Socio-cultural Knowledge and Perceptions of Jamu Consumption Risk: Local Wisdom of Urban Javanese Community and Its Relation to the Integration of Traditional Jamu Medicine into Formal Health System in Indonesia

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Abstract

Although the role of traditional medicinal system (*jamu*) in Indonesia is increasing, there are no studies on the clients' perceptions of the risk of consuming *jamu* products. This paper addresses this gap by examining the perceptions of *jamu* and the risk of consuming traditional medicine among the consumers in the city of Yogyakarta, Indonesia. Sixty interviews took place between June and July 2010. The participants were thirty selected clients of *jamu* sellers in the streets and local markets where *jamu* products are sold. They were chosen on the basis of age, gender and socio-economic background. The software QSR NUDIST was employed to analyze the data. This study shows that two thirds of local *jamu* consumers in Yogyakarta had a good understanding about the therapeutic uses of *jamu*. The research results indicate that *jamu* products were consumed by all ages and across different levels of education and socio-economic background. Although the participants were aware about some potential risks of consuming *jamu*, the data show that their attitudes towards and perceptions of *jamu* were generally positive among all age groups and social groups. This finding supports the idea that an improved understanding of the attitudes towards and the perceptions of *jamu* and its consumption is important, considering the increasing popularity of traditional medicine in Indonesia.

Keywords: *jamu*, traditional medicine, risk perception, local consumers

Pengetahuan Sosio-budaya serta Persepsi tentang Risiko Konsumsi Jamu: Kearifan Lokal Masyarakat Jawa Perkotaan dan Kaitannya dengan Integrasi Pengobatan Jamu Tradisional ke Sistem Kesehatan Formal di Indonesia

Abstrak

Meskipun peran sistem pengobatan tradisional (jamu) di Indonesia meningkat, belum ada penelitian mengenai persepsi masyarakat tentang risiko mengkonsumsi produk jamu. Artikel ini membahas masalah tersebut dengan meneliti persepsi tentang jamu dan risiko mengkonsumsi obat tradisional di kalangan konsumen di kota Yogyakarta, Indonesia. Enam puluh wawancara berlangsung di Kota Yogyakarta antara bulan Juni dan Juli 2010. Tiga puluh orang yang dipilih adalah pembeli jamu di jalanan dan di pasar lokal tempat produk jamu dijual. Mereka dipilih berdasarkan usia, jenis kelamin, dan latar belakang sosial-ekonomi. Software QSR NUDIST digunakan untuk menganalisis data. Penelitian ini menunjukkan bahwa dua pertiga dari konsumen jamu lokal di Yogyakarta memiliki pemahaman yang baik tentang manfaat jamu. Hasil penelitian menunjukkan bahwa jamu dikonsumsi oleh konsumen segala usia dengan berbagai tingkat pendidikan serta latar belakang sosial-ekonomi. Meskipun responden menyadari risiko yang mungkin timbul akibat mengkonsumsi jamu, data menunjukkan bahwa dalam semua kelompok usia dan kelompok sosial, sikap dan persepsi mereka tentang jamu umumnya positif. Hasil penelitian ini menunjang pendapat bahwa seiring dengan meningkatnya popularitas pengobatan tradisional di Indonesia, peningkatan pemahaman akan sikap terhadap dan persepsi tentang konsumsi jamu sangat penting.

Kata kunci: jamu, pengobatan tradisional, persepsi risiko, konsumen jamu lokal

Introduction

The term traditional medicine is used to explain the traditional medical practice in existence even before the advent of modern medicine. Due to its intrinsic qualities, unique and holistic approaches as well as its accessibility and affordability, it continues to be the best alternative care available for the majority of the global population.[1,2] Experience from many countries such as those in South East Asia suggests that integration of traditional and modern health care systems can solve much of the problems by providing basic health care services for the people in developing countries, particularly the underserved majority.[3,4] Many of the traditionally used medicinal plants contain pharmacologically active compounds and are used in the preparation of traditional medicine in those countries.[5,6]

Jamu is the Indonesian traditional herbal medicine that has been practiced for many centuries in the Indonesian

community to maintain good health and to treat diseases.[7] *Jamu* has acquired a potential benefit, both economically and clinically. This paper intends to address this topic by analyzing the data collected from *jamu* consumers in the city of Yogyakarta, Java, Indonesia. This paper is divided into two sections. Firstly, it will discuss the information about traditional *jamu* medicine and the consumers' perceptions of the potential risks of consuming *jamu* in the relevant literature; secondly, the paper will examine the perceptions of *jamu* and the risk of consuming traditional medicine among the consumers.[8,9]

The World Health Organisation (WHO) defines traditional medicine (TM) as the sum of knowledge, skills and practices based on the theories, beliefs and experiences of different cultures that are used to maintain health, as well as to prevent, diagnose, improve or treat physical and mental illnesses.[10,11] Most people who use traditional medicine consider this kind of therapies to be ''natural'' and thus ''safe''; however, many of these therapies, like other medical treatments, have the potential to be directly or indirectly harmful,[12,13,14] even if the true incidence of complementary medicine induced adverse effects is unknown. Toxic effects, allergic reactions, lack of quality control, contaminations, interactions with concomitant medications are to be considered direct effects, while missed diagnoses, disregarding contra-indications, delaying more effective treatments, discontinuation of prescribed drugs and self medications are indirect effects.[15,16,17,18]

In a review on TM, an analysis of the published data revealed that many reports of herb-induced interactions lack crucial documentation on temporal relations and on a positive identification of the herbs involved.[19,20,21] Indonesian traditional herbal medicine is called "*jamu*", a tradition claimed to have originated in the Medang or Mataram Kingdom, a Hindu-Buddhist kingdom that flourished between the 8th and 10th centuries CE and was based in Central Java, and later in East Java.[22] Although heavily influenced by Indian Ayurveda, the vast Indonesian archipelago makes both its practices and plants variable.[23] With increasing popular demand for medicinal plants, both in Asia and internationally, this trade grew to 7.2 trillion Rupiah (US$786 million) in year 2010 in Indonesia.[24]

The traditional pharmacopecia (*jamu*) in Indonesia includes a huge range of herbal preparations. *Jamu* may be obtained at kiosks and shops throughout Yogyakarta in the form of a commercially prepared packet designed to make a single glass of medicine. *Jamu* is also sold by ambulant sellers (*jamu gendong*) that normally produce *jamu* from fresh ingredients (mainly fresh leaves, roots, fruits and rhizomes) and sell their products on the streets or in the city markets. The main products of *jamu gendong* consist of some popular *jamu* such as *kunir asem* (mixture of *Curcuma domestica* rhizomes and Tamarind fruits), *beras kencur* (rice powder and

cabe (Kaempferia americans rhizomes). Originally from Yogyakarta and Surakarta regions, *jamu gendong* until now is largely consumed by Indonesians.[24,25,26]

The studies available regarding the *jamu* system are mainly those of ethnopharmacology which are based on rather general works that document the use and constituents of plant substances used medicinally.[27,28] For the greatest part, these ethnobotanical inventories present botanical and pharmacologic data disembodied from their social and cultural contexts; they cannot accommodate theoretical or conceptual issues, and in fact contain little by way of analysis, or even interpretation.[29,30] They lack careful attention to the specific circumstances and contexts in which plant utilization occurs- i.e., data regarding mode of preparation and gathering of medicinal plants.Therefore, this present study explores both biological and behavioural and cultural parameters to formulate questions within the broad outlines of a human ecology that seek to understand human-plant interactions in the most comprehensive sense and to assess the impact of such behaviours on health. The purpose of this study is to investigate attitude and risk perception concerning traditional medicine in Indonesia.[31,32,33]

Methodology

Sixty TM interviews took place in the city of Yogyakarta between June and July 2010. The participants were thirty selected clients of *jamu* sellers in the streets and in the local markets where *jamu* products are sold. In order to have a diversified sample that reflected different consumers, the sample has been chosen on the basis of age, gender and socio-economic background. These parameters have been considered to be relevant as they could influence perceptions and uses of traditional medicine. The study looked at risks representations in a range of adults (age comprised between 25 and 65) with occupations from the primary to third economic sectors. The interviews consisted of open ended questions and intended to gain insights on knowledge and practice of as well as attitude towards traditional medicine, motivation and frequency for the consumption of *jamu* and perception of risk of consumption of traditional *jamu*. Some questions aimed to know if the participants had some recommendations for promotion and integration of traditional medicine with the conventional system.[1,2,9,10]

The interview objectives and procedures were clarified, and an assurance was given of the ethical principles of inquiry, guaranteeing participants' anonymity and data confidentiality. The participants were asked to give their written formed consent to participate in the research. Interviews lasted from 30 min to 45 h and were tape recorded, while written field notes were made contemporaneously. The recordings were manually transcribed verbatim. The transcriptions were then imported into a computer using software for qualitative coding and analysis.[8,9]

Results and Discussion

The 58% of the participants were female. Their educational levels varied from primary education (primary school) to higher education (high school or College and University). None of the participants had a health care occupation. Regarding the total age distribution, of the total number of the participants, 15 (25%) were 25-35 years of age, 15 (25%) were 36-45 years of age, 15 (25%) were 46-55 years of age and the remaining 15 (25%) were 56-65 years of age. Illiterates, those who can read and write, and those who have had modern education at elementary or senior high school levels accounted for 47%, 28% and 25%, respectively.[8,9,21]

About 79% of the participants, especially women, were buying *jamu* at least once every 10 days, with 15% of them buying *jamu* every 5-7 days. The majority of them (71%) believed in the importance of consuming natural *jamu* products and traditional medicine for maintaining health. The majority of the participants (82%) came from the city, 10% from the urban areas close to Yogyakarta and 8% from other areas of Java.

Participants with a relatively lower socioeconomic level than their counter-parts in the urban areas, showed a tendency for greater utilization of traditional medicine than the rest of the participants. In terms of gender and *jamu* consumption, there was a higher rate of use by women than men for *jamu*: overall, 64% of women had used *jamu* and other Javanese traditional medicine as compared with 36% of men.[8,21]

Regarding the motivation of buying *jamu*, more than 60% of the clients interviewed, especially the young mothers with several children, affirmed that it was better to use traditional *jamu* instead of allopathic medicines for minor health complaints as *jamu* has no side effects and is freshly made so it is richer in active ingredients and thus more effective.[8,9,10,21,24]

Other clients expressed their satisfaction with the traditional *jamu* as they affirmed that the *jamu* sellers were able to customize the *jamu* products and drinks by adding different concentration of active ingredients (more spicy or less spicy, etc.) according to the taste of the client and also his/her health requirements. As the interviews show, the fact that some *jamu* sellers know the customer preferences and his/her health needs and health history is an aspect which is particularly considered by the consumers when deciding where to buy *jamu*.[8,21,23]

Two-thirds (forty out of sixty) of the *jamu* consumers, especially the women in their reproductive age and the elderly who are chronically ill, emphasized how this aspect was particular important to them.[8,21]

Another important motivation given by the clients, especially the older ones (age group between 56-65 years old), was that *jamu* represents a medical Javanese tradition: these clients emphasized how *jamu* is something that pertains to the Javanese culture. The motivation to buy *jamu* among the younger age groups (25-35 years old) can be explained by "social" factors. Social

networks seem to form the main source of information about herbal medicines and *jamu*, and the experiences of others' are trusted a great deal. In the present study, two-thirds of the participants believe that *jamu* has wide acceptance in their local communities. However, 82% of them affirmed that there is a form of therapeutic syncretism, according to which people easily switch from one time of medicine to the other tended and they also use modern care, if this is easily accessible.[8,21,14]

Immediate associations with *jamu* and herbal medicines included such words as "safe," "natural" and "pure." It is clear that these words themselves express the sense of reassurance and safety of the consumption of *jamu* products stated by the consumers interviewed, as most of them (45 out of 60) felt that natural products and medicines do not pose any danger. Many participants also felt that *jamu* works gently and slowly in comparison with conventional medicines, and that they are less powerful. Women were more likely than men to associate them both with being healthy (56% vs 44%) and natural (58% vs 42%). Across the ages, younger people (25-35s) were much less likely than any other age group to think of herbal medicines as alternative (53%). Only a small minority (e.g. 12 out of 60) cited concerns about purity, contamination and interaction with other drugs, and every group was able to identify at least one instance of a risk associated with herbal medicine. Only a small percentage (7%) said that "it depends on the treatment" when asked to assess the safety of herbal medicines. Despite its positive contribution, traditional health care system may also incorporate some harmful practices and beliefs.[31,27,36]

In the present finding, 67% of the healers employed one or more harmful traditional practices or at least they believe in the importance of such practices. Some of the *jamu* sellers suggested taking pharmaceutical drugs along with their traditional medicaments. This could be not only dangerous health-wise, but also wastage of resources on the part of the poor patient. The direct consequences of such form of drug use can lead to treatment failure, adverse effects and antibiotic resistance.[29,30]

Worrisome and unpredictable interactions between medicinal herbs and modern drugs may take place which could increase or decrease the pharmacological or toxicological effect of either or both components.[8]

The *jamu* vendors at some Warung *Jamu* at Yogyakarta generally ask the consumer about the manner he/she wants to drink *jamu*: e.g. mild, warm or hot *jamu*. If a consumer wants to drink warm *jamu*, they will put in the *jamu* mix a certain amount of *Piper* and they will add the dose of this fruit for the hot *jamu*. Besides stomach aches and diarrhea, hot *jamu*, containing a high quantity of *Piper* fruit, can also present some levels of toxicity. It must be noted that according to some Government data, the fruit of Piper *retrofractum* or Javanese pepper has lethal dose and high sign of toxicity when administered subchronically in animals.[17] Moreover, in the last years there have been several

cases of difficulty in the process of birth at the Sardjito Hospital,Yogyakarta. [8,9,17]

According to the in situ pharmacological test, the extract of *jamu* product might inhibit uterine contraction due to the action of piperine alkaloid. On the other hand, *jamu kunir asem* consisting of kunir (rhizomes of *Curcuma domestica*) and asem (fruits of *Tamarindus indica*), might cause abortion at high dose and it is not recommended to consume during early period of pregnancy. The active constituents of this *jamu* product have not been clearly determined.[8,9,11,17]

A survey of the literature indicates that a number of herbs present in *jamu* have anti-platelet (ginkgo, garlic, ginseng, ginger) and anticoagulant (coumarin-containing herbs like red clover) properties and could potentially interact with nonsteroidal anti-inflammatory drugs with an increased risk of bleeding and prolonged clotting time respectively.[33] Although herb-acetaminophen interactions are not common, the possibility of such interactions has been mentioned as regards ginkgo and supplements containing coumarin derivatives like chamomile and red clover.[34] It is reasonable to assume that the combined use of acetaminophen and herbs containing salicylate (meadow-sweet and willow) can result in nephrotoxicity.[35]

Many *jamu* consumers interviewed see no problems in taking *jamu* products alongside chemical medicines. Few people, especially the young ones with a high level of education (University or college degree) commented that they were concerned about taking herbal medicines, such as *jamu* at the same time as conventional ones, and some spoke of the greater convenience of being able to use both types. These data are coherent with other studies emphasizing how there was no clear understanding of negative interrelations for the consumption of chemical and natural drugs.[23,28,14]

Nearly two-thirds (i.e., 42) of the participants, especially the younger ones and the ones who were 50+ thought they would see a doctor if they experienced any side-effects and another one in ten would seek hospital treatment.[23,28]

Although pharmacological effects of *jamu* constituents have been recorded, there is an apparent lack of records or written data reporting the effectiveness of *jamu*, especially of *jamu gendong*. To assure the proper use of such products, the Indonesian government has divided the medicinal plants in three categories based on the way they are prepared and based on their efficacy; i.e., *jamu*, standardized herbal medicines and phytomedicines (*fitofarmaka*). All preparations have to meet basic safety criteria.[36,37,38]

The majority of the interviews (92%) indicated that the government should support *jamu* and other forms of traditional medicine. Training of *jamu* producers and traditional healers was strongly felt to be important for the improvement of the service and should focus on dosage determination and side effects, while 40% stated hygienic preparation and administration of

traditional medical preparations as equally important. Traditional *jamu* makers also care about hygiene, sanitation and chemical contaminations from biological or non-biological sources.[36,37]

Jamu makers have to be trained on hygienic production methods and for semi-modern technologies. One-fourth (i.e.,15) of the participants, especially the older clients (age group 56-65 years old) believed that herbal medicines such as industrial *jamu*, were regulated. About one-third (i.e., 21) of the consumers affirmed that they prefer consuming industrial *jamu* and not the *jamu* sold by the *jamu* sellers in the local markets because they estimated that industrial *jamu* was safer as it underwent some controls. The majority of the consumers (i.e., 45) affirmed that it is important that herbal medicines and *jamu* products are regulated. Almost three-quarters (i.e.,48) believe that *jamu* products should be regulated to the same standard as conventional medicine.[36,37,38]

Despite these affirmations, in a quite contradictory way, the majority of the consumers, especially the elderly and the middle-aged consumers, affirmed that they did not perceive any risk by consuming *jamu* from the street vendors and did not have any complaints in terms of hygiene or safety issues. As a woman in her late fifties put it, "I totally trust this *jamu* seller and she has been producing *jamu* since many years… she learnt how to produce *jamu* from her mother and she is an expert in mixing the plants and the roots. I am sure that the *jamu* she prepares is safer and healthier than any industrial *jamu*." Some participants, especially the elderly, affirmed that any clinical trials should be required for *jamu*, as an old man in his 60's put it, "We have been drinking and producing *jamu* since centuries here so we know that the plants used in *jamu* are perfectly safe and good for health." Young participants and the ones with a higher level of education also felt that regulating *jamu* may not be entirely feasible or necessary for small home-based producers. As an interviewee pointed out: "However, management of *jamu* is not only related to health issues. It also concerns other issues, such as trade, human resources and the development of small-scale *jamu* traders."[8,9,22,28,34]

Conclusion

The findings of this study show that the knowledge regarding the medical use of *jamu* by the local consumers interviewed in this study is good, although they are not always aware about the risks involved in its consumption. Results indicated that treatment is sought by all age groups and across different levels of education and socio-economic background. Therefore, *jamu* seems to be popular not only among the aging population of the city but also among the younger generations. Although the participants are aware of some potential risks involved in the consumption of *jamu*, this study shows that consumers' attitudes towards and perceptions of *jamu* are generally positive among all age groups and social groups. The questions related to efficacy and safety

of traditional medicine, *jamu* included, are largely unanswered at present. In particular, there are insufficient data to show that traditional medicine is safe. Nevertheless, *jamu*, especially the traditional one sold informally in the streets, is increasing its popularity in Indonesian cities of Java.

The present study does not pretend to represent the global perceptions about traditional medicine in Yogyakarta. It is therefore strongly recommended to explore the perceptions of *jamu* and the risk of consuming traditional medicine both in the urban and rural areas of Java. An improved understanding of the knowledge, perceptions and attitudes towards *jamu* and its consumption could provide useful information for health practitioners and policy makers to plan health activities. The integration of *jamu* with the modern healthcare system not only adds dimensions to the Indonesia's system of healthcare but also facilitates empowerment of patients by providing them with a choice of healthcare systems and different options for treatments.

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