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Food and nutrition consumption pattern vis-à-vis healthcare aptitude among farming households of north Indian plains

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ABSTRACT

Hygienic food consumption, household sanitation and healthcare aptitude are some of the important concerns in rural India specifically among the farming households. Hence, it should be ensured that rural masses who exert more physically must take healthy food complying with required safety and sanitation measures for higher physical efficiency in farming and household chores. Thus, in order to assess the food and nutrition consumption pattern as well as healthcare aptitude among farming households of north Indian plains, the current study was undertaken in two representative districts of north Indian plains, viz. Bhagpat (UP) and Jhajjar districts (Haryana). Under this study, a total of 50 respondents of each district were selected by multistage random sampling technique (MRST) in two states of Uttar Pradesh (UP) and Haryana. The MRST study revealed that majority of farming households emphasized upon safety food consumption practices (72–92%) and household sanitation (32–94%). However, healthy food and nutrition consumption habits (12–92%), physical access to food and nutrition facilities (24–100%) as well as access to healthcare facilities (12–96%) in their household vicinity revealed a moderate response among the farming households in the study area. A fair number of respondents found to posses ill-habits (alcoholism and smoking) which should be avoided by changing their mindset by mass awareness promotional programmes. Overall, current MRST study concluded that farming households of Haryana and Western UP follow sound safe food and nutrition consumption practices; however, the food and nutrition consumption habits, sanitation and healthcare facilities/services need greater attention of community and development agencies to ensure better food, nutrition, sanitation and healthcare among farming households of north Indian plains.

Key words: Farming households, Food consumption pattern, Healthcare, Nutrition, Sanitation

Achieving UNO's Sustainable Development Goals '*number two and three'* – zero hunger, good health and wellbeing, will depend upon addressal of food and nutrition consumption behaviour, household sanitation and healthcare aptitude as well as access to all the related services by the communities (FAO 2019). In this direction, India and other south Asian countries are spending a huge amount of currency for physical access to food and its distribution and healthcare services as well. However, India particularly rural India still lack in all these fronts due to poor awareness and aptitude among farming masses mainly due to their unhygienic food consumption habits and poor healthcare related behavior. The food production and food safety practices support good nutrition uptake and health in rural areas (Choudhary and Suri 2009; Sundaram *et al*. 2011). It is mostly dependent on household safety measures, food and nutrition consumption behavior as well as sanitation aptitude. Besides this, the physical access to public distribution systems (PDS) of food as well as healthcare institutions also play a significant role in food, nutrition and healthcare security of the rural communities. The most vulnerable section of rural society is the farming households and landless labourers (Chandel *et al.* 2005; Choudhary 2011).

The UNDP's sustainable development goals have also suggested that attainment of food and nutritional security is essential for all human life and everyone has the right to eat safe and nutritious food with health well-being. Farming community in India has played a great role in food self-sufficiency and food security of the nation, however, they themselves lack the healthy and hygienic food consumption habits particularly the horticultural products (Sundaram *et al*. 2011; Choudhary *et al*. 2013). Since, farming community is the backbone of the agriculture based Indian economy. Thus, the random assessment of safe food and nutrition consumption habits, household sanitation and access to

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healthcare facilities/services among this section of rural society need greater attention to frame the appropriate policy interventions to ensure the food and nutritional security of the nation in holistic manner (Yadav *et al*. 2013). The outcomes of such studies may be helpful in understanding their food, nutrition, sanitation and healthcare related issues so as to frame the policies and extension mechanism to address these key issues at regional level. Since, the north Indian plains constitute the food bowl of the nation; so, it was planned to conduct the current study following multistage random sampling technique (MRST) in two states of Uttar Pradesh (UP) and Haryana with two random representative districts, *viz*. Bhagpat and Jhajjar, respectively.

MATERIALS AND METHODS

Many north Indian farming households are not practicing healthy food consumption patterns and behaviors. In order to assess the food and nutrition consumption pattern vis-à-vis healthcare aptitude among farming households of north Indian plains, a well structured survey schedule was prepared. The relevant survey was done during 2018 and 2019 under the IARI Institutional Project as well as under Mera Gaon Mera Gaurav (MGMG) programme of IARI–New Delhi. For this study, we used a multi-stage random sampling technique (MRST) being utilized at three stages (at district-block-village level). Under this study, two north Indian states [Uttar Pradesh (UP) and Haryana] were selected randomly. Among these 02 states, we further randomly selected two districts, *viz*. Jhajjar of Haryana and Bhagpat of Uttar Pradesh. Among these two districts, we further randomly selected two community development blocks (CBDs) of each district, i.e. Jhajjar and Bahadurgarh CBDs' of Jhajjar district, and Bhagpat and Baraut CBDs' of Bhagpat district. Finally, we randomly selected 05 villages from each CBD [(Babra, Dhakla, Kasni, Raipur and Sondhi villages of Jhajjar CBD; Bupania, Dahkora, Asmayalpur, Nilothi and Majri villages of Bahadurgarh CBD in Jhajjar District of Haryana); and (Bali, Ghatoli, Harsia, Kheriki and Meeti villages in Bhagpat CBD; Dhikana, Gaidabra, Hewa, Jalalpur and Kirthal villages in Baraut CBD of Bhagpat district in UP)]. In each village, five representative farm households were selected for relevant data collection on well structure survey schedules as suggested by Choudhary *et al.* (2013). Thus, the sample respondents' size for the study was one hundred (n=100, i.e. n=50 from each district). The data on various survey parameters collected from the respondents was presented in percentage (%) following the standard procedures to draw the valid interpretations (Choudhary *et al.* 2013; Rana *et al.* 2014).

RESULTS AND DISCUSSION

Safety measures for food consumption and household sanitation aptitude

The data in Table 1 revealed that about 90% of Jhajjar district farming households used to wash their hands before food consumption while it was only 72% in Baghpat district. Similarly, about 92% farming households used to wash their foodgrains/pulses/vegetables before processing and cooking in Jhajjar district compared to Baghpat district where the figure was 84% only. Households drinking safe potable water are 90% in Jhajjar and 80% in Baghpat district farming households. It indicates that the farming households of Jhajjar district of Haryana have improved healthy food consumption behavior than the farming households of Baghpat district of Uttar Pradesh. India is an agrarian country where farming household's food consumption habits has been with less hygienic cooking practices like muddy rural household infrastructures, poor cooking and processing facilities, poor drinking water facilities and sanitation (Kirit *et al.* 2014). However, the current study revealed an improved behaviour of both the districts w.r.t. safety measures for food consumption aptitude. It is further reported that about 94% of Jhajjar district farming households have sanitary toilets (*Shochalayas*) in their home premises while only 64% Baghpat district farming households have sanitary toilets. About 56% households use toilet cleaners for sanitation in Jhajjar district with least value (32%) in Bhagpat district. Furthermore, about 64% households maintain sanitation around their home in Jhajjar; while in Bhagpat district the relevant figure is 42%. The Jhajjar district farming households of Haryana observed better safety measures for food consumption and household sanitation aptitude as compared to the farming households of Bhagpat district of Uttar Pradesh. In this context, the recent initiative on Swatch Bharat Abhiyan might have

Table 1 Safety measures for food consumption and household sanitation aptitude in rural areas of Bhagpat and Jhajjar districts

Particulars	Bhagpat (n=50)		Jhajjar (n=50)	
	Respondents	%age	Respondents	%age
Households washing their hands before food consumption	36	72	45	90
Households washing their foodgrains/pulses/vegetables before processing & cooking	42	84	46	92
Households using detergents/ash to wash utensils	45	90	46	92
Households drinking safe potable water	40	80	45	90
Households having sanitary toilets (*Shochalayas*) in their home premises	32	64	47	94
Households using toilet cleaners for sanitation	16	32	28	56
Households maintaining sanitation around their home	21	42	34	64

given greater awareness on maintaining cleanliness for better health and environment.

Healthy food and nutrition consumption habits

Data in Table 2 suggests that more than 80% of the farm households consumed nutri-cereals like millets and multigrain flour in their regular diets both in Jhajjar and Baghpat districts. However at the same time, the quantity of consumption had been comparatively less which might be due to less income and purchasing power of the farming families. Similarly, the households consuming iron/calcium/ vitamin supplements during pregnancy were ~80% in Jhajjar and 70% in Baghpat district farming households. Further, less than 20% of the farm households consumed fruits and fortified foods on regular basis in both the districts. Since, the availability of biofortified food crops and fortified products is already very meager in the nation (Suri and Choudhary 2012; Kumar *et al.* 2017, 2018). Thus, the lower level of fortified food consumption vis-à-vis micronutrient malnutrition is a common health concern in rural India (Dass *et al.* 2017; Harish *et al.* 2018). The farming households of both the districts used to consume fair quantities of vegetables and fruits in their daily diet (56–68%), indicating that farmers' habit to grow vegetables for domestic use/kitchen gardening besides mass multimedia and communication technologies might have played a vital role in creating the awareness and changing the food habits of rural households (Dass *et al.* 2002; Choudhary *et al.* 2012; Choudhary 2016).

Physical accessibility to food, nutrition and healthcare

India lives in villages and it has more than 5.5 lakh villages with 60% of the nation's populations. This huge rural population mostly depends upon farming centric livelihoods with less per capita incomes and living standards (Choudhary *et al*. 2010). Hence, the decentralized and location-specific nutrition and healthcare centers in the villages may play a very important role to serve and improve the farming household's health and nutritional standards following sound awareness programmes (Choudhary and Suri, 2014a, 2014b). Data in Table 3 revealed that farming households in both the districts used to utilize the *Anganwadis* for better nutritional and health benefit purpose. It is because of easy accessibility to *Anganwadis* in respective villages and being near to farming households. Further, around 84% of farming households in Baghpat district have access to Public Distribution System (PDS) and the figure is 72% for Jhajjar district. With respect to childcare, 68% of farming households' in Baghpat district has children accessibility to midday meal in schools while the figure is 64% for Jhajjar district. The reason for less PDS utilization and less children access to midday meal facilities in schools of Jhajjar is due to relatively higher per capita income over Baghpat district. Interestingly, the data revealed that farming households' level of consumption of junk foods is increasing slowly in both districts. In both the districts, more than one third of farming households are also practicing nutritional food habits (Table 3).

Access to hospitals and healthcare facilities

In India, the farming households are facing the issues of access to quality healthcare services. It is due to the less penetration of medical practitioners in rural areas. It is because of less per capita income and poor rural lifestyle. Hence, the public sector hospitals and health workers only do play important role in providing medical and health facilities to the rural households. Table 4 revealed that more than 90% of the farming households in both the districts follow vaccination (Polio, BCG etc.) to their infants and children. Due to the mass media based awareness and knowledge delivery system, the farming households have good awareness and knowledge about child vaccinations. Around 10% of the households' consult medical practitioners for minor ailments. Further, around 64% of farming

Table 2 Healthy food and nutrition consumption habits of rural masses in Bhagpat and Jhajjar districts

Particulars	Bhagpat (n=50)		Jhajjar (n=50)	
	Respondents	%age	Respondents	%age
Households consuming fortified food	8	16	10	20
Households consuming iron/calcium/vitamin supplements during pregnancy	35	70	40	80
Households consuming nutri-cereals like millets	46	92	44	88
Households consuming multi-grain flour	44	88	42	84
Households consuming vegetables in their daily diet	34	68	28	56
Households consuming fruits regularly	6	12	8	16

Table 3 Physical accessibility to food and nutrition care and distribution centers in rural areas of Bhagpat and Jhajjar districts

Statements	Bhagpat (n=50)		Jhajjar (n=50)	
	Respondents	%age	Respondents	%age
Anganwadis' situated near to the households	50	100	50	100
Households access to PDS facilities	42	84	36	72
Children access to midday meal facilities in school	34	68	32	64
Households following nutritional food habits	38	76	40	80
Households consuming high levels of junk foods	12	24	14	28

Table 4 Household access to hospitals and healthcare facilities in rural areas of Bhagpat and Jhajjar districts

Particulars	Bhagpat (n=50)		Jhajjar (n=50)	
	Respondents	%age	Respondents	%age
Households following child vaccination practices	46	92	48	96
Households consulting medical practitioners for minor ailments	6	12	5	10
Households consulting medical practitioners for chronic health issues	32	64	34	68
Households ready access to primary health centers	31	62	37	74
Households ready access to private hospitals in nearby villages/town	36	72	28	56
Households availing medical/health insurance facilities	6	12	8	16

households in Baghpat district consult medical practitioners for chronic health issues and this figure is 68% for Jhajjar district. The accessibility to primary health centers is 62% and 74%, respectively for Baghpat and Jhajjar districts. The Bhagpat district farm households have relatively improved readiness (72%) to access to private hospitals than Jhajjar (56%), because of nearness of the villages to urban areas. Only 15% of the households have medical/health insurance facilities in both the districts due to poor awareness and higher insurance premium charges.

Prevalence of unhealthy lifestyle habits

The changing lifestyle greatly influenced the rural farmers to practice unhealthy habits like alcohol and smoking which adversely affects the health and finance of the farm families (Dariush *et al.* 2015). This study observed that smoking and alcohol consumption are the major unhealthy practices identified in the rural households (Table 5). About 28% of Jhajjar district farming household family members consumed alcohol on daily basis, 14% of Jhajjar district farming household family members consumed alcohol on weekly basis and 28% of Jhajjar district farming household family members consumed alcohol on occasional basis. Similarly, 16% of Baghpat district farming household family members consumed alcohol on daily basis, 6% of Baghpat district farming household family members consumed alcohol on weekly basis and 12% of Baghpat district farming household family members consumed alcohol on occasional basis. Hence, it indicates that Jhajjar district farming household family members consumed alcohol relatively more over the Baghpat district farming household family members. It is further reported that about 34% of Jhajjar district farming household family members have severe smoking habits and it was 38% in the case of Baghpat district farming household family members. About 16% of Jhajjar district farming household family members occasionally have smoking habits and it was 8% in the case of Baghpat district farming household family members. These unhealthy practices lead to losses in farm households' daily income and deteriorated health leading to more medical expenditures. Hence, better awareness programmes and counseling mechanisms needs to be developed to change the aptitude of rural masses and follow better healthy lifestyle for farming households' sustainable development perspectives.

Conclusion

The study concluded that the farming households of Jhajjar district of Haryana had relatively better safety measures for food consumption, better sanitation aptitude, better healthy food and nutrition consumption habits and nutritional accessibility and better physical accessibility to food and nutrition care than Baghpat district. However, the farming households of Baghpat district had better access to hospitals and healthcare facilities than Jhajjar villages. Overall, majority of farming households emphasized upon safety food consumption practices (72–92%) and household sanitation (32–94%) in both the districts in north India. However, healthy food and nutrition consumption habits (12–92%), physical access to food and nutrition facilities (24–100%) as well as access to healthcare facilities (12–96%) in their household vicinity revealed a moderate response among the farming households in the study area. In nutshell, farming households of Haryana and Western UP follow sound safe food and nutrition consumption

Table 5 Prevalence of unhealthy habits in rural households in Bhagpat and Jhajjar districts

Particulars	Daily				Weekly				Occasionally			
	Bhagpat (n=50)		Jhajjar (n=50)		Bhagpat (n=50)		Jhajjar (n=50)		Bhagpat (n=50)		Jhajjar (n=50)	
	Respon-dents	%age	Respon-dents	%age	Respon-dents	%age	Respon-dents	%age	Respon-dents	%age	Respon-dents	%age
Family members consuming alcohol	8	16	14	28	3	6	7	14	6	12	14	28
Family members having smoking habits	19	38	17	34	2	4	5	10	2	4	3	6

practices; however, the food and nutrition consumption habits, sanitation and healthcare facilities/services need greater attention of society and governmental agencies to ensure better food, nutrition, sanitation and healthcare among farming households of north Indian plains.

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