

**Food and beverage consumption behaviour in Mandalay and Patheingyi:
A quantitative study**

**Phyu Phyu Aung, *Theingi Thwin, *Thandar Shwe, *Thidar Khine, *Aye Myint Oo,
*Khin Thida Wai & **Than Tun Sein*

**Nutrition Research Division, DMR (LM)*

***Department of Medical Research (Lower Myanmar)*

The aim of the study is to find food and beverage consumption behaviour and the factors effecting on the behavior of urban populace of Mandalay and Patheingyi and to compare among different occupational groups. The study was carried out from September 1998 to November 1999. Using the findings of previous qualitative study, a structured questionnaire was constructed and meal planners/housewives of randomly selected household of the said cities were interviewed, face-to-face by the trained interviewers. A total of 429 and 409 subjects were interviewed in Mandalay and Patheingyi, respectively. Most of them took two meals a day and either meat or fish was included almost daily. Fried rice and Moh-hin-ga were the two kinds of food most commonly taken for the breakfast, in both cities. Mid-day snacks and coffee/tea were taken more in persons of Mandalay. Milo/Cocoa/Horlicks etc. were mostly taken during illness. More than 50% of the respondents had green tea after their meals. Imported packed snack foods were taken by very few. Habit of taking soft drinks was found to be more common in Mandalay than in Patheingyi. (Although some like "Yet Saar", they only took sometimes). Monosodium glutamate was found to be taken by almost all households and average amount they used for cooking at home was 1.64g/day with a range of 0.1 to 10.4g/day. Palm oil was used as cooking oil mostly in families of unskilled labourers while ground-nut oil was mostly used by other occupational groups. Very few bought ready-made foods and went to supermarket to buy food. None of them took a kind of food for health reasons although there were many who avoided taking some foods for their health. Avoidance of food was found to be widespread for various reasons. Breast-feeding was practiced in more than 80% of respondents in both cities. Working more was the main mechanism to cope with rise in price of commodities.

INTRODUCTION

Food consumption behaviour is difficult to describe and predict. The net effect on food intake depends on a wide range of factors. Apart from income, demographic characteristics such as urbanization, gender, ethnicity, education, employment status, food availability, and other factors such as culture and beliefs, mass media advertisements, family resource management, residence, market price, and food policy can also be important because of the way they relate to consumption or concurrently co-effect consumption with income [1,2].

Essentially, the proportion of income expended on food is reduced as income decreases. In contrast, when income increases more money is spent on more elaborate packaging and processing or on high quality of specific foods rather than on larger quantities of food or shifts in types of food, changes in income have little effect on dietary structure [3, 4].

Patheingyi and Mandalay are the capital cities of Ayeyawady and Mandalay Divisions of Myanmar; much urbanized. There are a lot of food advertisements from the mass media like television which can effect the kinds of food

intake. We are under the impression that concomitant with the change in socio-economic conditions there is a change in the food and beverage consumption behaviour/habits of the city population as a whole which might have either positive or negative impact on the nutritional status of the population.

The present study, thus, aims to determine food and beverage consumption behaviour of different occupational categories during the socio-economic transition period which can serve as a basis for the food planners and food policy makers in food and nutrition planning of Myanmar. The information provided can be used to develop intervention strategies for improvement of malnutrition problems in Myanmar.

Research approach and study design

The study was community-based, descriptive, and exploratory in nature. A household survey was conducted using a structured questionnaire. Face-to-face interviews were conducted by trained data collectors to elicit information on the basic socio-demographic characteristics, food and beverage consumption behaviour, and factors influencing the certain behaviour. Questionnaire was constructed based on the findings from the focus group discussions conducted before.

1. Study area and study population

Two urbanized cities of Myanmar namely; Mandalay, and Pathein were the sites of study. Both are the capitol cities of the respective divisions of Myanmar. They had been chosen as the food behaviour changes would be most likely to occur in areas which are more urbanized and where impact of socio-economic changes on food behaviour would be more.

2. Method of sampling

Multistage sampling method was used. For the first stage, two states and divisions were randomly selected among the 16 from Myanmar. Capitol cities of the chosen states and divisions were selected for reasons of

being capitol and urbanized. From the selected cities, ten wards were randomly selected from each city. Then, five percent of the total households in the respective wards were again randomly selected and the meal planners/housewives of the selected households were interviewed with the structured questionnaire.

Data management/analysis

Prior to data entry, range and consistency checks were done and errors were corrected with regards to the survey questionnaire. Data entry was then done by using Epi Info Version 6. Findings were analyzed by employing frequency distribution tables and cross-tabulations on selected variables.

Findings of the quantitative study in Pathein and Mandalay

1. General characteristics of respondents of Pathein and Mandalay

The socio-demographic data of the respondents are summarized in Table 1. A total of 429 and 409 households were sampled from 9 wards of Pathein and 6 wards of Maha-Aung-Myay Township of Mandalay. Maha-Aung-Myay had been chosen as families of different occupational groups reside. Meal planners from the randomly selected households were interviewed. Age ranged between 15 and 82 years were included; most of them were between 21 to 60 years (87.3% & 92.7% respectively in Pathein and Mandalay).

For occupation, private business entrepreneurs were rather scarce in Pathein and most of the respondents were unskilled labourers and government employees. In Mandalay, 51% came from families of private business entrepreneurs as business sector is more sprouted in Mandalay.

Majority of the respondents (83.6%) of Mandalay were middle income earners whereas in Pathein only 60.6% were middle income earners and they had more of low income earners of 38.7% (ct 7.5% in Mandalay).

Table 1. Characteristics of study population

No.	Category	Pathein No. (%)	Mandalay No. (%)
1	<u>Age</u>		
	15-20 yr	6 (1.4)	0
	21-40 yr	160 (37.3)	133 (32.5)
	41-60 yr	218 (50.8)	246 (60.2)
	61-82 yr	45 (10.5)	30 (7.3)
2	<u>Main occupation of family</u>		
	Unskilled labourers	169 (39.4)	128 (31.3)
	Government employee	105 (24.5)	43 (10.5)
	Private business	76 (17.7)	208 (50.9)
	Private company Employee	47 (11.0)	1 (0.2)
	Farm labourers	5 (1.2)	6 (1.5)
	Farm owners	4 (0.9)	0
	Others	23 (5.4)	23 (5.6)
3	<u>Income</u>		
	*Low income	166 (38.7)	31 (7.5)
	Middle income	260 (60.6)	342 (83.6)
	High income	3 (0.7)	36 (8.8)
4	<u>Religion</u>		
	Buddhist	392 (91.4)	402 (98.3)
	Christian	9 (2.1)	4 (0.9)
	Muslim	27 (6.3)	-
	Others	1 (0.2)	3 (0.7)
5	<u>Ethnic</u>		
	Bamar	375 (87.4)	384 (93.9)
	Other nationalities	54 (12.6)	25 (6.1)
6	<u>Marital status</u>		
	Married	320 (81.8)	314 (76.8)
	Widow	62 (14.5)	44 (10.8)
	Single	32 (7.3)	28 (6.8)
	Divorced	16 (3.7)	23 (5.6)
7	<u>Educational attainment</u>		
	Illiterate	45(10.5)	49 (12.0)
	Able to read/write	41(9.6)	60(14.7)
	Primary level	153(35.7)	125(30.6)
	Secondary level	99(23.1)	76(18.6)
	High school level	63(14.7)	62(15.2)
	University level	28(6.5)	37(9.0)

* 500-5000 K = Low income
 5000-30000 K = Middle income
 Above 30000 K = High income

More than 90% of the study population were buddhists, followed by muslims (6.4%) in Pathein and christians (0.9%) in Mandalay. Marital status in two cities were not much different although divocees were found to be present more in Mandalay.

Table 2. Meal frequency and types of food taken in daily main meals

Types of food	Pathein No. (%)	Mandalay No. (%)
<u>Meal frequency/day</u>		
1	1 (0.2)	4 (1.0)
2	360 (83.9)	237 (57.9)
3	62 (14.5)	159 (38.9)
4	6 (1.4)	8 (2.0)
<u>Types of food taken</u>		
<i>Main meals</i>		
Meat/fish & vegetables	129 (30.1)	218 (53.3)
Meat/fish & vegetables & fishpaste	128 (29.8)	53 (13.0)
Vegetables & fishpaste	98 (22.8)	44 (10.8)
Meat/fish & fishpaste	46 (10.7)	11 (2.7)
Others	28 (6.5)	83 (20.3)
<i>Breakfast</i>		
Fried rice	157 (36.6)	37 (9.0)
Moh-hin-ga	14 (3.3)	5 (1.2)
Not usually take breakfast	35 (8.2)	170 (41.6)
Coffee/tea with bread	25 (5.8)	14 (3.4)
Food made of rice/wheat	2 (0.4)	2 (0.4)
<i>Others</i>		
<i>Snacks</i>		
Not usually take	175 (40.8)	107 (26.2)
Fried rice	86 (20.0)	35 (8.6)
Food made of rice/wheat	77 (17.9)	60 (14.7)
Coffee/tea	45 (10.5)	150 (36.7)
Moh-hin-ga	21 (4.9)	16 (3.9)
Fruits	20 (4.7)	28 (6.8)
Ah-thoke and others	5 (1.2)	13 (3.2)

2. Meal frequency and type of foods taken in main meals, for breakfast and snacks

Table 2 shows the meal frequency and types of food taken by the respondents. In Mandalay, more than 50% took 2 main meals a day, while nearly 40% took 3 meals. Four (1.0%) had only one main meal a day, while 2% had four meals a day. In Pathein also the majority took 2 or 3 main meals. In Mandalay, more than 50% of the study population took meat/fish and vegetables in their daily meals, while in Pathein, it was only 30% who consumed meat/fish and vegetables everyday. Almost all took breakfast (except 3.3% in Pathein and 1.2% in Mandalay). In Mandalay, commonly taken food for breakfast were fried rice and coffee/tea with bread, 44.7% and 41.6%

respectively. Less commonly taken foods were moh-hin-ga, and other snacks made from cereals. Most of the persons used to have more than one type of food for breakfast. In Pathein, fried rice and moh-hin-ga were the most popular food. Snacks were usually taken by children and young adults. Since our study population were meal planners who were more in within 40 and 60 years of age, about 40% in Pathein and about 25% in Mandalay said that they did not take snacks usually. The rest took snacks regularly. Coffee/tea and Myanmar traditional snacks made from rice/wheat were the most common eatables as midday/bedtime snacks in both cities. Moh-hin-ga, ah-thoke, and fruits like banana, groundnut, sweet potato were the other less commonly taken food.

3. Habit of taking coffee/tea

The habit of taking coffee/tea was found in 80.7% of the study population of Mandalay and 62% in Pathein. Among them only 56.5% and 14.9% in Mandalay and Pathein took daily respectively. From these coffee/tea drinkers about 25% preferred to have coffee/teamix. Milo, cocoa, and ovaltine intakes were found in less than 20% of the subjects in both areas. For the soft drinks, around 50% in Pathein and 40% in Mandalay had the habit of consumption. Only about a quarter of the study population (24% in Pathein and 28.1% in Mandalay) had the habit of taking imported snack food.

Most of them took the snack foods frequently. Most commonly taken packed snack foods were Yum Yum, other types of dried noodles and Jumbo. Less percent of subjects in Pathein had the habit of taking cholesterol rich foods. Even those who had habit of it, only few consumed these foods regularly. Less than half (34%) of the study population in Mandalay and 50% in Pathein had the habit of taking ready-to-eat food which were mostly dried noodles packages, especially during illness.

4. Oil and monosodium glutamate consumption

About 87% of the families of Mandalay used ground nut oil as their cooking oil, while only

Table 3. Habit of taking drinks, snack foods, cholesterol rich foods and ready-to-eat/fast food

Habit	Pathein No. (%)	Mandalay No. (%)
<i>Coffee/Tea</i>		
Yes	266 (62.0)	330 (80.7)
Daily	64 (14.9)	231 (56.5)
Frequently	44 (10.3)	86 (21.1)
Sometimes/rarely	158 (36.8)	13 (3.2)
No	163 (38.0)	79 (19.3)
<i>Milo/Cocoa/Ovaltine</i>		
Daily	7 (1.6)	10 (2.4)
Frequently	13 (3.0)	29 (7.1)
Sometimes/rarely	50 (11.6)	16 (3.9)
<i>Soft drinks</i>		
Daily	10 (2.3)	5 (1.2)
Frequently	24 (5.6)	124 (30.3)
Sometimes/rarely	191 (44.5)	38 (9.3)
<i>Imported packed food</i>		
Yes	103 (24.0)	115 (28.1)
Daily	9 (2.1)	7 (1.7)
Frequently	16 (3.6)	83 (16.1)
Sometimes/rarely	78 (18.1)	25 (6.1)
No	326 (76.0)	294 (71.9)
<i>Cholesterol rich foods</i>		
Yes	73 (17.0)	122 (29.8)
Always	3 (0.7)	8 (2.0)
Frequently	5 (1.2)	20 (4.9)
Sometimes/rarely	65 (15.2)	94 (23.0)
No	356 (83.0)	287 (70.2)
<i>Ready-to-eat/fast food</i>		
Yes	73 (17.0)	122 (29.8)
Always	3 (0.7)	8 (2.0)
Frequently	5 (1.2)	20 (4.9)
Sometimes/rarely	65 (15.2)	94 (23.0)
No	356 (83.0)	287 (70.2)

31.5% in Pathein used it. The majority of the families in Pathein used palm oil. Sesame, and other types of oil were used by the rest. Mean value of oil intake was found to be 32.9g per head per day in Mandalay and 20.3 g per head per day in were Pathein. On average 1.3g, range (0.1-8.0g) of monosodium glutamate per head per day in Mandalay and average of 1.34g, range (0.1-10.0g) per head per day in Pathein were used in cooking. That was much higher than in USA where average consumption was only 0.4 g/head/day but less than in South Korea

where it was more than 3 g/head/day. This calculated amount was only from intake of food made at home. The actual intake would be higher if one takes into account food having outside. The intake of mono-sodium glutamate was comparable between the two cities.

5. Factors considering in buying food for main meals

Table 4. Factors considering in buying foods for main meals

Factors considered	Pathein No. (%)	Mandalay No. (%)
Price	219 (51.0)	80 (19.7)
Taste and preference	136 (31.7)	225 (55.0)
Advertisement	1 (0.2)	1 (0.2)
Nutrition	3 (0.7)	1 (0.2)
Others	7 (1.6)	9 (2.3)
More than one factor	67 (15.6)	86 (21.0)

Most of them stated that they considered taste and preference first in buying food for their main meals in Mandalay, while 19.7% answered that price was the main factor they considered.

In Pathein, price was the main factor. Some considered more than one factor. The other few reasons were being nutritious, healthiness, advertisement and others.

6. Breastfeeding and weaning practice

Breastfeeding was practiced in 84.5% in Pathein and 75.3% of the subjects studied in Mandalay. Those who did not breastfeed use varieties of milk powder or condensed milk. Mean duration of giving breast feeding was 18.5 months with a range of 1 to 84 months in Mandalay and 16.1 months with a range of 2 to 60 months in Pathein. For the working mothers, after the puerperium, mixed bottle and breastfeeding was given. They used different kinds of fortified cow's milk especially those which were less expensive in the particular time. Complementary feeding was started around 3 to 4 months (mean±4.5 months) in Mandalay and 3 to 6 months in Pathein. Boiled rice with beans/potato/banana, jaggery, chicken egg, biscuit and locally available instant weaning food were given except very few mothers who stated that they

gave "Nestum" for complementary feeding. Most of the respondents had the knowledge that by 4 months babies should be given complementary feeding. But most of the food had low protein content.

7. Food avoidance

Almost two third of the study population in both cities (68.1% in Pathein and 66.0% in Mandalay) had the habit of avoiding food during illness, pregnancy, lactation and even in normal conditions. Most of them avoided beef (50.1%) for religious reason. Pork was also found to be avoided in nearly 50% of the respondents in both cities, the reasons were belief in "Nats, being Muslims and not like the taste. Other food that were avoided were some kind of fish like eel, brinjal, banana eggs etc during pregnancy and lactation.

DISCUSSION

Food consumption behaviour and proper food intake is multifactorial in nature including, as found in this study, occupation/income, education, health status, culture and beliefs, food prices, media advertisement etc. To improve the food behaviour of a community, food and nutrition planners should look holistically and pay attention to every possible angle that would lead to improper food consumption behaviour and intake [3].

Pathein, although a capital city of Ayeyawady Division is not very much urbanized as Yangon/Mandalay etc, and thus supermarkets, fast food centres, and burger shops alike are not available. People took Myanmar traditional food and habit of taking snacks and soft drinks were not common. Respondents, being the meal planners/housewives might also be the explanation for the above.

Majority of the respondents (83.6%) of Mandalay were middle income earners whereas in Pathein only 60.6% were middle income earners and they had more of low income earners of 38.7% (vs 7.5% in Mandalay). This can also be explained by the fact that business is more fruitful in Mandalay than in Pathein which is also apparent by the

finding of different percent of income levels in two cities.

The present study provided the following essential information :

- Food avoidance for various reasons is common
- Snacks are not widely taken among the meal planners/ housewives
- Drinks like milo, cocoa, ovaltine etc are not regularly consumed except during the illness
- Respondents preferred buying foods in the ordinary markets
- Families of unskilled laborers are the most vulnerable group to suffer from undernutrition
- Breastfeeding is a common practice among the Myanmar women but cereal-based foods are mainly used as the complementary food for babies.
- Myanmar traditional foods are mostly consumed in Pathein, while coffee/tea are commonly taken in Mandalay among the meal planners/housewives

In the past, women were not very enthusiastic to attain high education level and that might be the reason why there were very few respondents with university level education in both cities.

The findings in both cities highlight the fact that Myanmar usually take 2/3 main meals a day. Type of food taken in two cities were more or less similar, although those who took vegetables and fishpaste only were more in Pathein. This might also reflect their income pattern. Main meals in Pathein usually included fish paste as it is the traditional food of the delta area. Compared to the unskilled labourers, other occupational groups took meat/fish everyday more. Only about 15% in Pathein were found to be daily drinkers. That may be due to more business families in Mandalay and from the past experience coffee/tea were taken more often in those who did business.

In our country, milo/ cocoa/ ovaltine drinks were only taken during the illness. Thus it is

not surprising that most of the respondents did not take them regularly. Only 16.3% and 13.4% in Pathein and Mandalay respectively used to take milo/cocoa/ovaltine etc. Among them only 1.6% in Pathein and 2.0% (10 persons) in Mandalay had the regular habit of taking them.

For the soft drinks, about 50% in Pathein and 40% in Mandalay took them, and usually frequently in Mandalay than in Pathein which may be due to the hot weather. Soft drinks had become popular lately in Myanmar because of affordable prices as many local brands were produced. Snacks are mostly taken by children and young adults thus finding of low intake of snacks in our study might be due to age group selected. People in Myanmar usually did not frequently take cholesterol rich food like butter, cream, yogurt, cheese which were taken by 29.8% of the study population of Mandalay and 17% in Pathein. Better income of the Mandalay respondents might be the explanation for this different finding. By occupation, private business persons and private company employees took most, while none of the farm owners and farm laborers took cholesterol rich food.

People from Mandalay are famous for liking in oil and this explained the higher consumption of oil in Mandalay. Taking more of groundnut oil rather than palm oil in Mandalay also reflects their higher income level as palm oil is cheaper than groundnut oil. Better income among the respondents of Mandalay could explain the thinking of taste and preference in buying foods rather than price in contrast to Pathein where price was the most common factor to be considered in buying foods for main meals.

We, Myanmar consider cows as our "Kyay-zu-shin" (human beings owe a gratitude to cows) as they are mainly used in producing rice, a staple food of Myanmar. Thus we would not like to kill them and eat. Food avoidance was found in all occupation groups, indicating that people still need to be given proper nutritional and health education.

Some reasons for avoiding food were rather deep-rooted and would be difficult to remove the taboos and wrong ideas especially when concerned with religion.

The present study, being the first in Myanmar during the socio-economic transition period, will serve as the baseline for further quantitative and qualitative research studies on food consumption behaviour in wider scope, another studies and periodically, should be carried out to evaluate the impact of developmental transition on food patterns, trends over years, and to map out an agenda of priorities and goals for the turn of the century.

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