CELEBRATES SCIENCE

JULY 2016
**TOP 5 ARTICLES**

Director: Prof Paul van Helden

![Image of Prof Paul van Helden]

**Article:**


DOI: 10.1534/genetics.116.187369

**Impact Factor: 4.644**

**Summary:**

Recent genetic studies have established that the KhoeSan populations of southern Africa are distinct from all other African populations and have remained largely isolated during human prehistory until \( \sim \)2000 years ago. Dozens of different KhoeSan groups exist, belonging to three different language families, but very little is known about their population history. We examine new genome-wide polymorphism data and whole mitochondrial genomes for >100 South Africans from the ≠Khomani San and Nama populations of the Northern Cape, analyzed in conjunction with 19 additional southern African populations. Our analyses reveal fine-scale population structure in and around the Kalahari Desert. Surprisingly, this structure does not always correspond to linguistic or subsistence categories as previously suggested, but rather reflects the role of geographic barriers and the ecology of the greater Kalahari Basin. Regardless of subsistence strategy, the indigenous Khoe-speaking Nama pastoralists and the N|u-speaking ≠Khomani (formerly hunter-gatherers) share ancestry with other Khoe-speaking forager populations that form a rim around the Kalahari Desert. We reconstruct earlier migration patterns and estimate that the southern Kalahari populations were among the last to experience gene flow from Bantu speakers, \( \sim \)14 generations ago. We conclude that local adoption of pastoralism, at least by the Nama, appears to have been primarily a cultural process with limited genetic impact from eastern Africa.
Summary:
For more than three decades, foot and musculoskeletal conditions have been documented among both Asian [Elephas maximus] and African [Loxodonta africana] elephants in zoos. Although environmental factors have been hypothesized to play a contributing role in the development of foot and musculoskeletal pathology, there is a paucity of evidence-based research assessing risk. We investigated the associations between foot and musculoskeletal health conditions with demographic characteristics, space, flooring, exercise, enrichment, and body condition for elephants housed in North American zoos during 2012. Clinical examinations and medical records were used to assess health indicators and provide scores to quantitate conditions. Using multivariable regression models, associations were found between foot health and age [P value = 0.076; Odds Ratio = 1.018], time spent on hard substrates [P value = 0.022; Odds Ratio = 1.014], space experienced during the night [P value = 0.041; Odds Ratio = 1.008], and percent of time spent in indoor/outdoor exhibits during the day [P value < 0.001; Odds Ratio = 1.003]. Similarly, the main risk factors for musculoskeletal disorders included time on hard substrate [P value = 0.002; Odds Ratio = 1.050] and space experienced in indoor/outdoor exhibits [P value = 0.039; Odds Ratio = 1.037]. These results suggest that facility and management changes that decrease time spent on hard substrates will improve elephant welfare through better foot and musculoskeletal health.
Summary:
The culturing of mycobacteria is a standard procedure that is consistent world-wide, with little variation in the growth media constituents, particularly those found in liquid and solid media. Before the 1940s however, the aggregating nature of mycobacteria as well as the characteristic slow growth-rate saw mycobacterial research delay considerably. Dubos and colleagues addressed both these issues and observed that a very small volume of Tween detergent was sufficient to greatly improve the culturing of mycobacteria. Over the years however, evidence of the unfavourable effects of this detergent on a number of morphological, biochemical, pathogenic and host-interacting properties of mycobacteria surfaced. For the first time we bring together literature, past and present to comprehensively review the mycobacterial properties which are, and are not affected by the use of this detergent. We also address other detergents and methods which may circumvent the need to include Tween compounds in mycobacterial culture media.
Summary:

**Background:** This study examined the association between the type, and cumulative number of lifetime potentially traumatic events (PTEs), and chronic physical conditions, in a South African sample. PTE exposures have been associated with an increased risk for a wide range of chronic physical conditions, but it is unclear whether psychiatric disorders mediate this association. Given the established differences in trauma occurrence, and the epidemiology of posttraumatic stress disorder (PTSD) in South Africa relative to other countries, examining associations between PTEs and chronic physical conditions, particularly while accounting for psychiatric comorbidity is important.

**Methods:** Data were drawn from the South African Stress and Health Study, a cross-sectional population-representative study of psychological and physical health of South African adults. Twenty-seven PTEs, based on the World Health Organization Composite International Diagnostic Interview Version 3.0, DSM-IV PTSD module were grouped into seven PTE types (war events, physical violence, sexual violence, accidents, unexpected death of a loved one, network events, and witnessing PTEs). Five clusters of physical conditions (cardiovascular, arthritis, respiratory, chronic pain, and other health conditions) were examined. Logistic regressions assessed the odds of reporting a physical condition in relation to type and cumulative number of PTEs. Cochran-Armitage test for trend was used to examine dose-response effect of cumulative PTEs on physical conditions.

**Results:** After adjusting for sociodemographic variables and psychiatric disorders, respondents with any PTE had increased odds of all assessed physical conditions, ranging between 1.48 (95 % CI: 1.06-2.07) for arthritis and 2.07 (95 % CI: 1.57-2.73) for respiratory conditions, compared to those without PTE exposure. Sexual violence, physical violence, unexpected death of a loved one, and network PTEs significantly increased the odds of all or nearly all the physical conditions assessed. There was a dose-response relationship between number of PTEs and increased odds of all physical conditions.

**Conclusions:** Results from this study, the first in an African general population, are consistent with other population-based studies; PTEs confer a broad-spectrum risk for chronic physical conditions, independent of psychiatric disorders. These risks increase with each cumulative PTE exposure. Clinically, comprehensive evaluations for risk of mental and physical health morbidities should be considered among PTE survivors.
Summary:

Introduction: Major depressive disorder (MDD) is a leading cause of disease and disability globally and in South Africa. Epidemiological data for MDD are essential to estimate the overall disease burden in a country. The objective of the systematic review is to examine the evidence base for prevalence, incidence, remission, duration, severity, case fatality and excess mortality of MDD in South Africa from 1997 to 2015.

Methods and analysis: We will perform electronic searches in PubMed, PsycINFO, Scopus and other bibliographical databases. Articles published between January 1997 and December 2015 will be eligible for inclusion in this review. The primary outcomes will be prevalence, incidence, remission, duration, severity, case fatality and excess mortality of MDD. The secondary outcomes will be risk factors and selected populations for MDD. If appropriate, a meta-analysis will be performed. If a meta-analysis is not possible, the review findings will be presented narratively and in tables. Subgroup analyses will be conducted with subgroups defined by population group, rural/urban settings and study designs, if sufficient data are available.

Ethics and dissemination: The systematic review will use published data that are not linked to individuals. The review findings may have implications for future research prioritisation and disease modelling of MDD to estimate its morbidity burden in South Africa, and will be disseminated electronically and in print through peer-reviewed publications.
1. **INTRAMURAL RESEARCH UNITS**

**Alcohol, Tobacco and Other Drug**

   DOI: 10.1080/02791072.2016.1208855
   **Impact Factor: 1.755**

   DOI: 10.4102/SAJPSYCHIATRY.V22I1.932
   **Impact Factor: 0.193**

   DOI: 10.1136/bmjopen-2016-011725
   **Impact Factor: 2.562**

   DOI: 10.2989/17280583.2016.1200586
   **Impact Factor: None**

5. **Myers B, Sorsdahl K, Morojele NK, Kekwaletswe C, Shuper PA, Parry CD.** "In this thing I have everything I need": Perceived acceptability of a brief alcohol-focused intervention for people living with HIV. AIDS Care. 2016 Jul 19: 1-5. [Original]
   DOI: 10.1080/09540121.2016.1211242
   **Impact Factor: 1.902**

**Biostatistics**

   DOI: 10.1186/s13063-016-1452-8
   **Impact Factor: 1.859**

   DOI: 10.1186/s12889-016-3234-3
   **Impact Factor: 2.209**
Burden of Disease

   DOI: 10.1136/bmjopen-2016-011749
   Impact Factor: 2.562

   DOI: 10.1016/j.adolescence.2016.07.002
   Impact Factor: 2.007

Centre for Tuberculosis

   DOI: 10.1186/s13029-016-0056-8
   Impact Factor: None

   Impact Factor: 13.118

   DOI: 10.1016/j.tube.2016.07.002
   Impact Factor: 2.952

   DOI: 10.1534/genetics.116.187369
   Impact Factor: 4.644

   DOI: 10.1186/s12950-016-0133-4
   Impact Factor: 1.975

   DOI: 10.1371/journal.pone.0155223
   Impact Factor: 3.057
**Impact Factor: 2.952**

**Gender and Health**

**Impact Factor: 2.209**

**Health Systems**

**Impact Factor: 1.902**

**Impact Factor: 3.201**

**Impact Factor: 1.221**

**HIV Prevention**

**Impact Factor: 3.063**

**Impact Factor: 2.562**

**MRC Office of AIDS**


**MRC Office of Malaria**


**MRC Office of Tuberculosis**


**Non-Communicable Disease**


Impact Factor: 8.364


Impact Factor: 1.570


Impact Factor: 8.282


Impact Factor: 6.703
South African Cochrane Centre

   DOI: 10.7196/SAMJ. 2016.v106i8.11042
   Impact Factor: 1.500

   DOI: 10.1002/14651858.CD008145.pub3
   Impact Factor: 6.103
2. **EXTRAMURAL RESEARCH UNITS**

**Anxiety and Stress Disorders**

   **Impact Factor: 4.704**

   **Impact Factor: 4.314**

   **Impact Factor: 1.278**

   **Impact Factor: 2.576**

   **Impact Factor: 2.576**

**Child and Adolescent Lung Health**

   **Impact Factor: None**
Gynaecological Cancer

   DOI: 10.1007/s13669-016-0174-y
   **Impact Factor:** None

   DOI: 10.1007/s13669-016-0164-0
   **Impact Factor:** None

   DOI: 10.1007/s13669-016-0170-2
   **Impact Factor:** None

Hypertension and Cardiovascular Disease

   [Original]
   DOI: 10.1111/eci.12663
   **Impact Factor:** 2.687

   DOI: 10.1111/jch.12868
   **Impact Factor:** 2.549

   DOI: 10.1177/2047487316661436
   **Impact Factor:** 3.361

Maternal and Infant Health Care Strategies

   DOI: 10.1186/S12884-016-0968-Y
   **Impact Factor:** 2.180

2. **Bergh AM, Bac M, Hugo J, Sandars J.** "Making a difference" - Medical students' opportunities for transformational change in health care and learning through quality improvement projects. BMC Medical Education. 2016 Jul 11;16: 171. [Original]
   DOI: 10.1186/s12909-016-0694-1
   **Impact Factor:** 1.312

Rural Public Health and Health Transition

3. **GRANT FUNDED RESEARCH**


**Impact Factor: 7.003**


**Impact Factor: 3.760**


**Impact Factor: None**


**Impact Factor: 2.328**
   **Impact Factor:** None

   **Impact Factor:** 4.606

   **Impact Factor:** 1.702

   **Impact Factor:** 2.687
4. RESEARCH UNITS WITH NO QUALIFYING PUBLICATIONS

Intramural

- Biomedical Research and Innovation Platform
- Environment and Health
- MRC Office of Cancer
- Primate
- Violence, Injury and Peace

Extramural

- Antiviral Gene Therapy
- Bioinformatics Capacity Development
- Common Epithelial Cancer
- Developmental Pathways for Health
- Diarrhoeal Pathogens
- Drug Discovery and Development
- Health Services to Systems
- Herbal Drugs
- HIV/TB Pathogenesis and Treatment
- Human Genetics
- Immunology of Infectious Disease
- Medical Imaging
- Microbial Water Quality Monitoring
- Molecular Mycobacteriology
- Prospective Gastrointestinal Cancer
- Receptor Biology
- Respiratory and Meningeal Pathogens
- Stem Cell Research and Therapy
## 5. GRANTS AWARDED

<table>
<thead>
<tr>
<th>SAMRC Unit</th>
<th>Funder</th>
<th>Main Funder</th>
<th>Project Title/Description</th>
<th>Contract Value</th>
</tr>
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<tbody>
<tr>
<td><strong>Biomedical Research &amp; Innovation Platform</strong></td>
<td>The South Africa Rooibos Council (SARC)</td>
<td>The South Africa Rooibos Council (SARC)</td>
<td>Effects of Rooibos polyphenols on Microbiota Regulation, Bioavailability and Bioactivity</td>
<td>481 803 Rand</td>
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<tr>
<td></td>
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<td></td>
<td>Chronic inflammation as a target for prevention and/or alleviation of metabolic diseases</td>
<td>125 400 Rand</td>
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<tr>
<td><strong>ATODRU</strong></td>
<td>National Institute of Allergy Infectious Diseases</td>
<td>Boston Medical Center (Activity #0477201)</td>
<td>The Impact of Alcohol Consumption on TB Treatment Outcomes</td>
<td>4 296 996.44 Rand $303 606</td>
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<tr>
<td>Department of Social Development</td>
<td>The Western Cape Government via its Dept of Social Development</td>
<td></td>
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<td>744 966 Rand</td>
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<td>593 914.91 Rand</td>
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<td><strong>HIV Prevention</strong></td>
<td>Fred Hutchinson Cancer Research Center</td>
<td>National Institutes of Health</td>
<td>HVTN 703/HVTN 081 Protocol Funding (PF-Chatsworth,SA)</td>
<td>4 300 124.30 Rand $303 827</td>
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<td><strong>NCDU –CDL</strong></td>
<td>International Atomic Energy Agency (IAEA)</td>
<td>International Atomic Energy Agency (IAEA)</td>
<td>Using Stable Isotope Dilution to Measure Total Body and Liver Vitamin A Pool Size in Preschool Children Before after Vitamin A Supplementation in an Impoverished South African Community Where Liver is Frequently Eaten and children are exposed</td>
<td>313 976 Rand €20 000</td>
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<td><strong>Gender &amp; Health</strong></td>
<td>Oak Foundation</td>
<td>Oak Foundation</td>
<td>Being heard: Promoting ethical and meaningful participation of children in research on sexual violence evidence for prevention of violence against children and violence against women</td>
<td>8 529 850.58 Rand $602 680</td>
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