

Contents lists available at ScienceDirect

Journal of Ethnopharmacology

journal homepage: www.elsevier.com/locate/jep

Food or medicine? The food–medicine interface in households in Sylhet

Hannah Maria Jennings^a, Joy Merrell^b, Janice L. Thompson^c, Michael Heinrich^{a,*}^a Research Cluster Biodiversity and Medicine/Centre for Pharmacognosy and Phytotherapy, UCL School of Pharmacy, University of London, 29–39 Brunswick Square, London, WC1N 1AX, United Kingdom^b College of Human and Health Sciences, Swansea University, Singleton Park, Wales SA2 8PP, United Kingdom^c University of Birmingham, School of Sport, Exercise & Rehabilitation Sciences, Edgbaston, Birmingham B15 2TT, United Kingdom

ARTICLE INFO

Article history:

Received 24 March 2014

Received in revised form

15 August 2014

Accepted 5 September 2014

Available online 18 September 2014

Keywords:

Food–medicine

Bangladesh

Ethnography

Health beliefs

Health practices

ABSTRACT

Ethnopharmacological relevance: Bangladesh has a rich traditional plant-medicine use, drawing on Ayurveda and Unani medicine. How these practices translate into people's homes and lives vary. Furthermore, the overlap between food and medicine is blurred and context-specific. This paper explores the food–medicine interface as experienced by Bengali women in their homes, in the context of transnational and generational changes.

Aim and objectives: The aim is to explore the overlap of food and medicines in homes of Bengali women in Sylhet. The objectives are to explore the influences on medicinal plant practice and to scrutinise how categories of food and medicine are decided.

Material and methods: The paper draws on in-depth ethnographic research conducted in Sylhet, North-east Bangladesh as part of a wider project looking at food and medicine use among Bengali women in both the UK and Bangladesh. Methods included participant observation, unstructured interviews and semi-structured interviews with a total of thirty women.

Results: The study indicates that the use of plants as food and medicine is common among Bengali women in Sylhet. What is consumed as a food and/or a medicine varies between individuals, generations and families. The use and perceptions of food–medicines is also dependent on multiple factors such as age, education and availability of both plants and biomedicine. Where a plant may fall on the food–medicine spectrum depends on a range of factors including its purpose, consistency and taste.

Conclusions: Previous academic research has concentrated on the nutritional and pharmacological properties of culturally constructed food–medicines (Etkin and Ross, 1982; Owen and Johns, 2002, Pieroni and Quave, 2006). However, our findings indicate a contextualisation of the food–plant spectrum based on both local beliefs and wider structural factors, and thus not necessarily characteristics intrinsic to the products' pharmacological or nutritional properties. The implications of this research are of both academic relevance and practical importance to informing health services.

© 2014 The Authors. Published by Elsevier Ireland Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/3.0/>).

1. Introduction

1.1. Food and medicines

In the context of wider debates as to what constitutes food (*materia dietetica*, substances) and what constitutes medicine (*materia medica*, medicinal substances) this paper investigates how the food–medicine interface translates into people's homes through lay food–medicine practices. The paper highlights the

localised nature of the food–medicine continuum, which is subject to multiple familial, societal and transnational influences.

Specifically, the research presented in the paper explores the food–medicine practices among women in Sylhet, Northeastern Bangladesh. It draws on in-depth qualitative research in the region conducted as part of the first author's Ph.D. research. The aim of the paper is to explore the overlap of food and medicine in the homes of Bengali women in Sylhet. The findings indicate a practical but highly contextualised nature to food–medicine categories. Before discussing the methods and findings of the research it is important to look at the context of the research, both in terms of the medicinal practices in Sylhet and research examining the overlap of food and medicine.

* Corresponding author. Tel.: +44 20 7753 5844.

E-mail address: m.heinrich@ucl.ac.uk (M. Heinrich).

1.2. Medicinal traditions on Sylhet

Bangladesh is rich in medicinal plant-medicine practices that remain widespread, with estimates of up to 75% of the population using alternative and complementary medicines to manage their health care needs (Ghani and Pasha, 2004). However medical pluralism, which is the simultaneous engagement with multiple medical practices, is widespread and dynamic in Bangladesh (Ahmed et al., 2013). Ayurvedic, unani, allopathic, faith healing, homoeopathy and *kobiraji* (traditional healers) are popular and often overlapping in Bangladesh and specifically in Sylhet. The employment of different medical systems is affected by many factors including migration status, class and religion, with many considering 'folk' practices as backward (Gardner, 1995, Wilce, 2004). However, it does appear that folk healers are widespread, and pluralistic beliefs and practices remain prevalent. Turning to Sylhet specifically, Gardner (1995) found during her fieldwork in Sylhet that healers would often employ many systems of health including Ayurveda, homoeopathy and Muslim prayer, with the boundaries of herbal medicine, magic and Islamic healing blurred. In Sylhet, the impact of migration – and particularly migration to the UK – is palpable. Research conducted by the first author indicates that the exchange of both ideas and medicine has an impact on the food–medicine-scape in the homes in Sylhet (Jennings, 2014). Furthermore the findings indicate that pluralistic medical practices are reflected in caring practices among Sylheti women in the home (Jennings, 2014). The use of food–medicines, which this paper explores, is particularly prevalent.

1.3. Food–medicine interface

The blurring of food and medicine is not new; it is a common theme across multiple contexts and cultures. It was Hippocrates who famously stated “let your food be your medicine and your medicine be your food” (1480–377 BC proclamation, cited in Leonti, 2012: p. 1295). Similarly, Ayurveda has taught the centrality of food to both health and healing (Caldecott, 2011). While the impact of diet and food continues to be recognised in research, food and medicine have largely been studied academically as two separate entities (Prendergast et al., 1998, Frei et al., 1998, Pieroni and Price, 2006). However, several academics from the disciplines of ethnopharmacology, ethnobotany, anthropology and pharmacy have begun to address this dichotomy as they explore the food–medicine interface from various perspectives. Notably Etkin and Ross (1982), looking at medicinal plant use among the Hausa in Nigeria, found that 63 plants out of 235 were used as food as well as medicine; they stress the importance of both local contexts and the pharmacological properties of plants, and highlight the importance of bio-cultural adaptation in relation to what is consumed therapeutically (as food and medicine). Several other studies have explored both the pharmacological aspects of food–medicines as well as differing populations' bio-cultural adaptations in a range of contexts (Owen and Johns, 2002; Grivetti, 2006; Leonti et al., 2006; Owen, 2006; Pieroni and Quave, 2006).

When looking at food–medicine in the context of Bangladesh, there are few relevant studies. Among South Asians in Britain there have been a few urban ethnobotanical studies, all of which reveal a significant food–medicine overlap with 'traditional' food (spices, vegetables) often being utilised therapeutically (Sandhu and Heinrich, 2005; Pieroni et al., 2007, 2010). Vegetables were reported to be frequently used in cooking, and were also viewed as medicinal (Sandhu and Heinrich, 2005; Pieroni and Torry, 2007; Pieroni et al., 2010). Taste was found to be an important factor in determining the medicinal nature of food, for example 'bitter' vegetables were believed to counteract sweetness and therefore could be used for diabetes (Pieroni et al., 2007, Pieroni and Torry,

2007). The study among Bengalis in the north of England (Pieroni et al., 2010) did not delve into much detail regarding the food–medicine interface; however, Asian vegetables in particular were found to be used medicinally. In Bangladesh, one study was identified, conducted by Rahmatullah et al. (2010) examining 'functional foods'. Looking at different plants used by *kobiraji* (healers) in three different villages, plants advised to be consumed for preventative reasons (as opposed to curative purposes) were labelled 'functional foods' by the researchers. These 'functional foods' were consumed for general nutrition, promotion of the health of different parts of the body (hair, eyes, memory, etc.), as blood purifiers, as well as for the prevention of respiratory, hepatic and stomach disorders. The research however did not delve into much depth as to why or how the practitioner viewed plants as food or medicine.

The research above brings to light the various approaches that have been taken to researching the food–medicine interface, as well as the range of contexts and influences on classifications as food and/or medicine. The highly contextual nature of food–medicine, which has been under-researched to date, is explored in some depth in this paper through looking at the context of Bengali women in Sylhet.

2. Aims and objectives

The overall aim of this research was 'to explore the overlap of food and medicine in the homes of Bengali women in Sylhet'. The aim was achieved through two key objectives. The objectives were (1) explore the influences on medicinal plant practices of Sylheti women, and (2) scrutinise how the categories of food–medicine are decided. The first objective provided a background as to medicinal-plant use in Sylheti homes, illustrating perceptions regarding health and medicinal plants, the dynamic exchange of knowledge between generations, differing sources of knowledge, the practical nature of medicinal plant use and the transnational nature of knowledge. The second objective was achieved through looking specifically at the classifications and constituents of food and medicine, highlighting the importance of the purpose of food–medicines, taste and constitution in food–medicine classifications.

3. Methods

The paper is drawn from ethnographic fieldwork conducted by the first author of the paper as part of her doctoral research examining the therapeutic uses of food-plants and the transmission of knowledge among women of Bengali origin in London, Cardiff and Sylhet. This paper reports on the findings from the research conducted in Sylhet. Research in Bangladesh took place over two six month periods (January–June 2011 and January–June 2012). The research focused exclusively on women due to practical reasons and the nature of the project.¹ However, over the course of the research it was found that women were primarily responsible for the cooking and preparation of food in the house, further justifying the exclusive focus on women in this study.

A qualitative ethnographic approach was adopted due to the nature of the research, which aimed to gain an in-depth understanding of the complex dynamics of medicinal and health plant-food knowledge. Such an approach enables one to explore in a flexible manner complex, and indeed fluid, interrelationships as lived meaningful experiences (Denscombe, 2010). Within the

¹ The Ph.D. is part of a larger project, (Migration, Nutrition and Aging (MINA) Across the Lifecourse in Bangladeshi Families: A Transnational Perspective, www.projectmina.org), focusing on Bengali women in the UK and Bangladesh.

qualitative approach several methods of data collection were employed. They included semi-structured interviews, unstructured interviews and participant observation.

As the research was in-depth and qualitative, it was concerned with researching specific networks as opposed to a large representative sample. Thus women whose families in the UK could also be interviewed were selected for research when possible, as well as mother and daughter or daughter in-law pairs; therefore it was possible to examine family dynamics as well as generational and transnational exchanges. The selection criteria for the interviewees were that they were over 16 years of age, had family in London and were female. 'Older participants' were over 45 and the mothers (or mother in-laws) of 'younger participants' who were in their 20s and 30s. Participants were recruited by snowballing, as this is an effective means of selecting cases within a network (Neuman, 2006). Purposive sampling was used to identify women with high levels of medicinal plant knowledge. The semi-structured interviews were conducted with six mother and daughter or daughter in-law pairs (twelve interviews in total). The interviews were of an hour's duration and the questions asked related to food and medicine practice, health beliefs, links to the UK and generational change. The questions were derived from a literature reviews and preliminary research, and had been piloted. Informal interviews specifically regarding medicinal plants were made with three 'knowledgeable' women identified during fieldwork. As part of participant-observation, regular visits were made to five inter-generational Londoni (people with family in the UK) homes. In addition, visits were made and talks conducted with people at various nurseries, seed shops and herbal medicine shops in the area. Informed verbal consent was given by participants and ethical approval was gained from the relevant ethic committee. The interviews were audio recorded and transcribed verbatim. During more informal interactions, detailed field-notes were taken. The findings were analysed using a thematic approach and with the assistance of the computer software Hyper RESEARCH.

Research that is valid means that the instruments of research, the data generated and the subsequent findings are both accurate and trustworthy (Bernard, 2006). In order to ensure the data was valid a number of measures were taken. They included the researcher reflecting on her role as a researcher throughout the research process (Bernard, 2006; Denscombe, 2010). When conducting the research she strove to build relationships in order to make the participants feel comfortable and gain accurate information (Smith, 2005). Detailed field notes were maintained and multiple research methods employed enabling the cross-verification of data (Denscombe, 2010). Finally, when recording the information, direct quotes and raw data were used as much as possible (James (2001)).

4. Results and discussion

4.1. Medicinal beliefs and practice in Sylheti homes

The health practices of the Londoni participants were to an extent pluralistic, varying according to a complex interaction of beliefs, perceptions, familial and social influences. Furthermore, the influence of different health systems (for example biomedicine, Ayurveda, Islamic) was apparent. During interviews the participants were asked about beliefs as well as where they would seek health care for both minor and more serious illnesses.

The participants viewed eating well and a balanced diet as important to optimising health. While views varied as to what constitutes 'good food', there was a general agreement on the need for 'balance' and plenty of vegetables. Furthermore, the constitution of food (soft versus hard), and the medicinal properties of

certain foods were highlighted; this will be discussed in greater detail later in the paper. According to some of the participants, maintaining a balance in one's diet should extend to regularity in one's daily activities in order to maintain a healthy body; for example in one's daily activities such as sleeping and eating, where one should sleep 'enough' (and not too much). The concept of balance is related to Ayurvedic concepts. Having a clean environment with fresh air was stressed by several participants; related to this, it was expressed that one should keep oneself clean and that not doing so may create ill health. Along with these physical aspects of maintaining health, participants reported that worries and 'tension' too could cause physical ill health; there was no clear mind-body dichotomy in this regard. Several participants dismissed spiritual causes of poor health as superstition, and even dangerous. However, spiritual causes were mentioned by others. Three of the participants particularly discussed how *jinn*, *bhut* (spirit, ghost), *nazoor* (evil eye) and other people putting *jadu* (magic) on one could cause poor health. Interestingly, these three participants (BM5, BM6, BD6) all had spent significant time in the village, where perhaps beliefs in the supernatural are more widespread and/or more acceptable. Previous research finds that belief in the spiritual realm is complex and widespread in Bengali Islam (Karim, 1988; Thomas, 2006).

Turning to health-seeking behaviours among Londonis, prior to seeking help from outside of the home (be that from a doctor, pharmacist or a *kobiraj*/healer), most participants reported first treating themselves or being treated by family members within the home. Examples of managing sickness include taking pills (such as paracetamol), taking a homoeopathic remedy or a medicinal plant, or practices such as cooling down someone with a fever through applying cool water to their head. If an illness was deemed more serious, outside help would normally be sought. Outside of the home there is an array of treatment centres and practitioners available in Sylhet: biomedical, Ayurveda, Unani and homoeopathic pharmacies, private doctors, individual *kobiraj*, NGO clinics, government hospitals, private hospitals and a homoeopathic hospital.

Regarding perceptions of medicinal plants, they were generally viewed as 'safe' but slower-acting than allopathic medicine, though this varied according to the participant and family. In contrast, the *doctori oshud* (doctor's medication) was perceived as more powerful and 'strong' by several participants. Consequently, they were likely to have side effects. Despite being wary of side effects, most participants reported using pills as well as medicinal plants at home, depending on the problem. A 'small' problem such as a cough or a cold may be treated with medicinal plants. However, if someone had a severe headache they would prefer a 'strong' and 'quick' cure from a pill. There were of course exceptions as to the extent of medicinal plant use among the participants. This varied across families and generations and was very much influenced by place (discussed in greater detail below). Looking at food-medicines specifically, they were viewed as not strong, in line with perceptions of medicinal plants and were frequently consumed as part of the diet, and like other medicinal plants their use varied across generations, life-course and place.

4.2. Generational and transnational exchange and change

When looking at the medicinal plant-scape in Sylheti homes, particularly among participants in this research, the role of generational and transnational change and exchange is crucial. While both the 'elders' and the 'past' were held as the keepers of medicinal plant-use and there was a general assumption (particularly by younger interviewees and people encountered during fieldwork) that among younger generations and urban areas

medicinal plant use has declined, this research found that this view is not strictly correct.

Looking first at family and the transfer of knowledge between mothers and daughters, the family was identified by all the participants as an important source of knowledge. Knowledge was often attributed to elder family members; mothers and fathers as well as grandparents and sometimes extended family members. When looking specifically at mother-daughter knowledge, unsurprisingly there was an association between mother and daughter (or mother-in-law and daughter-in-law) knowledge. Participants in the same family often quoted the same plants that they used and/or knew about. Despite knowledge frequently being attributed to one's parents' or grandparents' generation, there was only one example of a pair (out of those interviewed) where the mother used more medicinal plants than her daughter, and there were two instances of a daughter knowing more than her mother. In the instance where the mother (BM5) knew more than her daughter (BD5), the daughter had moved out of home and said she had never had an interest in medicinal plants and instead trusted the doctor's medicine. This example illustrates how individual beliefs as well as not living at home may be important in medicinal plant use. The mother (BM5) also associated her medicinal plant knowledge with her rural upbringing, and though both mother and daughter now live in a semi-urban area, she felt it important to look for 'natural' remedies when unwell. In the cases where the daughters had more knowledge than their mother or mother in-law, this was when the younger relative had taken over her mother's care-giving role, therefore the mother did not have such an active knowledge of medicinal plants. For example one participant (BD1) took over the role as principle caregiver and spoke about learning what food-medicines were needed for her in-laws' conditions (heart problems and diabetes). She did this through actively seeking advice from the doctor and familial advice. Her mother in-law (BM1) in contrast spoke about forgetting previous knowledge as it was no longer practical; other older participants reiterated this view. However, often care-giving activities were shared, and there was a general trend that if mothers used medicinal plants, their daughters (and daughter in-laws) would also use them and vice versa. For example, one pair (BM4 and BD4) reported primarily using biomedical medicines and never using food medicines, in contrast others (such as BM6 and BD6) frequently relied on medicinal plants for treatment and prevention of illnesses.

However, while attitudes to medicinal plants and food-medicines were often similar within families, among a couple of the younger participants there was some evidence in generational changes in knowledge. The most evident was that of rather than abandoning 'traditional' knowledge and food-medicines, they would sometimes be updated through the consumption of packaged herbal products supported by and increasing scientific evidence base, as one younger participant (BD2) explained,

"We can buy products, basically we take extracts...now everything is changing, now people understand that herbal products are very reliable, more than chemical products. They, they that know they have some interest. They are going back like it was before"

These examples illustrate how the transmission of knowledge is not nearly as simple as a vertical transmission of knowledge from mother to daughter. The younger participants were generally much better educated than their mothers, and perhaps for this reason 'scientific' knowledge was viewed as important. The importance of nutrition was reiterated by several younger participants who stressed that this was taught in school and advised by health practitioners. 'Nutrition' was also valued by older participants, partly in response to the views and information shared by

their daughters and health practitioners. However this was perhaps a newer concept for them for the older participants. Furthermore, food-medicines or 'healthy food' were often perceived as being 'nutritious' and 'full of vitamins,' illustrating the updating and combining of the more 'traditional' food-medicines and more up to date 'scientific' knowledge. What exactly constitutes a food-medicine or a 'healthy food' is explored further later in the paper. Furthermore, the findings indicate several sources of medicinal plant knowledge in addition to older relatives, including practitioners, peers and other community members, the extended family and school.

Place is important in food-plant knowledge. In Sylhet the *gram* (village) was constantly referred to as a site of medicinal plant knowledge. However despite the *gram* being highlighted as an important source of knowledge, the findings indicate that medicinal plants continued to be used in the town, though perhaps the availability was less. The place of 'London'² too was important for the participants in this research. When examining families across countries there was clearly an active exchange of ideas, which was reflected in similarities of attitudes to medicinal-plant practice. An example of an exchange of medicines is that of two participants (BD1 and UKD1), one based in the UK and one in Bangladesh who actively exchanged different medicines. The participant living in Bangladesh would send the food-medicines *krishna kochu* (*Colocasia esculenta*) and neem (*Azadirachta indica*) for use by her relatives in the UK. Her sister in-law living in London in return sends her multivitamins and creams for their mutual in-laws. Their respective mother in-law and aunt (BM1 and UKM1), one based in the UK and one in Bangladesh, in contrast felt that medicinal plants were no longer relevant, only occasionally taking something given to them by another member of their family. While the exchange of knowledge and medicines between Sylhet and the UK was commonplace, the extent of influence varied according to the nature of the relationship. Furthermore, it should be noted that while ideas and knowledge were often exchanged, it was 'Bengali' plants that were most likely to be used as food-medicines both in Sylhet and the UK. Thus while transnational connections are important to affecting the overall medicine-scape of transnational homes, 'Bengali' plants remain important.

When looking at general medicinal-plant use the findings indicate that women appear principally in charge of care-giving in the home, and daughters often learn from their mothers through observation as well as practice. As the daughters (and later daughters-in-law) take over responsibilities, they add to their knowledge and may influence their older family members. They also have many other influences, with knowledge not only being vertical, horizontal and oblique but changing over their life course, as a result of personal circumstances as well as wider public health and transnational processes. However, through examining specific food-medicines used it is possible to unpick reasons for the choices of specific plants as well as the reasons for food being classified either as a food or a medicine.

4.3. Medicinal plants used in Sylheti homes

Medicinal-plant use was reported to be common in people's homes in Sylhet. Table 1 illustrates the most commonly used medicinal plants among participants. The most commonly used plants are for minor upper-respiratory ailments (coughs, colds etc.). They were viewed as easily treatable ailments. Many of the plants used to treat coughs and colds are commonly available kitchen spices (*long/Syzygium aromaticum*, *adda/Zingiber officinale*, *gul morich/*

² 'London' refers to London in the UK. 'London' is also frequently used when referring to the UK in general.

Table 1
Commonly used medicinal plants.

Upper respiratory ailments	'Other'	Consumed as food (and medicine)
<i>Cinnamomum tamala</i> (Buch-Ham) T.Nees & Ebern., <i>tej pata</i>	<i>Averrhoa carambola</i> L., <i>kamranga</i> <i>Abroma augusta</i> L.f., <i>ulot</i>	<i>Aegle marmelos</i> (L.) Correa, <i>bel</i> <i>Allium sativum</i> L., <i>roshun</i>
<i>Elettaria cardamomum</i> (L.) Maton., <i>Elachi</i>	<i>Curcuma longa</i> L., <i>hollud</i>	<i>Aloe vera</i> (L.) Burm.f., <i>gritikumari</i>
<i>Justicia adhatoda</i> L., <i>bashuk</i>	<i>Tamarindus indica</i> L., <i>tetul</i>	<i>Azadirachta indica</i> A.
<i>Ocimum tenuiflorum</i> L., <i>tulsi</i>	<i>Terminalia arjuna</i> (Roxb. ex DC.) Wight & Arn., <i>arjun</i>	Juss, neem
<i>Piper nigrum</i> L., <i>gul morich</i>	<i>Hibiscus rosa-sinensis</i> L., <i>joba</i>	<i>Centella asiatica</i> (L.) Urb., <i>tunimankuni</i>
<i>Syzygium abbreviatum</i> Merr., <i>long</i>	<i>Lawsonia inermis</i> L., <i>henna/mendhi</i>	<i>Colocasia esculenta</i> (L.) Schott, <i>kochu</i>
<i>Zingiber officinale</i> Roscoe, <i>adda</i>		<i>Nigella sativa</i> L., <i>kalo jeera</i>
		<i>Phyllanthus emblica</i> L., <i>amloki</i>
		<i>Trigonella foenum-graecum</i> L., <i>methi</i>
		<i>Oryza sativa</i> L., <i>bhat</i>
		<i>Ocimum gratissimum</i> L., <i>rojat</i>

Table 2
Examples of commonly consumed food-plants.

Name of plant	Purpose	Other information
<i>Aegle marmelos</i> (L.) Correa, <i>bel</i>	Used for dysentery, it 'cools' the stomach	The ripe fruit can be made into a juice. The young fruit is sundried, sliced, soaked overnight, and the water is drunk.
<i>Allium sativum</i> L., <i>roshun</i> <i>Aloe vera</i> (L.) Burm.f., <i>gritikumari</i>	Heart, general health, coughs Diabetes, general health, occasionally coughs and colds	It is eaten alone or in food. It can also be crushed with ginger for coughs. The juice from the leaves is taken as a drink. The jelly, taken with concentrated milk and palm sugar, is made into a <i>halwa</i> . It can also be applied topically for skin conditions/general health of the skin.
<i>Azadirachta indica</i> A. Juss, <i>neem</i>	Diabetes, general health, relieves <i>bedne</i> (pain)	The leaves are eaten as a <i>bhorta</i> with rice. It can be made into tablets (<i>bhuri</i>). It is also used for skin conditions (rashes, allergies, scabies etc) when bathed in.
<i>Centella asiatica</i> (L.) Urb., <i>tankuni/tunimankuni/khudimankuni</i>	Stomach problems – digestion, pain, upsets	The leaves are commonly eaten in food as a <i>bhorta</i> or <i>baji</i> with rice.
<i>Colocasia esculenta</i> (L.) Schott, <i>kochu/krishna kochu</i>	Blood circulation (particularly <i>Krishna kochu</i>), general health, has many vitamins.	The leaves, stems and rhizome are all eaten in curries. The leaves – after being soaked in water, the water is then applied topically to stop itching. A distinction is made between <i>shada kochu</i> with dark red leaves and stems (<i>Krishna kochu</i>) and <i>kochu</i> with green leaves; <i>krishna kochu</i> is viewed as 'stronger' by some.
<i>Nigella sativa</i> L., <i>kalo jeera</i>	Diabetes, general health, stomach acid, 'weak' stomach, bloated stomach, lack of appetite, aches and pains	Is eaten in curries in food; the seeds can be ground and consumed. The oil can be applied topically. "It can be used to cure anything except death" is a quote from the Koran that was often repeated.
<i>Phyllanthus emblica</i> L., <i>amloki</i>	General health, increases appetite, stomach upsets, coughs	The fruit is eaten.
<i>Trigonella foenum-graecum</i> L., <i>methi</i>	Diabetes, stomach complaints	The leaves are eaten in food, can be added to <i>jau</i> . The seeds are eaten as a spice, they can also be taken alone.
<i>Oryza sativa</i> L., <i>bhat</i> <i>Ocimum gratissimum</i> L., <i>Rojat pata</i>	Dehydration, general weakness Stomach health, fed after childbirth to help heal the mother	Rice is boiled and made into a semi-liquid preparation to treat dehydration. Eaten as a <i>shak</i> in food. Sometimes mixed with other leaves when eaten after childbirth.

Piper nigrum, *elichi/Elattaria cardamom*), several of which are consumed as teas either alone or combined (*tej pata/Cinnamomum tamala*, *adda/Zingiber officinale*, *long/Syzygium aromaticum*). The reasons certain plants are taken to alleviate minor respiratory ailments are straightforward; they are available, effective and these are minor illnesses that are treatable at home. Furthermore, as discussed earlier they were viewed as 'safe'. Several of the other plants are used for minor treatable conditions (such as cuts, stomach upsets, diarrhoea, dehydration). "For this primary treatment we treat at home" explained one participant. Like many of the items used for minor respiratory ailments, many of the plants are also available and found in the kitchen (*hollud/Curcuma longa*, *kalo jeera/Nigella sativa*, *roshun/Allium sativum* etc.). While the use of plants for primary and 'easily treatable' conditions was widespread in the home, the use of plants for more 'serious' and long-term conditions was not as common. There were examples of people taking regular doses of *arjun* (*Terminalia arjuna*) and/or *roshun* (*Allium sativum*) for heart disease and high blood pressure. They were often taken for long-term conditions and sometimes in combination with biomedicine. Finally, there were reported to be a couple of plants that were only used by women: *rojat* (*Ocimum gratissimum*) for postpartum recovery, and *ulot* (*Abroma augusta*) for menstrual regulation and vaginal discharge.

When looking at food-medicines specifically, they too are often easily available (bought in markets, used in kitchens and grown in people's garden), found in the kitchen and are frequently used for minor (such as teas for coughs) as well as long-term conditions (such as diabetes and for the heart). Whether an item is consumed as a food or a medicine depends on both its preparation and intended purpose.

4.4. Food-medicines: uses and categorisations

Many of the plants cited by participants can be consumed as food as well as medicine. They are consumed for multiple purposes and tend to be generally available in the market and occasionally grown in people's gardens. Thus the boundary between food and medicine is indeed blurred. Whether an item is consumed as a food or a medicine depends on both its preparation and intended purpose. The overlap and categorisation of plants as food and medicine in a range of contexts has been highlighted in ethnopharmacological research (Etkin and Ross, 1982; Sandhu and Heinrich, 2005; Pieroni and Price, 2006).

Table 2 outlines some of the most commonly consumed food-medicines among participants in this research. The table also illustrates the range of ways various food-plants are consumed.

A few of the plants were reported as normally being eaten as food: *amlaki* (*Phyllanthus emblica*) for example is eaten as a fruit, and *tunimankuni* (*Centella asiatica*) is usually eaten with rice. Both, however, have very specific medicinal purposes; *amlaki* is eaten to increase one's appetite as well as for stomach upsets and coughs, while *tunimankuni* is used to treat stomach pain and digestion difficulties. While both these plants are normally consumed as food but exclusively for medicinal purposes, for most of the other plants the distinction between food and medicine is more complex as it is ingested and applied in many different forms. *Kochu* (*Colocasia esculenta*) for example can be soaked in water and applied topically to stop itching. One participant (BD1) described how she cooks *kochu* in food for her husband's elderly parents as it has plenty of vitamins; it tastes particularly good with chicken, she says. She says the *krishna kochu* (the red form of *Colocasia esculenta*) promotes blood circulation and so she has cooked it for her elderly father-in-law, particularly since his heart attack. She also encourages him to consume *roshun* (*Allium sativum*) in food as it is good for his heart, she says, but it is better when two cloves are taken daily on an empty stomach in the morning. These examples demonstrate how a

plant can be taken as a food with therapeutic benefits, and also as a medicine. The two diagrams below (Figs. 1 and 2) illustrate two specific examples of a plant's transition from food to medicine (and vice versa). The first example is neem (*Azadirachta indica*). Neem is used for multiple medicinal purposes and comes in many forms; it is bathed in for skin conditions, used as a cosmetic and packaged as pills. As a food it is made into *bhortas* (crushed with mustard oil) and *bajis* (fried with onions) and eaten with rice. When eaten specifically for pain or diabetes but in the form of a *bhorta*, the boundaries between food and medicine begin to blur. The second example, *methi* (*Trigonella foenum-graecum*), when eaten as food is used as a spice (the seeds particularly) or as an extra ingredient (the leaves as a *shak* [leafy vegetable]). The general health benefits of *methi* in food are often acknowledged. As a strict medicine it is normally ingested by itself regularly (for example to mitigate diabetes) or as needed (for example for a stomach ache). However, *methi* can also be cooked in *kitchuri* (rice cooked with lentils) and fed to people who are unwell. Additionally, as a medicinal food *methi* is sometimes added to *jau* (rice boiled to create a semi-liquid consistency), as explained by an older participant (BM3) "methi



Fig. 1. The transitional nature of neem (*Azadirachta indica*) as food and medicine.

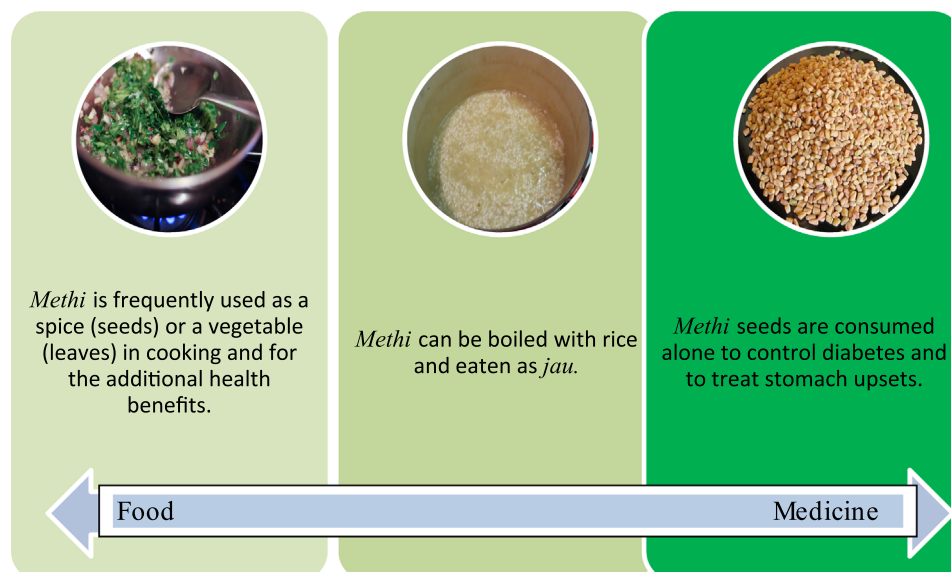


Fig. 2. The transitional nature of *methi* (*Trigonella foenum-graecum*) as food and medicine.

works on stomach ache. If methi is cooked only with rice and it's softened up like a mash called jau. Do you know jau? It helps to reduce stomachache." For this form of food–medicine, the consistency (soft) is as important as the content. Moving onto food and what is cooked for the generally unwell, consistency and taste are critical.

4.5. Medicinal food: consistency and taste

The participants in Sylhet discussed the different types of food they consumed or fed others. For the generally unwell, the very young and the very old, 'soft' foods were recommended. This food is believed to be easily digested by the body and therefore suitable for those who are weak in constitution. As explained by a participant (BD1), "When you are ill and everything is not working very well so you take the light food so that you will digest very quickly". Table 4 illustrates which foods may be considered 'soft'. More importantly it describes the characteristics of 'soft' foods; soft in texture, reduced spice and 'thin'. These foods are in contrast to 'strong' foods which are suitable for well and strong people, and are rich in spice and oil. Food, however, is a spectrum along which

the majority of 'everyday' food falls somewhere in the middle, with 'soft' and 'hard' on two opposing ends of a spectrum. 'Normal', everyday foods can be transformed into either 'soft' or 'hard' by adding or taking away spices, oil, various ingredients and liquid, as well as cooking for different lengths of time; rice as *kitchuri* or *biryani* (*pilou* rice cooked with *ghee*, meat and spices) is a clear example of this. When looking at 'hard' and 'soft' foods we again see the food and medicine boundaries blurring, as some 'soft' food can be characterised as medicine (*jau* and *kitchuri* depending on its purpose and preparation for example). Table 3 provides examples of different types of food on the food–medicine spectrum. Fig. 3 illustrates the spectrum and blurred boundaries between types of medicines and foods.

Consistency is important to food and medicinal food; taste matters too. Participants reported that 'jaal' (spicy) foods were to be avoided generally when people are unwell unless specifically required (*gul morich* for example is occasionally used for colds). Bitter foods appear to have some additional medicinal properties, particularly for diabetes. It was explained during fieldwork by a participant (BM5), regarding neem and diabetes, "I take neem because it is bitter, the bitterness is good if you have diabetes, it works against the diabetes". This is consistent with other participants' reports, and numerous plants are known for their 'bitter' tastes which counteract the sweetness of diabetes. The concept of bitterness has been reported in other research among people of South Asian origin (Pieroni and Torry, 2007; Pieroni et al., 2007). In this research it was clear that the perception was widespread and influenced not only the medicinal plants consumed, but the food that is eaten and prepared. As diabetes becomes an increasing concern in Bangladesh, the consumption of 'bitter' plants, both as food and medicine, is a conceivable means of prevention and control. Shephard's concept of sensory ecology theorised that taste is a bio-cultural phenomenon rooted in both physiology and

Table 3
'Soft' and 'strong' foods.

Soft/digestible/ thin foods	<i>Kitchuri</i> , <i>rothi</i> /bread (soft), fruit (banana particularly), <i>suji</i> (semolina cooked with milk), <i>shemi</i> (very thin noodle dish cooked with milk and sugar), juices, Horlicks drink
Qualities of soft food	Literally 'soft', reduced spice, sometimes 'thin'
Strong foods	<i>Biryani</i> , <i>pilau</i> rice, rich curries, beef, goat meat
Qualities of strong food	Contain spice, oils, may be tougher to eat (for example beef)

Table 4
Types of food according to consistency.

Types of food: hard, soft and digestibility		
'Medicinal' foods: <i>jau</i> , <i>kitchuri</i>	'Normal' foods: plain white rice, fish, chicken, vegetables, certain fruits, everyday curries	'Strong' foods: <i>biryani</i> , <i>pilou</i> rice, beef, rich curries
'Soft' foods: <i>kitchuri</i> , <i>shemi</i> , <i>suji</i> , fruit, juices etc.		

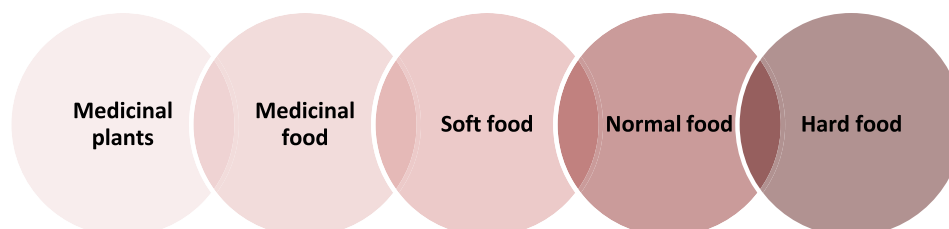


Fig. 3. The boundaries of food and medicine.

Table 5
Additional properties to consider with food and medicine.

'Bitter' plants: used particularly for diabetes	<i>Aloe vera</i> / <i>gritikumari</i> , <i>Azadirachta indica</i> / <i>neem</i> , <i>Centella asiatica</i> / <i>tunimankuni</i> , <i>Momordica charantia</i> / <i>kerala</i> , <i>Nigella sativa</i> / <i>kalo jeera</i> , <i>Trigonella foenum-graecum</i> / <i>methi</i> ,
'Hot' plants	<i>Jolphoy</i> / <i>Elaeocarpus floribundus</i> , <i>Pneumonia gach</i> (unidentified plant), <i>Piper nigrum</i> / <i>gul morich</i>
Plants with 'cooling' properties	<i>Ocimum tenuiflorum</i> / <i>tulsi</i> , <i>Zingiber officinale</i> / <i>adda</i>

culture (Shepard (2004); Pieroni and Torry, 2007). Indeed taste, and particularly bitter taste, is important in the Sylheti medicinal food-plant context, particularly when applied to diabetes.

Other properties that were mentioned included plants being *gorom* (hot), that would work for cold illnesses such as pneumonia; plants with cooling properties were mentioned, which were used to cool down fevers and colds (see Table 5). The humoral dimension to medicine is widespread in Ayurvedic, Unani and 'folk' medicine. It is therefore surprising that these concepts were not discussed more during fieldwork. This is possibly because none of the participants interviewed were 'experts' but rather used plants for practical purposes and, essentially, for what 'worked' in practice; the how and why was not always important. A final point that should also be noted is that many participants stressed that what is fed to the *rogue* (patient) is adapted to the individual, and depends on how much s/he can handle, their constitution as well as personal preferences. The highly tailored, holistic and individual treatment of a patient is very much in line with Ayurvedic theory. Indeed many factors must be considered in such treatment, be it through food or medicine.

5. Conclusion

The findings of this paper highlight the context-specific nature of medicinal food-plant practice in Sylheti homes. The findings of the research indicate that uses of medicinal plants are generally part of a wider, pluralistic medicine-scape. Beliefs and perceptions regarding medicinal plants influence their use. When examining family interchanges there is a two-way exchange of knowledge across generations, with stages in the life-course and caregiving roles being of critical importance to food-medicine use. Sources of knowledge outside of the family include the community, practitioners and schooling and are re-interpreted across generations; place and transnational connections are also important. When looking at what plants are used, it is often plants that are used for minor or long-term conditions as well as those that are easily available (on the market, in the kitchen or grown at home).

Moving on to food-medicines specifically, the classifications of plants as food and/or medicine is indeed blurred and complex, dependent on multiple factors including the purpose of the plant/food, its consistency and taste as well as the constitution of the person taking the food-medicine. Thus while previous academic research has concentrated on the nutritional and pharmacological properties of culturally constructed food-medicines (Etkin and Ross, 1982; Prendergast et al., 1998; Owen and Johns, 2002, Pieroni and Quave, 2006), our findings indicate a contextualisation of the food-plant spectrum based on both local beliefs and wider structural factors.

The implications of this research may be of interest to ethnopharmacologists looking at the food-medicine overlap. It is also of relevance to health researchers and practitioners when seeking to care for the health-care needs of different groups, as it highlights the importance of examining the local context in terms of 'healthy' foods and nutritional practices.

Acknowledgements

We are grateful for the support of our MINA colleagues, and wish to thank all MINA participants for their invaluable contribution to this study. This work was supported by Grant no. RES-354-25-0002 of the Economic & Social Research Council, New Dynamics of Ageing Programme, UK.

References

- Ahmed, S.M., Evans, T.G., Standing, H., Mahmud, S., 2013. Harnessing pluralism for better health in Bangladesh. *The Lancet* 382 (9906), 1746–1755.
- Bernard, H.R., 2006. *Research Methods in Anthropology: Qualitative and Quantitative Approaches*. Alta Mira Press, Oxford.
- Caldecott, T., 2011. *Food as Medicine: The Theory and Practice of Food. Phytochemistry*, Vancouver.
- Denscombe, M., 2010. *The Good Research Guide: for Small-scale Social Research Projects*. Open University Press, Maidenhead.
- Etkin, N.L., Ross, P.J., 1982. Food as medicine and medicine as food: an adaptive framework for the interpretation of plant utilisation among the Hasau of Northern Nigeria. *Social Science & Medicine* 16, 1559–1573.
- Frei, B., Sticher, O., Viesca Treviño, C., Heinrich, M., 1998. Plants as medicines and food. *Zapotec criteria for selection*. *Journal of Applied Botany* 72, 82–86.
- Gardner, K., 1995. *Global Migrants Local Lives: Travel and Transformation in Rural Bangladesh*. Clarendon Press; Oxford.
- Ghani, A., Pasha, M.K., 2004. *Alternative Medicine*. Banglapedia. Asiatic Society of Bangladesh, Dhaka.
- Grivetti, L.E., 2006. Edible wild plants as food and as medicine: reflections on thirty years of fieldwork. In: Pieroni, A., Price, L.L. (Eds.), *Eating and Healing: Traditional Food as Medicine*. Food Products Press, New York, London and Oxford.
- James, A., 2001. Ethnography in the study of children and childhood. In: Atkinson, et al. (Eds.), *Handbook of Ethnography*, 2001. Sage, London.
- Jennings, H.M., 2014. *Travelling People, Travelling Plants: An Exploration into Food-Medicine Practice Among Bengali Women Across Transnational and Generational Landscape* (Unpublished Ph.D. dissertation), UCL.
- Neuman, W.L., 2006. *Social Research Methods: Qualitative and Quantitative Approaches*. Pearson/Allyn and Bacon, London and Boston.
- Karim, H., 1988. Shamanism in Bangladesh. *Asian Folklore Studies* 47, 277–309.
- Leonti, M., Nebel, S., Rivera, D., Heinrich, M., 2006. Wild gathered food in the European mediterranean: a comparison. *Economic Botany* 60 (2), 130–142.
- Leonti, M., 2012. The co-evolutionary perspective of the food-medicine continuum and wild gathered and cultivated vegetables. *Genetic Resources and Crop Evolution* 40, 1295–1302.
- Owen, P.L., Johns, T., 2002. Antioxidant in medicines and spices as cardioprotective agents in Tibetan highlanders. *Pharmaceutical Biology*, 40.
- Owen, P.L., 2006. Tibetan foods and medicines: antioxidants as mediators of high-altitude nutritional physiology. In: Pieroni, A., Price, L.L. (Eds.), *Eating and Healing: Traditional Food as Medicine*. Food Products Press, New York, London and Oxford (Chapter 2).
- Pieroni, A., Price, L.L., 2006. *Eating and Healing: Traditional Food as Medicine*. Food Products Press, New York, London and Oxford.
- Pieroni, A., Quave, C.L., 2006. Functional Foods or Food Medicines? On the Consumption of Wild Plants Among Albanians and Southern Italians in Lucania. In: Pieroni, A., Price, L.L. (Eds.), *Eating and Healing: Traditional Food as Medicine*. Food Products Press, New York, London and Oxford.
- Pieroni, A., Torry, B., 2007. Does the taste matter? Taste and medicinal perceptions associated with five selected herbal drugs among three ethnic groups in West Yorkshire, Northern England. *Journal of Ethnobiology and Ethnomedicine*, 3.
- Pieroni, A., Sheik, Q., Ali, W., Torry, B., 2007. Traditional medicines used by Pakistani migrants from Mirpur living in Bradford. *Complementary Therapy Medicine* 16, 81–86.
- Pieroni, A., Zaman, H., Ayub, S., Torry, B., 2010. 'My Doctor Doesn't Understand Why I Use Them' herbal and food medicines amongst the Bangladeshi community in West Yorkshire, U.K. In: Pardo, D.E., Santayana, M., Pieroni, A., Puri, R. (Eds.), *Ethnobotany in the New Europe. People, Health and Wild Plant Resources*. Berghahn, Oxford.
- Prendergast H.D.V., Etkin N.L., Harris D.R., Houghton P.J. (Eds.), 1998. *Plants for Food and Medicine*. In: Proceedings of the joint meeting of the Society for Economic Botany and the International Society for Ethnopharmacology, London 1–6 July 1996. Royal Botanic Gardens, Kew, UK.
- Rahmatullah, M., Mollik, A.H., Islam, K., Islam, R., Jahan, F.I., Khatun, Z., Seraj, S., Chowdhury, M.H., Islam, F., Jahan, R., 2010. A survey of medicinal and functional food plants used by the folk medicinal practitioners of three villages in Sreepur Upazilla, Magura District, Bangladesh. *American-Eurasian Journal of Sustainable Agriculture* 4, 363–373.
- Sandhu, D., Heinrich, M., 2005. The use of health foods, spices and other botanicals in the sikh community in London. *Phytotherapy Research* 19, 633–642.
- Shepard, G.H., 2004. A sensory ecology of illness and therapy in two Amazonian societies. *American Anthropologist* 106, 252–266.
- Smith, F.J., 2005. *Conducting your Pharmacy Practice Research Project a Step-by-Step Guide*. Pharmaceutical press, London.
- Thomas, J., 2006. *Animist Themes among Bengali Muslims*. (Unpublished Dissertation).
- Wilce, J., 2004. Madness, fear and control in Bangladesh: clashing bodies of knowledge/power. *Medical Anthropology* 18, 357–375.