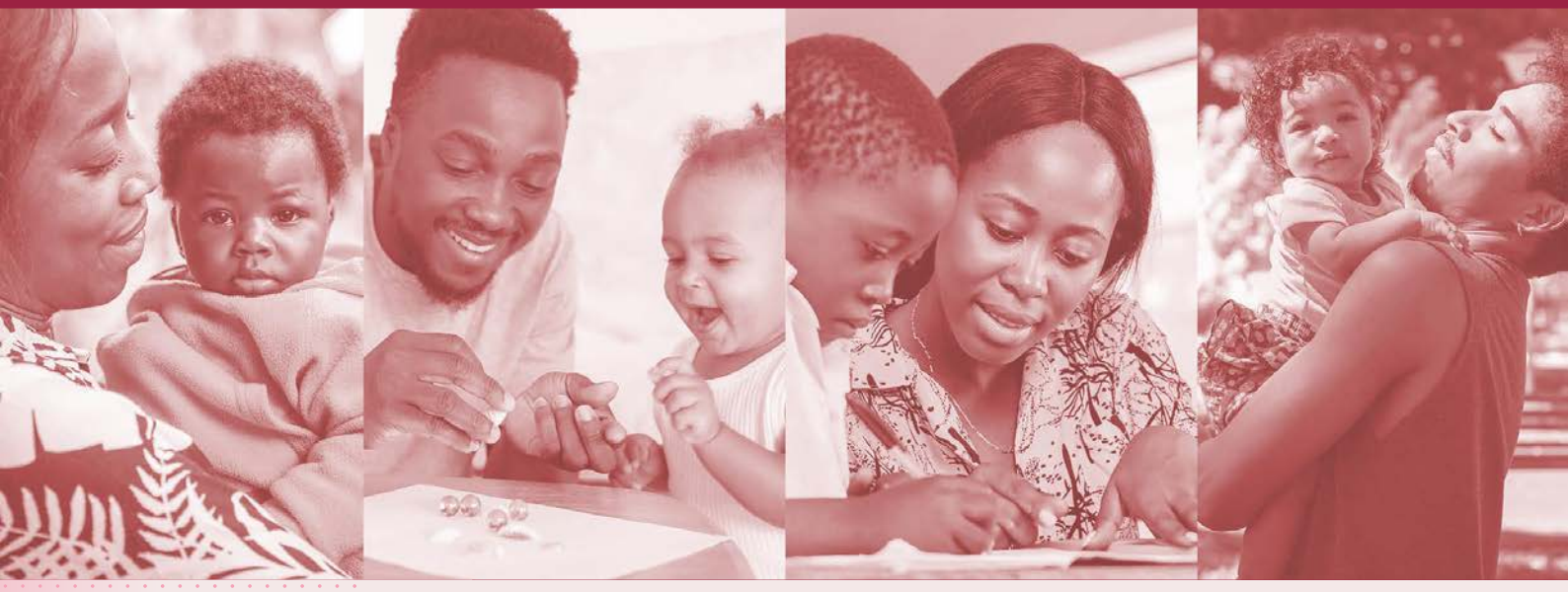
DSI-NRF Centre of Excellence
in Human Development

Individual and Society

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

National Research Foundation

CoE-HUMAN • NEWSLETTER OCTOBER 2023



OCTOBER BREAST CANCER AWARENESS MONTH

In South Africa, October is recognized as “Breast Cancer Awareness Month” in response to a nationwide drive that called for a national campaign by both public and private healthcare systems to increase public knowledge of this debilitating illness that affects people of all racial and socio-economic backgrounds.

Due to early breast screening and innovative medicines, research and awareness campaigns have helped in the acceleration of breast cancer diagnosis and treatment, which has subsequently resulted into higher survival rates and a lower death toll.

According to Siegel et al. (2023), there will be an estimated 297,790 new cases of invasive breast cancer and 55,720 new cases of ductal carcinoma in situ (DCIS) in 2023, making breast cancer the most common cancer type among women of all ages. However, women of reproductive age and pregnant women are at a high risk of other health conditions, which may contribute to maternal morbidity and mortality.

Below is a research showcase on health issues affecting women of reproductive age, conducted by our grantees, Dr Takana Mary Silubonde and Dr Larske Soepnel, funded by the DSI-NRF through the CoE-HUMAN.

Determinants of anaemia among women of reproductive age in South Africa

Takana Mary Silubonde

Anaemia is a major public health concern for women of reproductive age (WRA).

The purpose of this study was to better understand the relationships and interconnections of socioeconomic, biodemographic, nutritional, and inflammatory determinants on anaemia in non-pregnant WRA in Soweto, South Africa.

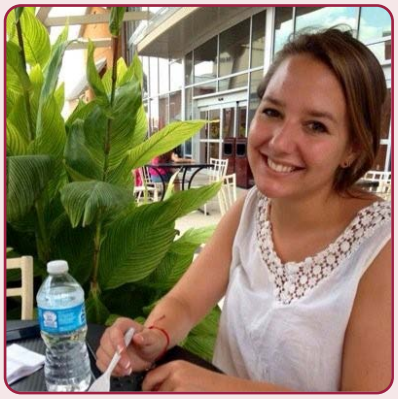
The study examined the risk factors for anaemia in Soweto, South Africa, among 480 young women aged 18 to 25 years using baseline data from the Healthy Lives Trajectory Initiative (HeLTI), a randomised controlled trial which seeks to develop and evaluate the impact of a complex continuum of care intervention for young women starting from preconception and extending through pregnancy, infancy and childhood. The three categories of socioeconomic status (household asset score, education level), nutritional factors (food security, leafy green vegetables, chicken, and beef, iron status, and vitamin A status), and biodemographic factors (parity, age at menarche, HIV status, contraception use, anthropometry, and inflammation status) were tested as part of a theoretical model that was assessed using structural equation modeling. Multivariable logistic regression was used to describe associations with anaemia.

The study indicated that the percentages of people with anaemia, iron deficiency (ID), and iron deficiency anaemia (IDA) were 39.4%, 38.1%, and 21.6%, respectively. Given that ID accounts for 54.8% of anaemia, clearly shows that ID is the primary cause of anaemia. The estimated approximation that 50% of anaemia cases are caused by ID is supported by this data. Studies from the World Health Organization (2004) and Stevens et al., (2013) which demonstrated that about 50% of anaemia was responsive to iron supplementation, also confirmed this estimate.

The authors conclude that the primary risk factor for anaemia is iron deficiency, which is consistent with findings from other low- and middle-income countries. However, the results also show that inflammatory anaemia is present. The findings also suggested that vitamin A status may be important in controlling iron storage. Using micronutrient powders or biofortified foods, which contain vitamin A and have different absorption properties from iron supplements, may be advantageous in low-resource areas with high infection rates since they do not worsen infections. https://doi.org/10.1371/journal.pone.0283645

A Cross-Sectional Study of the Associations between Biomarkers of Vitamin D, Iron Status, and Hemoglobin in South African Women of Reproductive Age

Larske Soepnel



Anaemia and vitamin D deficiency have an impact on the health of women of reproductive age.

Although evidence suggests an inverse relationship between serum vitamin D (25-hydroxyvitamin D [25(OH) D]) and anemia/iron deficiency, little is known about these associations in women of reproductive age, particularly in a setting where micronutrient deficiency, food insecurity, and obesity are combined.

The purpose of this study was to evaluate the relationships between biomarkers of iron and anemia and 25(OH)D in a group of South African women of reproductive age, living in Soweto. The prevalence of vitamin D was also assessed.

Based on the substudy of anemia biomarker analysis, the study discovered that 493 out of the 520 pilot participants had data regarding their age, soluble transferrin receptor (sTFR), ferritin, and hemoglobin levels. Out of the participants, 28 individuals (5.6%) had 25(OH)D <12 ng/mL, indicating vitamin D deficiency, whereas 136 individuals (27.6%) had 25(OH)D levels between 12 and 20 ng/mL, suggesting vitamin D insufficiency.

In conclusion, the authors found no evidence of a significant correlation between iron markers (ferritin and sTFR), vitamin D biomarkers, or anemia (Hb) in this sample of women with a 6% prevalence of vitamin D deficiency. They also suggest that further research is needed to determine whether the association is significant in other population categories having a higher risk of vitamin D deficiency in an African context, such as pregnant women or the elderly. https://doi.org/10.1016/j.cdnut.2023.100072

Digital Microcourses Reward Engagement with Health Education

Zlto

CoE-Human expanded its partnership with Zlto in 2023, a social innovation digital platform that leverages blockchain technology to detect and encourage positive social behaviors and reward youth engagement. The platform is data-free, accessible to anyone in the country, and rewards users with Zlto points, which can be redeemed for commodities such as airtime, data, energy, groceries, and basic clothing.

In this collaboration with the Zlto team, CoE-Human aided in the development of content for digital Nano courses to promote awareness and provide guidance regarding health issues affecting the youth in 2022. These included suicide, depression, and gender-based violence. We included diabetes and hypertension in 2023, along with information on how these illnesses affect pregnancy. Each Nano course consists of a sequence of modules that guide the student through various phases of understanding the symptoms, preventative measures, and how to seek assistance. In May 2023, the new courses were published online. Thus far, we have had the opportunity to work with hundreds of students, most of whom are young adults (18–24 years old), in every province and both rural and urban areas of the country.

Below is the number of users who completed the CoE-Human Nano course modules:

2022 Courses (March 2022-September 2023)

2022 Courses (March 2022-September 2023)

Visit https://www.zlto.co/ to learn more about these courses.

Publications

1. Craig, A., Mtintsilana, A., Mapanga, W., Dlamini, S. N., & Norris, S. A. (2023). Socioeconomic position, perceived weight, lifestyle risk, and multimorbidity in young adults aged 18 to 35 years: A Multi-country Study. BMC Public Health, 23(1), 1360. https://doi.org/10.1186/s12889-023-16234-1
2. Nyati, L. H., Pettifor, J. M., Ong, K. K., & Norris, S. A. (2023). The association between the timing, intensity and magnitude of adolescent growth and body composition in early adulthood. European Journal of Clinical Nutrition. https://doi.org/10.1038/s41430-023-01293-9
3. Prioreschi, A., Pearson, R., Richter, L., Bennin, F., Theunissen, H., Cantrell, S. J., Maduna, D., Lawlor, D., & Norris, S. A. (2023). Protocol for the PLAY Study: A randomised controlled trial of an intervention to improve infant development by encouraging maternal self-efficacy using behavioural feedback. BMJ Open, 13(3), e064976. https://doi.org/10.1136/bmjopen-2022-064976
4. Silubonde-Moyana, T. M., Draper, C. E., & Norris, S. A. (2023). Effectiveness of behavioural interventions to influence COVID-19 outcomes: A scoping review. Preventive Medicine, 172, 107499. https://doi.org/10.1016/j.ypmed.2023.107499
5. Silubonde, T. M., Smuts, C. M., Ware, L. J., Chidumwa, G., Malan, L., & Norris, S. A. (2023). Determinants of anaemia among women of reproductive age in South Africa: A Healthy Life Trajectories Initiative (HeLTI). PLOS ONE, 18(3), e0283645. https://doi.org/10.1371/journal.pone.0283645
6. Soepnel, L. M., Mabetha, K., Draper, C. E., Silubonde, T. M., Smuts, C. M., Pettifor, J. M., & Norris, S. A. (2023). A Cross-Sectional Study of the Associations between Biomarkers of Vitamin D, Iron Status, and Hemoglobin in South African Women of Reproductive Age: The Healthy Life Trajectories Initiative, South Africa. Current Developments in Nutrition, 7(5), 100072. https://doi.org/10.1016/j.cdnut.2023.100072