

Research Paper :

Consumption pattern and food handling practices of street foods

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ABSTRACT

A total of 250 students and 50 vendors were selected from different areas of Parbhani city for studying consumption pattern and food handling practices of street foods. The various street foods stated to be consumed by the selected college going student were kulfi, bhel, kharmure, pop-corn, pani-puri, pav-bhaji, ice-cream, mirchi-bhaji, fruit juice, samosa, wada-pav, watana and kachori. Maximum student preferred consumption of street food once in a week and spent less than Rs. 40/week on purchase of street food. More street foods were preferred due to its variety and taste. Street foods vended in selected places of Parbhani city were found to be prepared by the street vendors under insanitary conditions. Observations for catering operation and food material handling practices revealed lacunae in accessories, water supply, pre-preparation, use of holding, dish washing and personal hygiene practices may pose a serious health risk.

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Urbanization is the inevitable and consequential result of socio-economic development and industrialization. This increasing growth of urban population has stimulated a rise in the number of street vendors in many cities throughout the world. Migration from rural area to urban centres has created a daily need among many working people to eat outside the home. In many countries, workers as well as students have their first meal of the day from street food vendors (FAO, 1986). Street foods have been defined as ready-to-eat foods and beverages prepared or sold by vendors and hawkers especially in streets and other similar public places (FAO, 2000). The wholesomeness of this food in terms of sanitation is also questionable. As Langere and Bleaker point out "food service operators and food handlers have control over the stomachs of millions of people. It is largely their responsibility whatever the food they serve to the public is wholesome. Improving the sanitations and hygienic aspects of these units is a crucial and arduous task. Also street foods are preferred due to its convenience, taste, variety and low cost. Day by day people are becoming habituated in regard to consumption of street foods specially the students. Therefore, the study was undertaken to know the consumption pattern of street foods among students of Parbhani city and to evaluate the personal hygiene, health caring practices of street food vendors and environmental hygiene of stalls.

METHODOLOGY

A total number of 250 students between the age of 16 and 25 yrs. were randomly selected from five different

educational institutions of Parbhani city namely, Marathwada Agricultural University, Dyanopasak Shikshan Mandal College, Industrial Technical Institute, Shri Shivaji College and Law College. The information regarding frequency of consumption of street foods, total money spent on street foods, reasons for preferring street foods etc. was obtained by personal survey schedule. Fifty vendors were selected from different areas of Parbhani city, where people congregate in large amount and where a large number of street food vendors were present. The selected locations were Station road, Basmat Road, Jintur Road and Rajgopalacharya Park. From each location, ten vendors were selected, preference was given to those vendors, who have mobile units and not having permanent seating arrangements.

FINDINGS AND DISCUSSION

Information about street food items commonly consumed by the selected students is presented in Table 1. The various street foods stated to be consumed by the selected college going students were *kulfi* (225), *bhel* (222), *kharmure* (219), pop corn (217), *pani puri* (209), *pav bhaji* (203), ice-cream (201), *mirchi bhaji* (185), juice (175), *samosa* (173), *wada-pav* (173), *watana* (173) and *kachori* (164). Result indicated that the most preferred street foods were *kulfi*, *bhel*, *kharmure*, pop-corn and *pani puri* while the least preferred street foods were *kachori*, *samosa* and *watana*. On the whole, the habit of consuming street foods were more common among college students. These findings are in line with that of Reddy *et al.* (2001) who had reported that *pani puri*,

Table 1 : Street food items commonly consumed by subjects

Foods	Number of student consuming street foods according to age					
	16-20 yrs. (n=100)		>20-25 yrs. (n=150)		Total (n=250)	
	Number	Per cent	Number	Per cent	Number	Per cent
Kulfi	84	84.00	141	94.00	225	90.00
Bhel	85	85.00	137	59.00	222	89.00
Pani-puri	83	83.00	126	84.00	209	84.00
Pav bhaji	82	82.00	121	81.00	203	81.00
Ice-cream	82	82.00	119	79.00	201	80.00
Mirchi-bhaji	77	77.00	108	72.00	185	74.00
Juice	68	68.00	106	71.00	175	70.00
Samosa	45	45.00	128	85.00	173	69.00
Wada-pav	59	59.00	114	76.00	173	69.00
Kachori	66	66.00	98	65.00	164	66.00
Kharmure	89	89.00	130	87.00	219	88.00
Pop-corn	92	92.00	125	83.00	217	87.00
Watana	65	65.00	108	72.00	173	69.00

bhel puri, mirchi bhaji, samosa etc. were the most popular street food items being sold.

Frequency of consumption of street foods by the selected students is shown in Table 2. Among subjects, maximum (110) number of students preferred consumption of street food once in a week whereas very less number (9) consumed street food daily. Significantly more number of the students, between the age groups of 16 and 20 yrs. preferred to eat street food every alternate day.

Table 2 : Frequency of consumption of street foods by the selected students

Particulars	Number of students according to age			
	Total (n=250)	16-20 yrs (n=100)	>20 -25 yrs (n=150)	"Z" value
Daily	09 (3.6)	04 (4)	05 (3.33)	1.16
Once in a week	110 (44)	62 (62)	48 (32)	5.00**
Every alternate day	84 (33.6)	13 (13)	71 (47.33)	6.8**
Two times in a week	47 (18.8)	21 (21)	26 (17.33)	0.8

(Figures in the parenthesis indicate percentage)
** indicates significance of value at P = 0.01

Total money spent on street foods per week by the selected students is presented in Table 3. Maximum (52%) per cent of students spent Rs.20-40 per week for the consumption of street food. Only 3 per cent students between the age group of 16 and 20 yrs. spent Rs. 40-60 per week, similarly very less per cent (7%) of students between the age group of 20 and 25 yrs spent Rs. 80-100 per week. On the whole, it can be said that, maximum number of students spent Rs. 20-40 /week on purchase of street foods while minimum number of students spent

Table 3 : Total money spent on street foods per week by the selected students

Total money spent on street foods per week	Number of students according to age			"Z" value
	Total (n=250)	16-20 yrs (n=100)	> 20 -25 yrs (n=150)	
<20	47 (19)	47 (47)	-	9.59**
20-40	131 (52)	50 (50)	81 (54)	0.66
40-60	38 (15)	03 (03)	35 (23.33)	0.83
60-80	27 (11)	-	27 (18)	7.5**
80-100	07 (3)	-	07(4.66)	18.9**

(Figures in the parenthesis indicate percentage)
** indicates significance of value at P = 0.01

Rs. 80-100/ week.

Reasons for preferring street food stated by selected surveyed students are shown in Table 4 maximum (42%) of students preferred the street food for variety and taste followed by 22 per cent for convenience, taste and low cost. Only 10 per cent students preferred the street food for its variety, taste and low cost and 7 per cent preferred because of taste and low cost. Finally, it can be said that most of the students preferred street food because of variety and taste. These findings are supporting the studies reported by Khan (1995) and Reddy *et al.* (2001) that the most of the consumers preferred these foods due to convenience, variety and taste.

A variety of street food items being prepared and sold by vendors are shown in Table 5. It is clear from Table 5 that *bhel, pav bhaji, ragda petis, kachori* and *pani puri* were the most commonly sold items by these vendors. *Mirchi bhaji, onion pakoda, cutlet, egg bonda* and *egg omlet* were sold by least per cent of vendors. Other food items like *kachori, pani puri, dabeli, samosa* and *alu bonda* were

Table 4 : Reasons for preferring street foods by the selected students

Sr. No.	Reasons	Number of student consuming street foods according to age		
		16-20 yrs (n=100)	>20-25 yrs (n=150)	Total (n=250)
1.	Convenience and variety	-- (0)	02 (1)	02 (1)
2.	Convenience and taste	07 (07)	13 (9)	20 (8)
3.	Convenience and low cost	02 (02)	02 (1)	04 (2)
4.	Convenience, variety and taste	29 (29)	26 (17)	55 (22)
5.	Convenience, taste and low cost	02 (02)	05 (3)	07 (3)
6.	Variety	03 (03)	---	03 (1)
7.	Variety and taste	30 (30)	76 (56)	106(42)
8.	Variety and low cost	03 (03)	02 (1)	05 (2)
9.	Variety, taste and low cost	11 (11)	13 (9)	24 (10)
10.	Taste	06 (06)	---	06 (2.2)
11.	Taste and low cost	06 (06)	11(7)	17 (7)
12.	Low cost	01 (1)	---	1 (0.4)

(Figures in the parenthesis indicate percentage)

Table 5 : Variety of street food snacks items being sold by vendors

Name of food items	Street food vendors (n=50)	
	Number	Per cent
Panipuri	18	36
Bhel	34	68
Pav Bhaji	26	52
Ragda petis	24	48
Samosa	10	20
Dabeli	12	24
Mirchi bhaji	04	08
Cutlet	02	04
Egg Bonda	02	04
Egg omlet	02	04
Onion pakoda	04	08
Kachori	22	44
Alu bonda	08	16

sold by 22, 18, 12, 10 and 8 per cent of vendors, respectively. These findings are supporting the results by Reddy *et al.* (2001) that bhel, pani-puri, samosa, pav-bhaji were most commonly sold street food items in Hyderabad and Secndarabad twin cities.

Information on cooking and serving practices followed by street food vendors is given in Table 6. Information collected regarding the place of cooking indicated that a higher percentage (72%) of vendors carried out preparation at home and final preparations

Table 6 : Information on cooking and serving practices followed by street food vendors

Particulars	Street food vendors (n=50)	
	Number	Per cent
Place of cooking		
Home	14	28
Spot	--	--
Both	36	72
Utensils used for preparations		
Iron vessel	38	76
Aluminum vessel	12	24
Serving plate - steel plate	50	100
Source of drinking water		
Near by hand pump	18	36
Near tap water	20	40
From home	12	24
Storage of drinking water		
Steel container	44	88
Plastic container	06	12

were done on the spot. Majority (76%) of vendors used iron utensils for preparations. Stainless steel plates were used for food serving by 100% vendors. It was reported that water facility was a major problem faced by the vendors, as water facility was not available at single vending site. Forty per cent of them get water from near by tap, 36 per cent from near by hand pump and 24 per cent carried water from home. Majority (44 %) of vendors stored drinking water in steel container .

The information on cleaning practices followed by street food vendors is depicted in Table 7. It is clear from the table that maximum (60 %) vendors were covering food material. These unprotected foods may lead to cross-contamination - so that, there is consequently a risk of contamination associated with exposure with food with flies. A relatively very high per cent (92%) vendor washed the plates repeatedly in the same water without changing it. Maximum per cent (64 %) of the vendors washed the plates near the stall for convenience, which may affect the hygienic condition of the stall and area around the stall. It was observed that the surveyed vendors were using separate napkins for wiping utensils and plates, however, the napkin were not clean.

The situation observed in the present study in terms of the environmental hygiene and sanitation surrounding the stall is presented in Table 8. The presence of flies and dust around the vending area was noticed in more than 50 per cent and 75 per cent, respectively. The number of stalls having animal around was 26. Maximum (96 %) vendors dumped garbage away from the stall. Very less number of the vendors disposed off the garbage twice a

Table 7 : Information on cleaning practices followed by street food vendors

Types	Street food vendors (n=50)	
	Number	Per cent
Washing plates		
With clean water		
-Yes	04	08
-No	46	92
With water and soap		
-Yes	--	--
-No	50	100
Place for washing plates		
Away from stall	18	36
Near the stall	32	64
Use of soap/detergent water in cleaning stalls		
-Yes	48	96
-No	02	04
Frequency of washing the wiping cloth		
Once on a day	22	44
Every alternate day	28	56
Use of soap water for washing the wiping cloth	50	100

Table 8 : Environmental hygiene of vending area (n=50)

Types	Number of vendors	
	Number	Per cent
Presence of flies	26	52
Presence of dust	38	76
Presence of garbage	46	96
Garbage dumped away from stall	48	96
Garbage disposal twice a day	26	52
Garbage thrown in polythene bags	08	16
Garbage thrown away from food preparation area	06	12
Animals around the stall	26	52

day. Only six vendors were found using polythene bags for garbage disposal. It was also noticed that all vendors threw the garbage away from food preparation area.

Information about personal hygiene and health care practices of the vendors is given in Table 9. Majority of the vendors (66 %) appeared untidy and shabby. Out of 50 vendors, 26 vendors had cut their nails with clean appearance and the remaining 24 vendors had uncut nails with dirty appearance. Maximum (96 %) vendors had combed hair neatly. Maximum (72 %) did not wash their hands with soap and water before starting days work. Most (84 %) of vendors used separate napkin for wiping the hands after washing. However majority (76%) of the vendors placed the napkin on the working surface or

Table 9 : Personal hygiene of the vendors (n = 50)

Type	Street food vendors	
	Yes	No
Neat and clean appearance	06 (12)	44 (88)
Nails cut and clean	26 (52)	24 (48)
Hair neatly combed	48 (96)	27 (54)
Hands washed with soap and water before starting day's work	14 (28)	36 (72)
Hands washed with soap and water after completing days work	42 (84)	08 (06)
Use of separate napkin for wiping hands after washing	42 (84)	08 (06)
Placement of napkin		
After personal use kept in pocket	12 (24)	38 (76)
After washing hands kept on working surface	38 (76)	12 (24)

(Figures in parenthesis indicate the percentage)

platform, which may lead to cross - contamination from the napkin to the prepared food.

Information about purchase, storage and handling practices followed for various commodities followed by street food vendors is given in Table 10. Potato, onion,

Table 10 : Purchase, storage and handling practices followed for various commodities by street food vendors

Particulars	Per cent of vendors
Raw vegetables	
Boiled potatoes	
In advanced	89.00
As per requirement	10.00
Peeling of onion, potatoes, cucumber	
In advanced	65.00
Just before use	34.00
Washing potato, tomato, cucumber	
At home	100.00
Storage of cut vegetables in -	
Close containers	31.00
Open containers	68.00
Bread	
Purchase of bread	
Daily	88.00
Twice in a week	11.00
Storage of bread in refrigerator	
Yes	33.00
No	66.00
Cutting of bread	
In advanced	83.00
Just before use	16.00
Storage of bread on stall	
In closed container	11.00
In opened container	88.00

cucumber and tomato were the raw vegetables found to be generally purchased by street food vendors to be used in various food preparations. Generally, potatoes were used in boiled form and they were boiled well in advance by most (89%) of the vendors. Maximum (65%) of vendors followed the practice of peeling onion, potato and cucumber well in advance. It was found that all the vendors washed potato, tomato and cucumber at home before brining to the stall. Majority (68.00 %) of the vendors stored the cut vegetables in open containers. Maximum (83 %) vendors cut the bread well in advance. Most of them stored bread in open containers. During food preparation 75 per cent vendors kept chutney open while 25 per cent of them kept in closed chutney boxes immediately after use. All vendors used homemade masala. It was used with bare hands by all the vendors and was stored in closed containers.

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