Key findings

- High levels of obesity were found among Bangladeshi mothers and daughters living in Cardiff, which are associated with frequent consumption of high fat savoury and sweet foods and low levels of physical activity.

- Low levels of physical function are common amongst Bangladeshi mothers living in Cardiff, which are associated with low physical activity levels and increased risk for frailty.

- Bangladeshi mothers and daughters living in Cardiff report poorer health status than their counterparts in Bangladesh.

- Fewer families in Cardiff now live in multi-generational households, with 50% of Bangladeshi mothers and 61% of married daughters living in nuclear family households.

- The exchange of health and nutrition knowledge is dynamic and spans across generations and countries through a range of mediums, including word of mouth, the internet, formal education, and health professionals.

- There is a need for health promotion and public health campaigns and materials tailored for the Bangladeshi community which actively engages them, uses oral Sylheti information, and provides health and social care services designed to meet the diverse needs of this increasingly ageing population.
Background and methods

The Bangladeshi population is one of the fastest growing ethnic groups within the UK, and is amongst the most socially disadvantaged. They have poorer self-reported and measured health status indicated by higher rates of disability, centralised obesity and chronic diseases such as type 2 diabetes and cardiovascular disease. Older Bangladeshi women are particularly affected as they play a lead role in caretaking for multiple generations within relatively large extended families and many struggle to cope with the complex challenges of ageing, poverty, racism, and social exclusion.

As in the general population, nutrition plays a crucial role in the health status of the Bangladeshi population. Despite this there is no clear understanding of how eating patterns and migration affects this group's nutritional status and experiences of ageing. Without this information we cannot develop effective culturally tailored interventions. The MINA project addressed these gaps using interdisciplinary approaches, integrating methods and combined expertise not used in previous research to gain an in-depth understanding of Bangladeshi women's nutritional status, food practices, beliefs and experiences of ageing in the UK and Bangladesh. These results provide new insights into specifically food, nutrition, and their interactions with ageing and migration amongst UK Bangladeshi families who are living in communities outside of Tower Hamlets, London.

The aim was to investigate migration, nutrition, and ageing via an intergenerational and transnational project incorporating multidisciplinary methodologies. The intergenerational component included recruiting a sample of older women who migrated from Bangladesh to the UK and their adult daughters, who were either UK born or immigrated to the UK in childhood. The transnational component included recruiting women of the same two age groups and familial relationship living in Sylhet, Bangladesh, providing a continuum to understand the influence of migration, nutrition, and eating patterns on ageing. Participants in both countries were recruited across the range of socio-economic groups. The project’s multidisciplinary component is based on the diverse disciplines of the MINA research team, providing expertise in public health nutrition and exercise, biological anthropology, health psychology, public health nursing, ethnobotany, environmental and media
We integrated these components via a bio-cultural perspective that gives equal importance to the physical/biological and social/psychological aspects of food, nutrition, migration and ageing. Specifically, MINA addressed the following research questions:

1) Does migration impact on nutritional status, food practices, and health among first generation Bangladeshi women aged 45 years and older? If so,

2) How does migration affect nutritional status, food practices and health of the successive generation of women living in the UK? and

3) How does migration affect changes in nutritional status, food practices and health compared with non-migrating women of the same ages and familial relationship in Bangladesh?

These questions were addressed through four integrated Work Packages using a participatory, mixed-methods approach to gather and analyse data. Nutritional status, physical function, and bone health (UK participants only) were measured using anthropometry, a standardised battery of tests for lower body physical function, and via estimates of heel bone density using Quantitative Ultrasound. Food ethno-botanical knowledge and uses of traditional food plants, analysis of home-gardens/allotment gardens managed by Bangladeshi migrants in the UK and in Bangladesh, including frequency of botanical species, analysis of the management and organisation of food plants in the home-gardens, assessment of the social meaning of these for the community, and analysis of the “emic” perception of food plants and plant-based culinary preparations as traditional medicines were assessed using focus groups, interviews, participant observation, collection of botanical species and seeds, and visual anthropological methods.

Differences between lifecourse experiences and the typical “food environments” of the Bangladeshi community in the UK and in Bangladesh were assessed using a semi-structured questionnaire, in-depth interviews, participant observation and photo ethnography. Detailed accounts of migration and biographical experiences were gathered using a semi-structured questionnaire and qualitative interviews to assess their impact on nutritional
status, health behaviours and transmission of nutritional knowledge cross-generationally and transnationally. Additionally the influence of cultural beliefs on nutrition, health, and health-seeking behaviours and how this has changed across the lifespan and between generations were examined. The impact of social inequalities on nutrition and health status, changes in the roles, position and responsibilities of women in the household and the impact on their nutrition, the family unit and wider community were also assessed.

**Summary of key findings**

**Main Findings**

A total of 121 women ranging in age from 17 to 70 years participated in the project. This included Bangladeshi older women (n=40) and their adult daughters (n=37) living in Cardiff, UK, and 44 older women (n=22) and their adult daughters (n=22) living in Sylhet, Bangladesh. All of the UK-based older women participating in MINA were born and had lived a considerable portion of their lives in Bangladesh. Seventeen (46%) of the UK-based adult daughters were born in Bangladesh and migrated to the UK during childhood or adolescence (average age at migration approximately 8 years); the remainder were born in the UK. Two thirds of Cardiff participants had lived in Cardiff for more than 21 years and migrated mainly to re-unite with their spouses and to provide a better life for their children. These varied migration histories exert differential effects on nutritional and health status (both in childhood and adulthood), personal food preferences, levels of daily physical activity, the role that traditional food and cooking practices plays in one’s daily life, and views on ageing.

Approximately 63% of older women living in the UK were married with the remainder widowed, with 50% living in a nuclear family household. Amongst the UK daughters, 35.1% were single, 59.5% were married, and two women (5.4%) were divorced, with 61% of married daughters living in nuclear structured households. These findings challenge existing literature on household structure in this population and have important implications for availability of support and future care of ageing Bangladeshi women in the UK. In Sylhet, 68% of mothers and daughters were married, with the remainder of mothers widowed and remainder of daughters single. All women in Bangladesh were living in large, multi-generational households.

All participants were short in stature as compared to the White British population in England and Wales. UK-residing women have higher rates of overweight, obesity, and centralised obesity than women residing in Bangladesh. Obesity is particularly high in UK older mothers, with 65% having body mass index (BMI) values indicative of obesity as compared to 27.3% of older mothers in Bangladesh. Similarly,
42.5% of UK daughters had BMI values indicative of obesity as compared to 13.6% of daughters in Bangladesh. Conversely, about one-fifth of all women living in Bangladesh were underweight, whereas none of the UK-residing participants were underweight.

Low levels of activity and dietary patterns are contributing to obesity in the UK participants. The cultural norm to honour one’s elders by encouraging limited physical movement was described by both older women and adult daughters. Limited physical activity and social activities outside of the home are associated with low physical function; the average physical function score for the UK mothers indicates an increased risk of frailty, with 8 unable to perform most elements of the function test. Many adult daughters describe leading busy lives focusing on family duties, work, and education, but few report participating in physical activities that promote health. On average, intake of fruits and vegetables was lower than the recommended 5 portions per day in both countries. Vegetable intake was higher amongst women living in Bangladesh as compared to UK-residing women, but fruit intake was lower due to the high cost of fruit in Bangladesh.

Although many MINA participants recognised that food is critical to health and understand the importance of good nutrition, they were less inclined to alter food choices and cooking preparation methods unless they had been diagnosed with disease. For instance, participants with diabetes were more likely to report eating fewer ready meals, savoury snacks, and sweet foods and were less likely to use salt after cooking or add sugar to their hot drinks. Frequent consumption of fried foods is of particular concern amongst daughters in the UK, with 60% reporting eating fried foods at least 1 to 2 times per day. Adding salt to food during cooking was reported by all participants. Many older mothers complained of stomach and intestinal irritation when eating foods they used to enjoy; consequently they limit use of spices and consumption of some of their favourite foods. These dietary changes as one ages, and differences in food preferences and health status in multi-generational households impacts upon the food environment of all family members, and can lead to challenges with trying to accommodate all family members within environments of communal cooking and food consumption.

There were distinct differences in self-reported health, emotional wellbeing, and level of social participation and connectivity between generations and transnationally. UK-residing mothers and daughters were more likely to report their own health as poor or very poor than mothers and daughters in Bangladesh, with approximately one-third of UK mothers and daughters reporting their health as being poor or very poor, compared with 23% of mothers and 9% of their daughters in Bangladesh. UK older mothers were more likely than older mothers living in Bangladesh to report poor emotional wellbeing. In contrast, UK daughters reported better emotional wellbeing than the daughters living in Bangladesh. Despite just one older participant in the UK reporting living alone, many of the older UK participants reported feelings of isolation and loneliness, which is consistent with previously published research. Lack of fluency in English, limited social activities and community spaces that are viewed as culturally acceptable, and concerns regarding physical safety, vulnerability and racism severely limit many older women's social connectivity and engagement with wider society. Older women expressed not only discomfort related to cold weather, but actually fearing the cold as a barrier to leaving their homes to socially engage. These issues were highlighted as major concerns by the women themselves, and were shared and reinforced by family members.
Daughters, by contrast, provide a strikingly different picture. For UK-residing daughters, particularly those who are bi-lingual, most have benefited from gaining a UK education and engage fully in paid or voluntary work, further education, doing much of the shopping, and taking their children to school and other activities. During qualitative interviews, many of the UK-residing adult daughters expressed a higher satisfaction with their quality of life than their counterparts living in Bangladesh, as both groups described the benefits of education toward enhancing social mobility, connectivity, and life opportunities.

Older mothers in Cardiff compared the differences between living in the UK and Bangladesh. In Bangladesh there is a great deal of social interaction in homes between family, neighbours and friends; older adults described daily visits with people coming in and out of their homes with doors seldom closed. This degree of social interaction does not occur in the UK. Older women in Cardiff expressed the view that their lives would be of higher quality in the context of social participation and feeling connected if they were living in Bangladesh as an older person, but most stated they would stay in the UK throughout the remainder of their lives because of existing family connections.

In fact, the majority of mothers and daughters living in the UK expect to remain here. Participants described changing family structures within their communities due to global migration of children and grandchildren, which is resulting in adult daughters now being primarily responsible for the care of ageing parents. Some participants expressed concerns about their future care needs, as they may not have adult children living near who can provide care at home as they age. These changing family structures have important implications for policy makers and providers of health and social care as they devise strategies for promoting healthy ageing among the growing ageing Bangladeshi population in Wales.

“In Bangladesh the poor or needy people will work to survive and those who are not poor will walk around the house a lot, relatives and other people will come and go all the time, it’s different over there. In our country [referring to Bangladesh], you don’t have to be blood related to visit, anybody living in the next house, or next village is also like your own people, so they will always come and go...”
Participants reported frequent exchange of nutritional and health information, especially from the UK to Bangladesh. A main source of nutritional information for UK older mothers was health professionals, particularly doctors. Daughters living in the UK reported access to a wider range of information sources, including the internet, formal education through schools, and leaflets. Family members are also an important source of health-related, cooking, food/plant and nutrition information in both countries and they exert a very strong influence on older women and their ability to make dietary changes. This finding emphasises the need for family members across all generations to have access to accurate and current nutrition information. Although only a small percentage of participants reported fluency in Bengali, mothers living in the UK expressed a preference for bilingual information sources, placed side-by-side on the same page in both Bengali and English. Both UK residing mothers and daughters reported a critical need for health promotion information in oral Sylheti, the local dialect spoken by Sylheti people.

In addition to focus groups conducted with participants in Cardiff, more in-depth ethnobotanical research was conducted with 30 Bangladeshi women living in London, and 15 women living in Sylhet. Using plants as food-medicine (often interchangably) was found to be fairly common, particularly amongst older women in the UK. Links and exchanges with Bangladesh, through word of mouth as well as physical exchanges of food stuff and seeds, are important to maintaining this food-medicine knowledge. Plants are most frequently used for general health, minor upper respiratory ailments, and diabetes. There is a high level of interest in cultivation of vegetables and herbs in gardens, allotments, and/or on windowsills and kitchens. Allotments and gardening clubs also act as important social spaces. Lack of access due to allotments not being available, lack of transport, or lack of awareness of gardening clubs, are key barriers to preventing more extensive gardening.

**Impacts**

MINA results have been presented at more than 20 scientific meetings to date (November 2012). The MINA team has been invited to speak at 9 policy-related events and 5 community events, and has organised and delivered three dissemination events:

- a community event at the Cardiff Story Museum for study participants, policy makers, and health and social care professionals;
- an event for policy makers at the Senedd, National Assembly for Wales; and
- a community event in Loughborough involving health care providers, policy makers, and community members.

The dissemination event targeted at Welsh Assembly Government Policy Makers resulted in an invitation to meet with Jane Hutt, Minister for Finance and Leader of the House on 23 April, 2012, to discuss how the MINA findings can be used to inform social and health care policy in Wales. The photoethnography results have been displayed in six photo exhibitions to date – at The Cardiff Story Museum and Senedd in Cardiff (15 November through 15 December 2011), at Stepney City Farm in London (17 December 2011 through 31 March 2012), at the Bangladesh Social Association in Loughborough (15 March 2012), at the London International Development Centre (30 May through 12 June 2012), at UCL School of Pharmacy (12 June through 31 July 2012), and at a NDA workshop for policy makers, care professionals, older adults and researchers on “Nutrition & Food Environments of Older Adults” in London (12 November 2012). Our team has also developed the MINA Data Map for Health Information Amongst Bangladeshis from the UK Data Archive (UKDA) (www.bris.ac.uk/mina/reports/). This search tool was developed to assist researchers in accessing existing secondary datasets that include health information on Bangladeshis.

In Cardiff, data were collected via community events that included lunch, physical activities such as Extend and Bollywood dancing, Indian head massage, and stations providing information on health and social care services. These events were popular amongst the participants and helped to ensure that recruitment targets were achieved. MINA has also had a positive impact on training Bangladeshi researchers living in the UK. The project employed two Bangladeshi research assistants, one Bangladeshi post-doctoral fellow, and employed and trained 11 Bangladeshi community researchers from the Cardiff and Swansea areas. There are two MINA websites: 1) a more academically focused website maintained via University of Bristol (www.bris.ac.uk/mina/); and 2) a recently developed website that is currently being updated with project information, results, photos and ethnographic stories written for a non-academic audience (http://projectmina.org/).
Conclusion

Varied migration histories and changing family structures play an important role in influencing nutritional status, perceived and actual health status, and future health and social care needs of ageing Bangladeshis in the UK. There is a clear need for greater access to leisure facilities, day centres, and other social opportunities that can consistently offer culturally appropriate physical and social activities. Our findings indicate that providing a social component in conjunction with a physical activity may promote engagement, particularly for older UK residing Bangladeshi women. Access to allotments and gardening groups could be attractive and of physical and social benefit. There is a clear and critical need for further culturally relevant health promotion, disease prevention and public health campaigns for the Bangladeshi community, provided through a range of media and incorporating oral Sylheti. Nutrition-related health promotion messages and materials need to focus more on portion sizes as opposed to the concept of the healthy plate which has limited relevance for communities who eat communally. In the UK it is daughters, as opposed to traditionally sons and daughters-in-law, who are increasingly assuming responsibility for caring for their elderly parents. Changes in family structures, wider employment opportunities for women and increased geographical mobility means that not all families may be able to care for their elderly parents. Planning and provision of healthcare and social services need to take account of the diverse care needs of this growing ageing Bangladeshi population.

All Photographs taken by Dr Vanja Garaj

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nda findings 17