generally poor, indicating that these blends visually resembled common salt.

The study findings show that 50% KCl / 50% NaCl salt substitute is a promising option for reducing sodium intake in South Africa, as it is well-tolerated in terms of both taste and visual appearance. Most participants could not distinguish this blend from common salt and expressed a willingness to use it in their daily diet. On the other hand, the 100% KCl formulation was the least favoured due to its distinct taste, which participants generally found unpalatable.

The goal was to compare the taste and visual perception of these potassium-enriched LSSS with regular salt (100% NaCl) among South African adults.

The study concludes that potassium-enriched salt substitutes, particularly those with a 50% KCl formulation, have the potential to be introduced into the South African market as a healthier alternative to common salt, contributing to public health efforts aimed at lowering blood pressure and reducing the risk of cardiovascular diseases. <sup>SM</sup>

**Full research study: <https://doi.org/10.1016/j.numecd.2023.12.015>**

# FEMALE SOCIAL ENTREPRENEURS IN AFRICA:

## Innovators driving socio-economic change

**Female social entrepreneurs are increasingly recognised as key drivers of socio-economic development, especially in regions where traditional business models often overlook social value. Unlike their commercial counterparts, these entrepreneurs prioritise the creation of positive societal impacts over personal financial gain.**

**A** research study funded by the National Research Foundation (NRF) explored the innovative contributions of Female Social Entrepreneurs in Africa (FSEAs), focusing on how they tackle social challenges through creative business strategies. The study highlighted the unique role of FSEAs in driving economic progress and uplifting their communities by addressing issues such as education, healthcare, poverty, and gender equality.

Using a qualitative approach, the researchers collected data from Ashoka's comprehensive database, a global network of social entrepreneurs. They examined the profiles of 142 FSEAs across 20 African countries, analysing their business categories, types of innovation, and the social value they generated. Open-ended questionnaires provided deeper insights into the entrepreneurs' innovation strategies and societal contributions. The

The impact of these innovations is notable, with FSEAs making significant contributions to education, health, and community development.







main goal was to showcase the types and levels of innovation these entrepreneurs employ, highlighting their role as changemakers who initiate solutions that benefit their communities, stimulate local economies, and influence regional development.

The study revealed that a significant 85% of the FSEAs had post-school qualifications, with 43% holding a degree and 24% possessing postgraduate qualifications. The most prevalent type of innovation involved opening new markets, with 78 FSEAs facilitating direct connections between artisans and international markets. Additionally, 46 entrepreneurs developed new products or services, including training programs and healthcare solutions. Other innovations included new methods of production (8); the use of alternative resources (9); and creation of new organisational forms (6). The majority of these innovators (114) focused on product and service innovation, while others engaged in operational innovation (10) and business model innovation (20).

The impact of these innovations is notable, with FSEAs making significant contributions to education, health, and community development. For instance, one initiative enabled over 5 000 disadvantaged learners to complete their studies,

with 84% passing their final exams and gaining access to higher education or employment opportunities.

The study confirms that FSEAs play a pivotal role in addressing social challenges through innovative approaches. Their efforts in education, health, and economic development have positively transformed millions of lives across Africa, proving their essential role as changemakers and catalysts for sustainable development in society. <sup>SM</sup>

**Full research article: [http://doi.org/10.9770/jesi.2022.9.4\(12\)](http://doi.org/10.9770/jesi.2022.9.4(12))**





# Somali Entrepreneurs' Success in South Africa: INSIGHTS FOR LOCAL SMEs

**The South African Government strongly supports local entrepreneurship, especially small and medium-scale enterprises (SMEs). It recognises that SMEs have the potential to create jobs, generate income, and contribute to economic development.**

**D**espite significant investments and support, local SMEs face challenges such as a lack of resources; tough competition; and sustainability of their businesses. As a result, they often leave the entrepreneurial scene early. It is important to understand why some businesses, especially those owned by foreign entrepreneurs such as Somalis, are able to succeed while local businesses struggle, even when they have similar opportunities in the market.

A study co-funded by the NRF looked at Somali entrepreneurs in South Africa who have been successful in starting and maintaining small businesses. Their activities have greatly impacted the local economy in areas such as Pretoria West, Mayfair, Fordsburg, and other neighbourhoods known for their immigrant communities. This success is especially remarkable because the entrepreneurs have faced xenophobia, limited access to financial support, and strict employment policies. This presents a great opportunity to learn from their experiences.

Understanding the factors that contribute to the success of Somali entrepreneurs can provide valuable insights that could help recalibrate strategies for South African SMEs and foster a more inclusive

environment. The research aimed to explore and highlight the key entrepreneurial traits and strategies that Somali SMEs utilise to navigate the challenges of the South African market. These insights are expected to guide policymakers and local entrepreneurs in creating robust frameworks that support the growth and sustainability of SMEs in the country.

To achieve the research goals, the researchers used a qualitative approach. They conducted semi-structured interviews with 23 Somali entrepreneurs in Pretoria West. The analysis revealed six key traits essential to the success of these entrepreneurs, which are discussed below in detail:

## **1. Collaborative ventures**

Somali entrepreneurs prioritise collaboration in their business practices, including partnerships, cooperative purchasing, joint marketing, and resource sharing among community members. This collaborative approach enables them to purchase goods in bulk, negotiate better deals with suppliers, and reduce overall costs, thereby increasing profitability. They also organise community markets to collectively showcase their products, to enhance visibility and attract a larger customer base.



## 2. Sense of community

Somali entrepreneurs rely on a strong sense of community for support, mentorship, and financial assistance, which plays a crucial role in their success.

## 3. Informal networks

Somali businesses in South Africa rely on informal networks for information exchange, market expansion, customer referrals, and resource mobilisation. These networks are crucial for staying informed about market trends, sharing best practices, and building a loyal customer base. Nineteen participants acknowledged the effectiveness of informal networks in expanding business reach and resilience.

## 4. Adaptive spirit

Somali entrepreneurs stand out for their ability to swiftly adapt to changing market conditions and customer demands. This adaptability allows them to modify their business strategies, products, and services to align with evolving market needs to help them maintain a competitive edge and identify new growth opportunities.

## 5. Resilience

Somali entrepreneurs exhibit resilience in overcoming challenges such as xenophobic attacks and economic instability. They are supported by a close-knit community that provides moral and financial backing during tough times.

## 6. Customer-centric orientation

A strong focus on customer satisfaction is a hallmark of Somali entrepreneurs' business strategies. By prioritising customer needs and preferences, they foster customer loyalty, generate repeat business, and positive word-of-mouth recommendations. This customer-centric approach helps them stay attuned to market trends, improve their offerings, and remain relevant and competitive.

The majority of participants (more than 80%) recognised collaborative ventures and a sense of community as key traits that drive the success of Somali entrepreneurs. Informal networks also played a significant role in business growth through referrals and shared knowledge within the community. Around 70% of the entrepreneurs noted the importance of resilience and an adaptive spirit in helping businesses

These networks are crucial for staying informed about market trends, sharing best practices, and building a loyal customer base.

sustain and expand despite challenges. Additionally, over 65% of participants recognised the vital role of a customer-centric orientation in maintaining customer loyalty and enhancing market relevance.

The research concludes that the Somali entrepreneurs in South Africa find success through collaboration, strong community, adaptability, resilience, and a customer-focused business model. South African SMEs can benefit from adopting similar strategies to boost their competitiveness. Training programs focusing on these traits can help local entrepreneurs improve their business outcomes. 

**Full research study DOI: <https://doi.org/10.38159/ehass.202341418>**

# CATALYSE FINANCIAL INCLUSION in South Africa's Rural Landscape

Rural communities in South Africa struggle with financial difficulties due to the limited availability of banks and other financial services. This leads residents to depend on informal banking solutions that do not fully meet their needs.

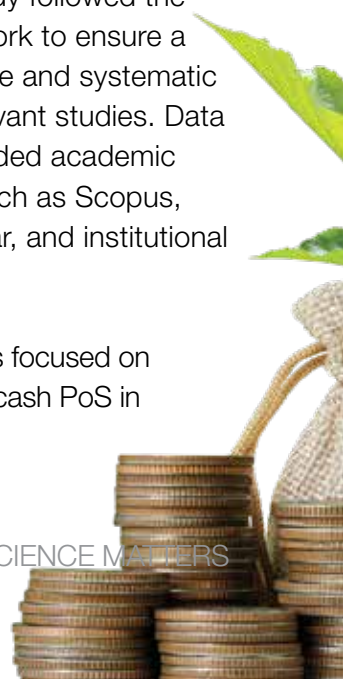
**A** study funded by the NRF looked at how a cash Point-of-Sale (PoS) business model could help provide financial services to underserved communities. The study focused on using the PoS model in Nigeria as a means to improve financial inclusion, support local entrepreneurship, and boost economic activity in rural areas of South Africa. The study suggests that, by using the PoS system, local entrepreneurs could facilitate financial transactions, reduce

reliance on traditional banks, and contribute to broader socio-economic development.

The main goal of this study was to conceptualise the cash PoS business model as an innovative mechanism to address financial exclusion in rural South Africa. It sought to demonstrate how the PoS system could drive financial inclusion, entrepreneurial opportunities, and local economic participation by examining its potential through established economic and technological frameworks.

The research used a qualitative desktop review design to analyse a wide range of existing literature, reports, academic papers, and policy documents related to the cash PoS system and its impact on rural financial inclusion. The study followed the Prisma framework to ensure a comprehensive and systematic review of relevant studies. Data sources included academic databases such as Scopus, Google Scholar, and institutional repositories.

The search terms focused on themes such as “cash PoS in



Nigeria”; “financial inclusion and rural development”; and “PoS and business creation.” A total of 53 publications were reviewed, and a thematic analysis was conducted to identify recurring patterns and insights concerning the role of the cash PoS system in enhancing rural financial inclusion, business creation, and community development in South Africa. This approach allowed the researchers to synthesise diverse perspectives on the subject matter without involving primary data collection or human participants.

The findings of the study highlighted the transformative potential of the cash PoS business model, which was analysed through three theoretical lenses:

**1. The Technology Acceptance Model (TAM):**

This model posits that, for rural residents to embrace the PoS technology, they must perceive it as user-friendly, convenient, and cost-effective.

**2. Schumpeterian Entrepreneurship Theory:**

This theory positions the cash PoS model as a catalyst for entrepreneurial growth and business development in rural communities. It emphasises that local entrepreneurs acting as catalysts can drive economic innovation by creating new business opportunities and generating employment.

**3. Circular Flow of Income Model:** The cash PoS system was described as a stimulant for economic participation, enabling a continuous flow of financial resources and emphasising economies. By facilitating easy access to cash and encouraging spending, the PoS model promotes local investments and business transactions.

This approach allowed the researchers to synthesise diverse perspectives on the subject matter without involving primary data collection or human participants.

In Nigeria, the use of the PoS system led to a 75% increase in operational PoS terminals in just one year, going from 1.04 million to 1.8 million. This rapid growth in Nigeria shows that the PoS business model has the potential to increase financial inclusion. The study suggests that South Africa could see similar success if it adopts this model.

The study concluded that the cash PoS business model promises improved financial inclusion in South Africa’s rural areas. By using technology and entrepreneurship, the PoS model can help local communities reduce reliance on traditional banks and promote economic development. SM

**Full research study: <https://doi.org/10.17576/ebangi.2024.2102.37>**





# How to strengthen South Africa's **DIGITAL** **TECHNOLOGY ECOSYSTEM**

South Africa is at the forefront of innovation in Africa, ranked as the top innovating country on the continent according to the 2022 Global Innovation Index (GII).

It is Africa's second-highest spender on research and development (R&D), with 62% of its R&D funding coming from domestic sources, particularly the Government, compared to Kenya's 69% of GDP. The private sector contributes about 23% of the R&D expenditure.


South Africa has a strong start-up culture and a history of investment in new businesses, especially in the fintech sector. In 2021, three of Africa's top ten venture capital deals were in South Africa, showing the country's support for new companies. One example is JUMO, a South African fintech

company that raised US\$120 million in 2021 and US\$55 million the year before. JUMO uses artificial intelligence (AI) to offer 'banking-as-a-service,' demonstrating the potential of emerging digital technologies such as AI, blockchain, geographic information systems (GIS), internet-of-things (IoT), and new-generation data analytics.

To maintain its position as a leader in innovation and achieve its national development goals, South Africa needs to continue evolving its support for cutting-edge technologies. A research study funded by the NRF assessed the maturity of South Africa's emerging digital technology (EDT) ecosystem and identified strategies to strengthen this environment. These strategies focus on education, research, implementation, and user engagement. The study provides clear policy recommendations for improving the development and sustainability of EDTs in South Africa.

The research employed a comprehensive review of both academic and grey literature, followed by a survey of key stakeholders in South Africa's EDT sector. The Emerging Technologies Maturity Model was used to assess the development stages of the ecosystem, identifying South Africa's position in the innovation life cycle. The framework employed analysed five critical components: education, research, implementation, end-use, and linkages.





The research shows that South Africa's EDT ecosystem is growing. Over 10 universities offer postgraduate programs in AI and data analytics, and Technical Vocational Education and Training (TVET) institutions focus on the Fourth Industrial Revolution (4IR). Schools have integrated coding and robotics into their curriculum, which is a significant step in addressing future skills gaps.


South Africa leads in AI and data analytics research, with several collaborative research centres and four Government-funded research Chairs dedicated to AI. Despite this progress, the country's number of patents and publications in AI remains low compared to other emerging economies. With internet penetration at 72%, higher than the African average, South Africa has made considerable strides in digital adoption.

However, issues such as limited wi-fi coverage, high data costs, and security concerns hinder the broader use of EDTs. Although South Africa has better funding support for EDTs than many other African countries, significant gaps still need to be addressed. Venture capital investments are increasing, but there is a need for more funding dedicated to infrastructure development and the commercialisation of EDT innovations.

South Africa is transitioning from a traditional top-down regulatory approach to more agile,

anticipatory, and outcome-based models. However, only a few examples of agile regulation currently exist, and stronger multi-stakeholder engagement is required to address these gaps.

The research shows that South Africa's EDT ecosystem is growing.

The study concludes that, while South Africa's EDT ecosystem is progressing, there are still significant barriers to reaching full maturity. Key challenges include skills shortages, limited data access, funding constraints, and the need for more agile regulatory frameworks. Addressing these issues is crucial to drive sustained innovation and enable South Africa to maintain its leadership position in the African digital landscape. 

**Full research study: <https://edt.ubuntunet.net/wp-content/uploads/2023/09/Strengthening-of-Emerging-Digital-Technologies-Ecosystem-in-South-Africa-A-Policy-Brief-1.pdf>**



# Harnessing Innovation in the Informal Food Sector: Lessons from COVID-19

The COVID-19 pandemic has greatly affected people’s lives, especially in poorer communities.

**M**any people in Africa depend on jobs in the informal economy, and the informal food sector has been crucial for providing work and affordable food to low-income families. In South Africa, small food businesses, often located in townships and peri-urban areas, are essential for serving their communities. However, they are very sensitive to economic shocks, such as the ones caused by the COVID-19 pandemic.

A study funded by the National Research Foundation (NRF) looked at how innovation helps informal food businesses survive and grow during difficult times, such as the COVID-19 crisis. The study aimed to show how policies could support these businesses by encouraging innovation to drive economic

recovery and resilience after the pandemic. Instead of seeing informality as a temporary stage before becoming formal businesses, the researchers argue that innovation is what helps these businesses thrive and evolve.

The study surveyed 996 informal businesses across South Africa and performed a detailed case study of food businesses in a peri-urban area called Mpumuzza, or “Sweetwaters,” in KwaZulu-Natal. Interviews and workshops were held to learn more about how innovation helped these businesses survive during crises.

Research shows that 85.6% of small food businesses have introduced innovations. Most of these innovations were in response to customer requests (71.7%); purchasing new tools (56.1%); or finding new suppliers (50.6%). These businesses innovate to survive rather than grow. Financial losses, illness, or crime often drive them to innovate, which can lead






to more formal and structured operations over time. Small food businesses generally do not seek support from formal institutions such as training centres or NGOs. They rely on customer feedback and imitating other businesses to learn. This highlights the need for stronger support systems to help these businesses grow in a sustainable manner.

**The policy recommendations from the study highlighted that:**

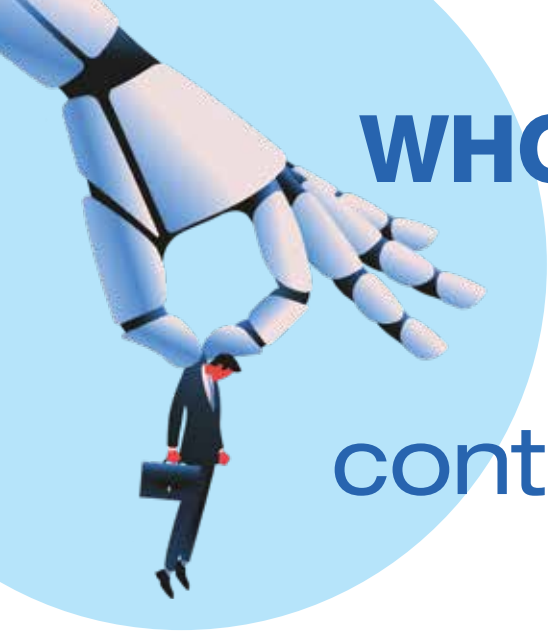
1. Policymakers should focus on helping informal businesses understand the value of innovation and how it can help them grow and become more resilient during tough times.
2. Strengthening the connection between informal businesses and formal institutions, such as technical colleges or NGOs, can help spread knowledge and improve business practices. Encouraging partnerships between the informal and formal sectors will help integrate these businesses into broader value chains.
3. Instead of pushing for immediate formalisation, policy should help businesses gradually meet the conditions for sustainable operation, both in the informal and formal sectors. The goal should be building the capacity to formalise, not just registering the business.
4. To help informal businesses thrive, it is important to provide better infrastructure, address challenges such as crime, and offer targeted support. This will make local food systems stronger and more resilient.

Financial losses, illness, or crime often drive them to innovate, which can lead to more formal and structured operations over time.

The findings of the research indicate that being innovative is crucial to help informal food businesses remain strong, especially during challenging times. However, these innovations are often a response to immediate needs for survival. To promote the long-term development of these businesses, policies should focus on the creation of opportunities to learn, establish connections with formal institutions, and acknowledge the distinct role of local innovation in these businesses. 

**Full research study: [https://www.uj.ac.za/wp-content/uploads/2022/02/wp6-petersen\\_final-2.pdf](https://www.uj.ac.za/wp-content/uploads/2022/02/wp6-petersen_final-2.pdf)**





# WHO ARE THE ROBOTS COMING FOR: The evolving task content of employment in South Africa

For centuries, concerns about automation replacing human jobs have shaped conversations around technological advancements.

**T**he word “robot” itself originates from the Slavic term for work, underscoring the purpose of machines: to perform tasks that would otherwise require human labour. While the basic process of automation, which involves fully understanding a task and programming it into a machine, has remained the same, the cost and speed of automation have changed drastically. Between 1850 and 2006, the cost of performing standard computational tasks dropped by an estimated 1.7 trillion-fold, with most reductions occurring in the last 30 years. This steep decline in costs has reignited fears around automation, especially in the context of the Fourth Industrial Revolution (4IR).

With automation offering incentives for employers to replace labour with technology, the skills required for jobs are shifting. However, not all jobs are equally impacted. According to the Skill-Biased Technological Change (SBTC) Theory, technology has increased demand for highly skilled workers which has intensified wage inequality as highly skilled roles command higher wages. Alternatively, the Routinisation Hypothesis suggests that new technologies, especially computer-based ones, have displaced mid-level jobs with routine tasks while increasing job opportunities at both the high- and low-skill ends of the spectrum.

A research study funded by the NRF investigated whether there is evidence of “de-routinisation” (a shift away from routine manual and cognitive tasks) in South Africa’s labour market as a result of automation. The study seeks to determine if there is a trend of reduced employment in routine jobs and increased demand for non-routine tasks and examines how these changes impact job opportunities across different sectors and firm sizes.

To achieve the study aims, the researchers used two primary datasets: the Occupational Information Network (O\*NET) for task data and the Post-Apartheid Labour Market Series (PALMS) for employment data from 2000 to 2019. Jobs were categorised into four task types: routine manual, routine cognitive, non-routine cognitive analytical, and non-routine cognitive interpersonal. Employment trends in these categories were

The study found a relative decline in routine jobs within the formal private sector.

tracked over time, including specific data on job entries and exits within each task category to assess changes in task content.

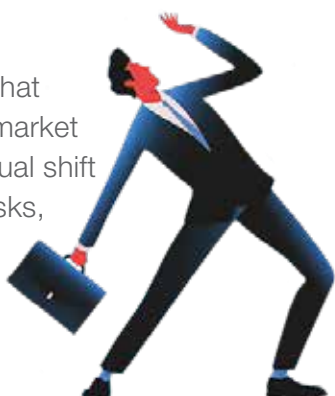
The study found a relative decline in routine jobs within the formal private sector. Routine manual and cognitive jobs accounted for 75% of employment in 2019, down from 81% in 2000. Non-routine jobs, especially non-routine cognitive analytical positions, saw significant growth. Employment in non-routine cognitive analytical roles increased from 197 000 in 2000 to 457 000 in 2019, indicating a strong demand for analytical skills driven by 4IR technologies.

The transition from routine to non-routine jobs was most pronounced in the tertiary sector (services), where non-routine jobs, particularly cognitive and interpersonal roles, grew faster than routine jobs. In contrast, the primary (agriculture, mining) and secondary (manufacturing, construction) sectors displayed mixed trends, with some growth in non-routine roles but at slower rates than in services.

Between 2010 and 2019, the study observed mild employment polarisation, with faster job growth at the highest and lowest ends of the Routine Task Intensity (RTI) distribution. Jobs with high RTI in routine tasks and low RTI in non-routine cognitive analytical tasks saw slower growth, which suggests an emerging demand for highly skilled analytical roles and lower-skilled manual jobs.

Both small and large firms showed trends of de-routinisation, with non-routine job growth exceeding that of routine jobs, especially in larger firms. The shift became particularly evident around 2008, highlighting the adoption of non-routine analytical roles in larger firms as 4IR technologies began to penetrate the labour market.

The study concludes that South Africa's labour market is experiencing a gradual shift toward non-routine tasks, particularly in the service sector,



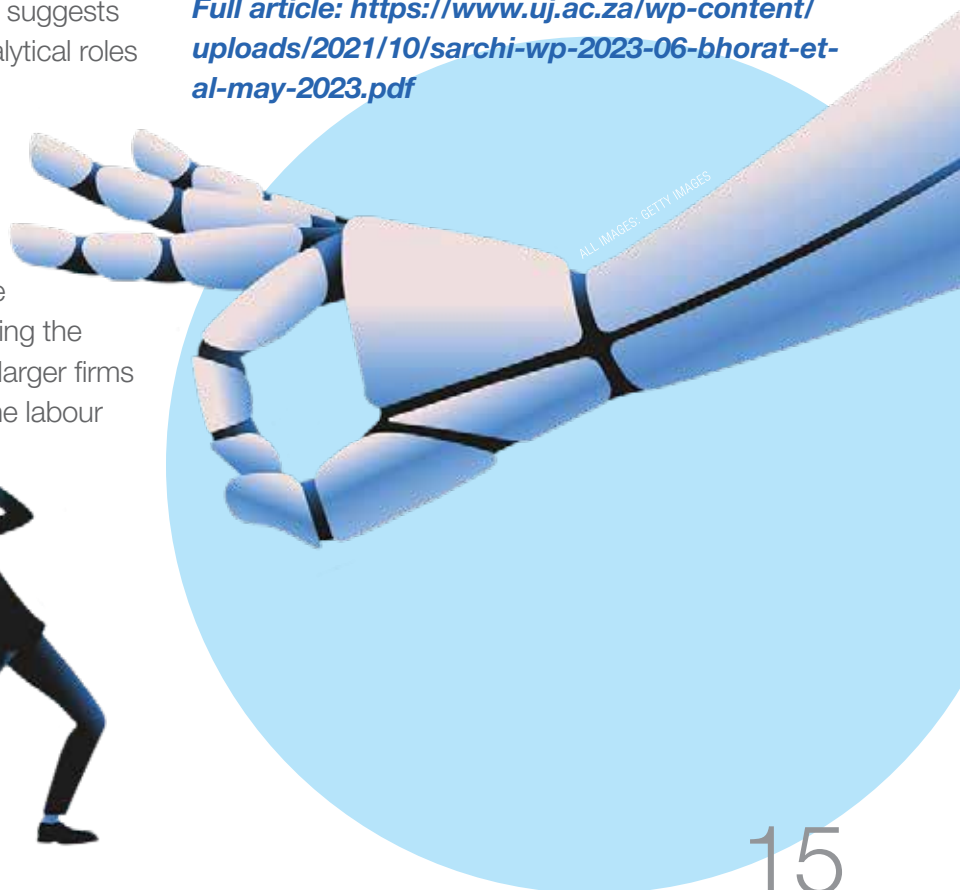
which indicates an adaptation to 4IR technologies that prioritise analytical and interpersonal skills. This trend, however, is uneven across sectors and firm sizes, with the strongest growth in non-routine cognitive analytical roles. The findings imply that as automation and new technologies reshape the job market, there will be a growing need for skills suited to non-routine tasks, especially analytical and cognitive abilities.

### Policy Recommendations

The researchers recommend specific policy measures to address potential challenges posed by automation and 4IR technologies:

- **Skills Development:** Policies should focus on the enhancement of education and training programs to develop the analytical and interpersonal skills required for non-routine tasks.
- **Targeted Support for Routine-Intensive Sectors:** Strategies to support sectors most affected by automation, particularly those with high routine task intensity, could help mitigate potential job displacement.
- **Inclusive Growth Initiatives:** Policies that foster inclusive growth and address skill mismatches can reduce the risk of exacerbating income inequality as routine jobs decline. 

**Full article:** <https://www.uj.ac.za/wp-content/uploads/2021/10/sarchi-wp-2023-06-bhorat-et-al-may-2023.pdf>







# MENTAL HEALTH PROBLEMS AND SUPPORT NEEDS

## Among Pregnant and Parenting Teenagers in SA's Rural Areas

**Teenage pregnancy is a significant global issue that affects millions of adolescents aged 15–19, particularly in low and middle-income countries.**

**T**his social problem often leads to various mental health challenges for pregnant and parenting teenagers, especially those living in rural areas. The social stigma, a lack of support, and the demands of parenting all make these difficulties worse and contribute to an increase in mental health conditions like stress, depression, and anxiety.

The NRF funded a study in Limpopo, South Africa, that examined the support systems available to pregnant and parenting teenagers and the mental health issues they faced. The aim of the study was to highlight the contributing factors to these mental health challenges and offer insights into the kind of support needed to alleviate these issues. The study provides critical information on how teenagers cope with the difficulties of motherhood in underprivileged communities where resources and support systems are limited.

The study utilised a qualitative, descriptive, exploratory, and phenomenological design. A purposive sampling method was used to select 22 pregnant and parenting teenagers from ten

selected clinics within the DIMAMO Health and Demographic Surveillance System (HDSS). These clinics are located in underprivileged areas, where participants aged between 15 and 19 were interviewed to gain insight into their lived experiences. In-depth interviews were conducted, and the data was analysed using qualitative content analysis to identify recurring themes related to these teenagers' mental health challenges and support systems.

The study found several key factors contributing to the mental health issues faced by pregnant and parenting teenagers. The analysis revealed a wide range of challenges as follows:

- Many teenagers struggle to understand and articulate their mental health issues, with most describing their experiences as “worries” or “stress.” These mental challenges were largely linked to difficulties at home and at school, especially around the pressures of motherhood at a young age. One participant explained how the stress of being pregnant while managing school and home life caused significant emotional strain.

- A major theme that emerged was the stigma associated with teenage pregnancy. Many participants reported feeling judged and discriminated against by their friends and the broader community. This stigmatisation exacerbated feelings of isolation and contributed to the mental health problems these young mothers faced.
- Several participants highlighted the lack of support from their partners. The disappearance or abandonment by the father of the child was frequently mentioned, causing additional emotional and financial stress. Without partner support, many young mothers felt overwhelmed by the responsibility of providing for both themselves and their children, which further deepened their mental health struggles.
- The study identified numerous psychosocial issues, including school dropout, self-actualization challenges, and concerns around miscarriage or abortion.

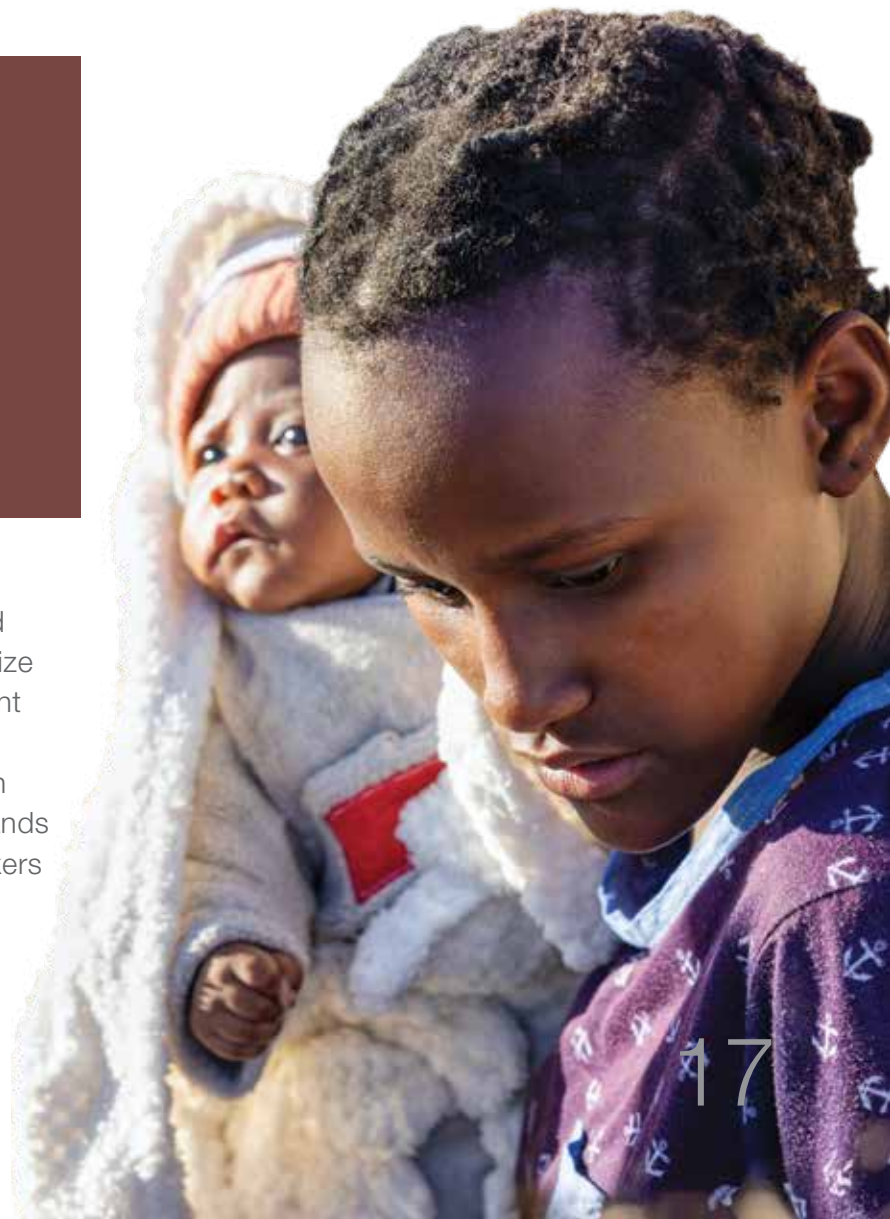
support they received from social workers and health practitioners as critical to their well-being.

The study concludes that pregnant and parenting teenagers in rural Limpopo experience significant mental health challenges, with depression and stress being the most commonly reported issues. These problems are primarily driven by a lack of family and spousal support, social stigma, and the pressures of single parenthood. The study emphasised that without adequate support systems, these young mothers are at increased risk of negative psychosocial outcomes, including school dropout and poor health for both themselves and their children. [SM](#)

***Full research study: Exploring mental health problems and support needs among pregnant and parenting teenagers in rural areas Of Limpopo, South Africa | BMC Women's Health | Full Text ([biomedcentral.com](https://biomedcentral.com))***

Family and community support, although inconsistent, played a crucial role in helping some teenagers cope with the demands of motherhood.

Despite the challenges, the study highlighted the importance of support systems to minimize the mental health problems faced by pregnant teenagers. Family and community support, although inconsistent, played a crucial role in helping some teenagers cope with the demands of motherhood. Additionally, healthcare workers and clinics provided essential mental health services, with some participants citing the







**“TECHNOLOGY, LIKE ART,  
IS A SOARING EXERCISE  
OF THE HUMAN IMAGINATION.”**  
– Daniel Bell



# PROSTATE CANCER KNOWLEDGE, Beliefs and Screening Uptake Among Black Survivors

Prostate cancer (PCa) is an increasing global concern for men, especially as its incidence rises. It ranks as the second-most frequently diagnosed cancer and the sixth leading cause of cancer-related deaths among men worldwide.

In 2020, PCa accounted for approximately 375 304 deaths globally, representing 6.8% of male cancer deaths. The burden is particularly pronounced in sub-Saharan Africa, where the incidence and mortality rates for PCa stand at 40.5 and 22.5 per 100 000, respectively. Among South African Black men, PCa incidence and mortality rates are disproportionately higher compared to other racial groups. Delayed diagnoses at advanced stages are common, often attributed to socioeconomic barriers, limited healthcare access, and low awareness of the disease.

Early detection is critical in reducing PCa-related morbidity and mortality. Screening methods such as the prostate-specific antigen (PSA) test and digital rectal examination (DRE) can detect PCa in asymptomatic individuals. However, systematic PCa screening programs are lacking in South Africa, with screening primarily occurring opportunistically, leaving many at-risk men uncovered. Cultural beliefs,

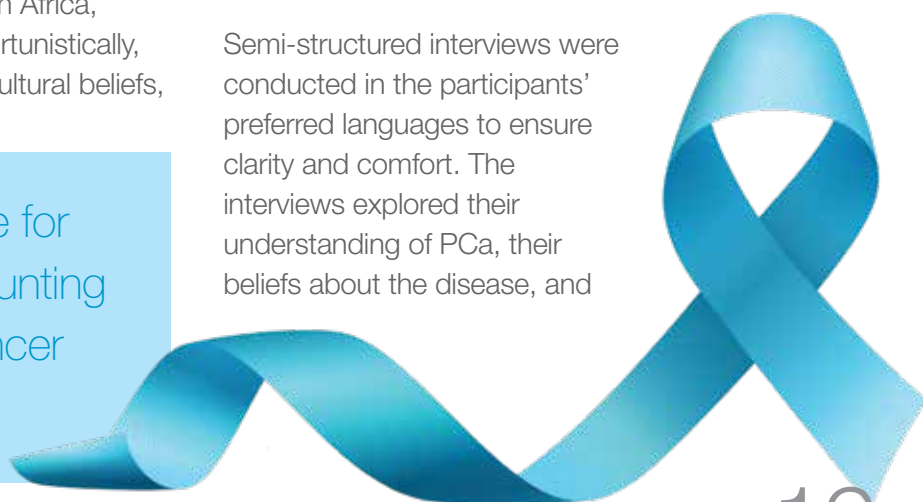
stigma, and limited knowledge about PCa further compound the barriers to effective early detection, particularly among Black South African men.

A study co-funded by the NRF investigated the knowledge and beliefs about PCa among Black South African survivors to better understand the factors that limit screening uptake within this population.

The study employed a hermeneutic phenomenological design to examine the lived experiences of Black South African men diagnosed with PCa. Twenty participants, aged 67–85, were purposively selected for their insights as long-term PCa survivors, having been diagnosed with the disease over five years earlier. These individuals were undergoing treatment at a tertiary hospital in Limpopo Province.

Semi-structured interviews were conducted in the participants' preferred languages to ensure clarity and comfort. The interviews explored their understanding of PCa, their beliefs about the disease, and

PCa was responsible for 375 304 deaths, accounting for 6.8% of male cancer deaths globally.



their experiences with screening and diagnosis. The data collected were analysed using Interpretative Phenomenological Analysis (IPA) to identify recurring themes and patterns reflecting the participants' knowledge and beliefs about PCa.

The study findings revealed two key themes related to participants' knowledge and beliefs about PCa - limited knowledge and fatalistic beliefs:

### **1. Limited Knowledge of Prostate Cancer:**

All participants reported a lack of knowledge about PCa before their diagnosis, with many unaware of the disease's existence. Most had no family history of cancer and had never undergone PCa screening before their diagnosis. Some participants described PCa as "new" or "unknown" to them, with one stating, "I don't know this. This is totally new to me; I have never seen or heard about this illness."

### **2. Fatalistic Beliefs about Prostate Cancer:**

Participants frequently viewed PCa as a fatal disease, describing it as a "death sentence". This perception was reinforced by limited community discussions and a lack of culturally relevant information. Fatalistic views were prominent, with one participant remarking, "I once went to a funeral, and the people there were saying the woman died of cancer... They said cancer can kill you fast."

The findings align with the Health Belief Model (HBM), which suggests that individuals are more likely to engage in health-promoting behaviours when they perceive themselves as susceptible to a disease and understand the benefits of preventive actions. Addressing knowledge gaps and reshaping fatalistic beliefs could improve PCa screening rates among Black South African men.

The study concludes that low knowledge and fatalistic beliefs about PCa among Black South African men are significant barriers to screening uptake. Language barriers, limited health literacy, and cultural misconceptions shape perceptions of PCa as untreatable and discourage early detection efforts. Without targeted interventions, these barriers will continue to hinder progress in reducing advanced-stage diagnoses and PCa mortality.

### **Study recommendations:**

#### **1. Culturally Relevant Awareness Campaigns:**

Develop educational materials that counter fatalistic beliefs and emphasise the benefits of early detection.

#### **2. Language-Appropriate Resources:**

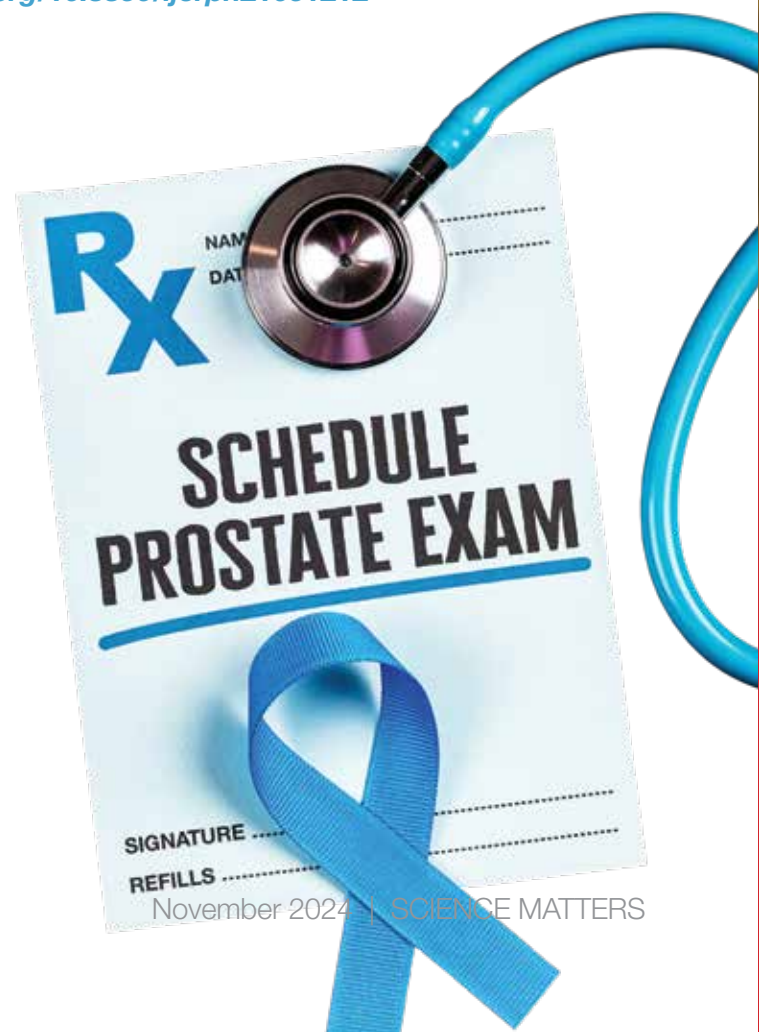
Create health education materials that use culturally and linguistically relevant terminology. Establishing local language equivalents for medical terms like "prostate cancer" can improve comprehension and foster meaningful discussions about PCa.

#### **3. Community Health Education Programs:**

Launch health education initiatives targeting at-risk populations to increase knowledge about PCa and screening practices. These programs should include family and community engagement to create a supportive environment for screening uptake.

This study underscores the importance of culturally sensitive approaches to improving PCa awareness and screening among Black South African men. Addressing these barriers can significantly reduce advanced-stage diagnoses and improve PCa outcomes for this vulnerable population.

**For the full research study, visit: <https://doi.org/10.3390/ijerph21091212>**



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