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# Healthcare provider views on the health effects of biomass fuel collection and use in rural Eastern Cape, South Africa: An ethnographic study

Margaret Njirambo Matinga [a,b,*], Harold J. Annegarn [b,c], Joy S. Clancy [a]

[a] CSTM, University of Twente, P.O. Box 217, Enschede, 7500 AE, The Netherlands
[b] SeTAR Centre, University of Johannesburg, APB Campus, P.O. Box 524, Auckland Park 2006, Johannesburg, South Africa
[c] Department of Geography, Environmental Management and Energy Studies, University of Johannesburg, APK Campus, P.O. Box 524, Auckland Park 2006, South Africa

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ABSTRACT

Policymakers at global level recognise that household biomass use in developing countries has significant health consequences. However, it is unclear how local-level health professionals perceive and respond to such health effects. This paper which is derived from the findings of a larger study on perceptions and responses to the harmful health effects of carrying heavy firewood loads and to smoke from cooking fires is based on a study conducted in South Africa among managers of health programmes and community nurses of Qaukeni and Mhlontlo municipalities in rural Eastern Cape. Interviews and participant observations were conducted in 2009 using ethnographic grounded theory approaches. In addition to a 10-month period of ethnographic fieldwork, ten programme managers and nurses in two villages were interviewed about health patterns in the villages that they serve, their perceptions of, and responses to the health effects of carrying heavy firewood loads, and inhalation of smoke from wood and dung cooking fires, their professional qualifications and experience, their own household energy use; and observations made as they served clinic clients. Results show that these programme managers and nurses perceive the health effects of carrying heavy loads of firewood and of cooking smoke as minor. Sometimes, nurses give women symptomatic relief for musculoskeletal pain resulting from carrying heavy loads. We posit that their perceptions are derived from customary neglect of work-related health and non-communicable diseases, cultural interpretations of womanhood, limited access to relevant information, and limited interactions between health and energy sector professionals. We conclude that culturally and gender-sensitive awareness programmes are needed for local-level health professionals to effectively address health effects of biomass collection and use. This paper provides new insights into overlooked differences between globally-driven initiatives to address health effects of biomass use and local perceptions.



## Introduction

An estimated three billion people worldwide depend on solid fuels such as firewood, post-harvest waste, dung and coal for cooking and heating (WHO, 2011). In sub-Saharan Africa the work of collecting these fuels and cooking with them is mostly done by women and children. The carrying of firewood, often on the head (headloading), has been linked, although not consistently, to poor health outcomes including miscarriages (Haile, 1991, 94 pp.; Rabiee & Geissler, 1992), and musculoskeletal injuries and pain (Echarri & Forriol, 2002; 2005). There are also reports of sexual harassment and rape during firewood collection in conflict and non-conflict settings (Hampshire, Porter, Mashiri, Maponya, & Dube, 2011; Kasirye, Matinga, & Clancy, 2009; Porter, Hampshire, Mashiri, Dube, & Maponya, 2010). Cooking with solid fuels in open fireplaces or on poorly designed stoves, results in pollutant emissions leading to respiratory impairment and susceptibility to infections (WHO, 2006, 42 pp.).

There are no global data on the health effects of carrying heavy loads in domestic settings but studies show that wood carriers can

* Corresponding author. SeTAR Centre, University of Johannesburg, APB Campus, P.O. Box 524, Auckland Park 2006, Johannesburg, South Africa. Fax: +27 11 559 2430.
*E-mail address:* mmat_001@yahoo.com (M.N. Matinga).

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carry an average of between 28 kg and 36 kg depending on age, season, purpose for the wood and other factors, and as much as 70 kg of firewood, several times a week (Bembridge & Tarlton, 1990; Biran, Abbot, & Mace, 2004; Gandar, 1983; Haile, 1991, 94 pp.; Matinga, 2010). Thus given that the majority of the population in developing countries is engaged in manual carrying in domestic settings, the health burden could be substantial. However, there is less attention given to health issues related to fuel collection compared to that given to effects of cooking with firewood. Domestic air pollution from solid fuels is estimated to cause nearly two million deaths annually throughout the developing world, chiefly among women and children (WHO, 2011). Such evidence has over the last decade kindled international interest, and the United Nations (UN) Foundation's Global Alliance for Clean Cook stoves and the World Bank's African Clean Cooking Energy Solutions initiative are among major efforts to address energy-related indoor air quality problems in developing countries. The WHO organisation is also engaged in addressing energy-related health effects of indoor air pollution, through research support and data provision. Nationally, countries such as South Africa have included the need to reduce health effects of biomass collection and use in their energy policies although the implementation of such policies is questioned (Matinga, 2010). India, China and Peru have also rolled out major clean cooking or cook stoves initiatives. International and national initiatives have focused on promoting cleaner cook stoves and fuels, introducing standards and regulations for cooking stoves and fuels, advocating changes to energy policy, promoting awareness of effects of cooking smoke and behaviour change among users, and introducing financing schemes to help increase affordability of cleaner cooking technologies and fuels.

While global campaigns garner international support, it is local-level health and energy practitioners that have to implement any emerging policies, catalyse behaviour changes or advocate the adoption of new technologies for health improvement. With no local energy professionals in many developing countries (Matinga, 2010), it is local health professionals that will be key intermediaries. Where health practitioners are unaware of the health consequences of particular technologies and actions or perceive the consequences differently from those initiating such policies, they cannot effectively act as agents to facilitate the desired changes. They are therefore a vital link in the emerging global initiatives to address the health effects of household energy use in developing countries. Before rolling out global household energy-health interventions, it is therefore important to understand how local-level health practitioners can be a part of such initiatives. One step toward this is to understand how the local health professionals currently perceive and respond to these problems, if at all. However, there are no studies that have been reported in the literature in this regard. This study which is part of a larger ethnographic PhD research on health impacts of energy use and acquisition (Matinga, 2010) begins to fill this knowledge gap.

## Methods

The research approach used in this study was ethnography, and grounded theory (Charmaz, 2006; Glaser & Strauss, 1967). Data were collected using interview guides, participant observations and long engagement. Long engagement meant for one of us (MNM), living in two villages: in Cutwini for three months in 2007 (July–October) and two months in 2009 (June–July), while five months were spent living in Tsilitwa in 2009 (February–May, then August–September). This enabled a better understanding of the socio-economic and cultural context mediating perceptions and responses of both health care providers and the residents that they serve.

Broad themes for the interview guide with health care professionals included length of service, work or programme focus, common health issues addressed, household energy use of the health care professionals, awareness and perceptions of health effects of firewood collection and cooking smoke, and actions taken by the respondents in response these effects. In Qaukeni local service area, interviews were conducted with the chief community health nurse, who managed four programmes and its associated programme managers at St Elizabeth Hospital and Gateway Clinic in Lusikisiki (the largest town in the district). Observations were made at the one mobile clinic that Qaukeni local service area conducted in Cutwini village in 2009 where MNM had discussions with health professionals and helped them with petty tasks such as lining up clinic attendees and packaging dispensed medicines. The observations spanned three hours from when villagers started to congregate before the health workers arrived, until after the health workers departed, when villagers dispersed. During this period, discussions were held with three other health workers. While multiple observations would have given a better picture, the mobile clinic which is supposed to be conducted monthly in Cutwini often takes place once in 3–4 months for a range of reasons, and was held once during the researcher's stay. This made it impossible to make repeated observations.

In Mhlontlo local service area, three interviews were conducted with the chief nurse from Tsilitwa. The interviews were held with her in her role as a nurse, as a development forum member, both held at the clinic; and as a homeowner and community member, held at her home. In addition, observations were made at Tsilitwa clinic over two days including one ante-natal services day and were supported by discussions with the nurse-in-charge and village health care workers made during various visits to the clinic. Each observation episode lasted an average of four hours when the clinic was active, during which detailed notes were taken. In addition, hospital records covering a three week period, of what services clinic attendees came to the clinic for were examined. Further interviews were conducted with eight programme managers from Mhlontlo local service area.

As a result of an imbalance in the staffing levels as well as availability of staff, more interviews were held in Tsilitwa than in Cutwini.[1] However, this did not negatively impact the results of the study since the data is not reported comparatively but as reflecting perceptions and responses of health care professionals at municipal and village level within their specific cultural context.

All interviews were conducted in a mix of English and Xhosa since nurses used the two languages interchangeably – as is common among professionals in the region. MNM learnt Xhosa to undertake the study and spoke both languages fluently. Clearance to conduct the study was first requested and received from the Eastern Cape provincial health department. The researcher then introduced the research objectives to the local service area managers who introduced it to her staff, in the presence of the researcher. Before interviewing each individual, the research objectives were explained again and consent was sought for the interviews and to record them. Only two programme managers refused to respond. One, because she was going to a village meeting, another because she felt the research had nothing to do with her work focus which was in fact environmental health. Two programme managers requested to be interviewed together because they were both dealing with the same subject of health promotion, and considered it more efficient to be interviewed together. The request was granted.

[1] Total relevant staff in Cutwini was 5 while in Tsilitwa it was 12.