

2. RESEARCH ON HEALTH & ENVIRONMENT DETERMINANTS, & THEIR MANAGEMENT IN HUMAN SETTLEMENTS

2.1 Key Findings from the head Pilot Study

While acknowledging their preliminary and pilot nature (the study was implemented to test logistical approaches and the data collection instrument), data from the HEAD pilot study nevertheless point to interesting findings and issues which need to be further examined during the main study. For example, it is clear that the apartheid legacy in terms of population group remains entrenched in all study areas apart from Bertrams. Riverlea, for example, remains a predominantly Coloured township, while the entire study populations of Braamfischerville and the informal settlements are African Black. In Hillbrow there has been a complete transition in the population from exclusively White in the 1970s and early 1980s to the current status of almost exclusively Black African, from South Africa and elsewhere on the African continent.

Across the five pilot study sites, there were low levels of access to important modern facilities such as computers. Hillbrow was best off, with 21% of households reporting ownership of a computer in working order. In contrast, only 3% of households in Riverlea reported ownership of a computer.

Hillbrow appeared to be relatively well-off compared with the remaining study sites, with households there reporting the highest levels of monetary income, access to motor vehicles and tertiary education.

The study points to a degree of housing degradation across all of the five pilot study sites (cracks in walls, peeling paint, leaking roofs). In some of the study sites there were low levels of access to commodities such as indoor hot water. In Braamfischerville and Riverlea respectively, only 3% and 10% of the sample reported having indoor hot water. Even

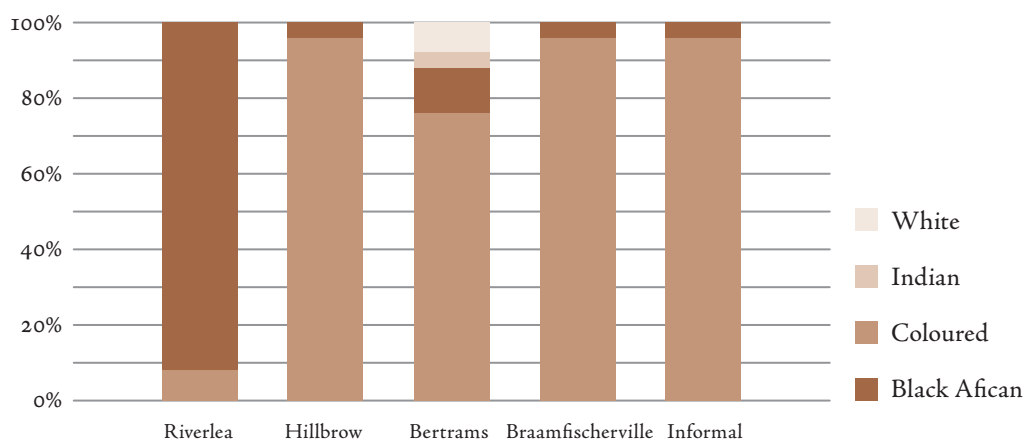
in the long-established sites of Hillbrow and Bertrams, only 80% and 60% of households respectively reported access to indoor hot water.

Indicators of mental ill health (depression and constant anxiety) were highest in the informal settlements and in Riverlea. Riverlea also recorded the highest levels of violent crime, including rape, gunshot wounds and stabbing. Social concerns such as drug and alcohol abuse were also most prevalent in Riverlea. In this area 60% of respondents said they did not encourage their children to play in local parks. While levels of crime were lowest in the informal settlements, there was particular concern amongst respondents about increasing crime in the preceding year. Crime and fears of violence are a key health concern, and have implications also for the incidence and prevalence of chronic ill health conditions such as inactivity and the predicted epidemic in Africa of obesity. In this regard, there needs to be particular attention paid to the implications for girls and women of programmes encouraging healthy and active lifestyles.

2.2 Lead Hazard Awareness in Pregnant Women in Johannesburg

A series of MRC surveys conducted between 1986 and 2003 showed that high proportions of first grade, especially urban, school children, had unacceptably high blood lead levels. The findings of these surveys helped inform policies such as the removal of lead from petrol and paint in South Africa. These studies also pointed to low levels of awareness in the general public of lead hazards. High levels of public awareness of the sources, pathways of exposure and health risks associated with lead has been shown to be a powerful tool in the prevention of lead poisoning.

Population Group Distribution in Five Study Sites



In 2005 a study was conducted of the levels of awareness among pregnant women of lead hazards and the implications for the physical and social health of their children. The study, which formed the research component of a University of the Witwatersrand School of Public Health Masters degree being undertaken by Ms Tanya Hamman (employed as a lecturer by the School of Public Health of the University of Johannesburg) was undertaken at the Coronation Hospital in Johannesburg.

The results showed that a low proportion of pregnant women (20%) from an area known to be high risk for children's exposure to environmental lead were aware of lead as an environmental contaminant, or of the health implications of lead exposure (13%) in their children. The study provides strong support for the need to conduct widespread public education campaigns regarding environmental lead hazards.

2.3 The Birth to Twenty Project – Analysis of Lead Exposure Among Adolescents

Over the past year, the partnership with the Birth to Twenty Project has been strengthened through the further development of an environmental health research initiative. Amongst the research areas to be addressed are:

The distribution of blood lead levels amongst adolescents (the BTT cohort at age 13 years).

The relationship between cord and adolescent blood lead levels.

The relationship between blood lead levels (cord & adolescent) and bone mineral density.

The relationship between blood lead levels (cord & adolescent) and the onset of puberty.

Blood samples have been collected, and blood lead levels determined for 1 549 thirteen-year old children in the cohort.

In a nested case-control study within the Birth to Twenty cohort, a questionnaire is to be administered to sample of adolescents who had the highest and lowest blood lead concentrations, to identify risk factors for elevated blood lead levels.



2.4 Levels of Persistent Toxic Substances (PTS) in Blood from Delivering Women from Selected Areas of South Africa

The levels of PTS contaminants in maternal blood during pregnancy give an indication of the potential risk to the developing foetus. Of particular concern are long-term, subtle effects that might influence reproductive health, pregnancy outcomes, reduce defence against diseases, affect children's mental development, or increase the risk of cancer. Several of these substances move from mother to foetus via the umbilical cord and to the child via mother's breast milk.

Several multidisciplinary international research projects are in progress to studies levels of PTS in people from different geographical regions to establish the relationship between PTS levels and health. Currently, a pilot study is being carried out by the South African Medical Research Council in collaboration with the University of Tromsø, Norway, the Norwegian Institute of Air Research, the Norwegian National Institute of Occupational Health, Centre du Toxicologie de Quebec, Canada and the South African Council of Geoscience to assess possible health risks related to exposure to persistent toxic substances (PTS) in selected areas of South Africa.

After obtaining written consent to participate in the study from women admitted for delivery, samples of blood and urine were collected from mothers, and samples of cord blood from newborns at the time of delivery for PTS content analysis (toxic metals, trace elements an persistent organic

pollutants). A questionnaire that assessed socio-economic status, diet, health status and occupational exposures was also administered to each participant, and information from medical records recorded.

To date fieldwork has been completed in rural, urban, industrial, gold mining, malaria spraying and coastal fish consuming communities. Under umbrella of pilot project and in preparation for planned main study, two analytical scientists from the National Institute for Occupational Health were identified to be trained in Norway in the analytical methods specific to project requirements. The cost of this training will be covered by AMAP.

2.5 Women's Empowerment, Poverty and Food Security: Experiences in Impoverished Settlements in Johannesburg

Poverty manifests itself in many ways within households, including as household food insecurity. Households experiencing food insecurity are vulnerable to concomitant risk factors. For example, the majority of such households will be found in poor neighbourhoods, with limited access to

basic resources such as water, electricity and health services.

Associated with gender roles defined in society, the responsibility of ensuring food security within household usually falls to women. Women in most poor societies carry most of the burden associated with poverty. Women's empowerment has been identified as key element of poverty eradication. Effective women's empowerment strategies should be informed by the real life experiences of the poor. A literature review has highlighted gaps in knowledge generated through the use of narrative stories in women's empowerment. The following questions summarise the key gaps identified:

What do women's voices say about living in poverty?

How do women living in poor households ensure food availability for their families?

What are the perceptions of using narrative life stories from poor women in the design of women's empowerment programmes?

Who should seek such stories?

How should these narratives be collected and used?

This study proposes to identify and describe the poverty, food security, and living environment of women through secondary analysis of data from the Health, Environment and Development (HEAD) study. The study also proposes to explore the opportunities and challenges for women's empowerment in relation to poverty and food security; and to identify policy implications for women living in low-income urban housing settlements in Johannesburg. This will involve investigating the use and effect of narratives and life stories in women's empowerment interventions. An empowering research process is recommended for this type of study. This implies the participation and involvement of targeted women in all steps of the research. Qualitative methods will be used to collect in depth information. Relevant policies will be analysed and key informants will be interviewed.

This research project is being undertaken by Daphney Nozizwe Conco as part of the requirements for completing a M.PHIL./PH.D. qualification at South Bank University, London.





2.6 Towards the Prevention of Lead Poisoning in Children (Trials for Improved Practices)

Building on last year's Lead Hazard Awareness project and a 2002 study that showed elevated blood lead levels among children living in the Westbury area of Johannesburg, a lead exposure and behaviour change project was undertaken in June 2006. The aim of this project was to determine which behaviours, if any, were feasible to introduce in an intervention study designed to lower children's exposure to lead in their homes.

The methodology for the study was the Trials of Improved Practices or TIPS. TIPS gives participants the opportunity to try proposed practices and modify them if necessary. There were over 30 participants for this study, all of whom were either pregnant or had small children living in their home and lived in Westbury or nearby suburbs. Using this methodology, a menu of behaviour changes including household repairs, housekeeping and hand washing, was offered to participants. Participants selected behaviours to

try for four weeks. Follow up visits explored if the behaviours were implemented successfully, what the participants did and why, what motivated them to change or not change their behaviour, and their intentions of continuing the new practices. Originally developed for the field of nutrition, TIPS had previously not been used in South Africa among urban populations in the field of environmental health.

Preliminary data suggest that while there was little behaviour change in the area of repairs, positive behaviour change took place in the areas of housekeeping and hand washing. It was found that unexpected factors such as living arrangements among families and work division in the home affected behavioural change. These factors as well as other questions arising from the study will be further examined in an effort to design a feasible behavioural intervention to reduce lead exposure to young children living in an urban environment.

Monica Feit, a volunteer researcher at the MRC, undertook this study towards a doctoral degree at South Bank University, London..

