

A SURVEY OF PERCEPTION (ON HEALTH EFFECTS OF) MONOSODIUM GLUTAMATE (A TYPICAL FOOD ADDITIVE COMMONLY USED AS FLAVOURING AGENT) AND ATTITUDES AMONG MEDICAL STUDENTS IN SOKOTO, NIGERIA

NAFISA ABDULRAHMAN ASHAFI

Department of Biology, Shehu Shagari College of Education Sokoto, Nigeria

ABSTRACT

In recent years, there is approval of thousands of additives to our food. But by the days many studies especially in animals have shown that food additives are associated with side/health effects. Particularly, the monosodium glutamate has been approved by many constituted authorities to be used in foods, despite the numerous health effects reported to be caused by MSG in animal studies and few studies in humans. In short, MSG is a revolving axis of controversy on whether it is safe or not. This study employed a survey was. Therein, 420 questionnaires were distributed and 375 were retrieved later, using a tripartite of random, purposive, and convenience sampling fashions. The data collected were managed and descriptive statistics were calculated using SPSS version

Introduction:

Food additive is any substance not normally consumed as a food in itself and not normally used as characteristic ingredient of food, which is deliberately added to food either during manufacture, treatment, packaging, transport etc for a given reason (Al-Harthy *et al.*, 2017). The use of food additives in has been a public health concern over the years (Szucs, 2014). That practice has increase over the years. About 5000 food additives are allowed by Food and Drug Administration (FDA) (Largesse *et al.*, 2016). Monosodium Glutamate (MSG) is one of the food

16. The respondent's awareness on various names of MSG is diverse. Ajinomoto have the highest (80%) submission, then E261(40%), then Chinese salt (32%) and lastly Ginseng powder (20%). bread (40%), chicken (72%), mayonnaise (60%), restaurant food (93%), chocolate (32%), and rice (60%). Likewise, the knowledge on side (health) effects of MSG vouch by the respondents is something appreciable in most of the questions asked. Parable, obesity (52%), neuronal (72%), breathing problems (40%), liver inflammation (76%), nausea (88%), headache (88%), and endocrine dysfunction (76%). The respondents are mostly aware of the basic knowledge of MSG and they do believed that care should be taken when buying food products. There is need for advocacy, health education campaigns about the possible health effects of the MSG and related food chemicals.

Keywords: Food, monosodium glutamate, humans, attitudes, students

additives widely used in our food daily .MSG is a salt of glutamic acid, a most abundant naturally occurring nonessential amino acid easily available in the markets and many food products (Ahmed et al., 2016). Parable, savoury foods, snacks, soups, sauces, meat products etc contains MSG. It was reported that MSG precipitates severe headache and asthma in susceptible individuals. It also stimulates epilepsy-type " shudder " attack in susceptible individuals (Tuormua, 1994). Moreover, MSG can destroy nerve cells and is been linked with increased Huntington' s, Alzheimer's, and Parkinson's diseases. It may lead to cancer, DNA damage, fetal disorders, and increased hyperactivity in animals (Dar *et al.*, 2017). Additionally, MSG is well-known excitoin that kill brain cell through a mechanism that stimulates self -destruction. It has toxic effect on neurophils and deleterious on blood production (McCann *et al.*, 2007). There are some regulations in many countries like Nigeria vested with duty to control use of food additives. The regulations are varied, stricter in some countries especially the European ones, but in Africa they are less strict. Some of the concerns on food additives are:

- i. The labels used to indicate food additives are not clear to the consumers because they are unaware of E-numbers and other trademarks used to identify food constituents. This could endanger the public laymen.
- ii. Our knowledge of food additives is limiting. Over the years there are a lot of additions and deletions on the approved food additives. This is associated with new discoveries.
- iii. There is dramatic increase in addition of additives in food products
- iv. The laymen may have limited knowledge on the amount of safe quantity of food additives and limited courage to strict to healthy levels.

Therefore, it is pertinent to explore the perceptions, attitudes and use of food additives among the public. Because, public awareness could instigate people to act rationally in utilization of food additives, and compelling the policy makers and manufacturers to increase caveat in the utilization of additives in food.

MATERIALS AND METHODS

In this work, a survey was carried out using a structured questionnaire. Therein, 420 questionnaires were distributed and 375 were retrieved later, using a tripartite of random, purposive, and convenience sampling fashions. The data collected were manage and descriptive statistics were calculated using SPSS version 16.

RESULTS AND DISCUSSION

Table 1: Demographic characteristics of respondents

Item	Frequency	%
Sex		
Male	225	60
Female	150	40
Marital status		

Married	338	75
Single	113	25
Religion		
Islam	263	70
Christianity	75	20
Occupation of parents		
Nurse	38	10
Farmer	150	40
Teacher	38	10
Others	150	40
Level of education of parents		
Graduate	180	40
Diploma	75	20
Secondary	75	20

Table 2: Awareness of respondents on various names of MSG

Item	Frequency	%
Chinese salt		32
Ajinomoto/vedan	300	80
E 621	150	40
Ginseng powder	75	20

Table 3: Knowledge of products containing MSG

Ice cream	75	20
Bread	150	40
Yoghurt	60	16
Cooked chicken	270	72
Mayonnaise	225	60
Chocolate	345	92
Restaurant's food	120	32
Rice	225	60

Table 4: Awareness of respondents on various side effects of MSG

Item	Frequency	%
Obesity	195	52
Sleep disorders	45	12
Neuronal damage	270	72
Breathing problems	150	40
Liver inflammation	285	76
Nausea	330	88
Headache	330	88
Endocrine dysfunction	285	76

Table 5: Attitudes of respondents towards MSG and use of MSG

Item		Frequency	Perception
It is important to know if food contains MSG	Yes	285	76
	No	90	24
I pay attention during shopping to see if MSG is present	Yes	330	88
	No	45	12

From table 2, the respondent's awareness on various names of MSG is varied. Ajinomoto scored the highest (80%), then E261(40)%, then Chinese salt (32%) and lastly Ginseng powder (20%).The highest awareness scored by Ajinomoto could not be unconnected with its widespread presence in homes and markets. Thus, if this name can only be use as label or indication of MSG, the consumers could be able to easily identify it so as to take informed decision on using or jettisoning it. Also, the level of awareness on the names of MSG is significant among the examined respondents. This is a good omen, because medical students are potential health professionals. While health professionals are responsible for public health education and awareness which is driven by level of awareness they have.

In table 2, also the awareness on products that contains MSG is significant, for example, bread (40%), chicken (72%), mayonnaise (60%), restaurant food (93%), chocolate (32%), and rice (60%). Likewise in table 4, the knowledge on side (health) effects of MSG vouch by the respondents is something appreciable in most of the questions asked. Parable, obesity (52%), neuronal (72%), breathing problems (40%), liver inflammation (76%), nausea (88%), headache (88%), and endocrine dysfunction (76%). 76% of the respondents think that it is important to know if food contains MSG. This is an extremely appreciable response. Whereas, 88% said they pay attention on MSG while buying food.

Laconically, the respondents displayed a significant awareness on basic knowledge of MSG a positive health attitude on MSG. This is in tandem with health believe model. But this appreciable awareness is in contradiction with the finding of Ahmed et al.,(2016),which says " Medical and dental students have inadequate knowledge about the health hazards caused by consumption of the product containing MSG as food additive ". It also contradicts the findings of a study from south India by (Harsha *et al.*, 2013).

Studies on perception on food additives give inputs to planning, intervention, baseline data and making by individuals and government (Harsha et al., 2013). As food production systems grow complex the risk grow (Elizabeth *et al.*,2013). Increasing use of food additives have potentials of causing health problems (Harsha *et al.*, 2013).

Public understanding of risks of food production is an area without consensus and with controversies (Elizabeth et al., 2015).

The use of food additives has skyrocketed extremely in the last few decades and there are allegations that the present increase in crime, morbidity and mortality may have nutritional undertone among it causes (Dar et al., 2017). Specifically, some of the effects includes: hyperactivity, nausea, eczema, migraine, diarrhea, anaphylaxis, bronchospasm, autoimmune diseases etc (Dar et al., 2017).

Particularly, MSG is one of the food additives extensively consumed, widely studied and very controversial. MSG is the sodium salt of glutamate, which simply consists of sodium, glutamate and water. Albeit, constituted authorities on numerous occasions re-echoed that, the body of studies at their hands and the

appointed consumption levels in humans compel them to pronounced MSG as " safe ". Several studies in animals shows that MSG may not be actually safe. Whereas, there are few studies on humans, may be because of ethical constraints. For example, increased MSG intake is associated with increased levels of several circulating aminoacids, increased haemoglobin, headache, muscle cramp (Ahmed *et al.*, 2016). (Insawang *et al.*, 2012), reported that, higher amounts of individual MSG consumption are associated with the risk of metabolic syndrome. A daily consumption of 5g is considered a risk of metabolic disorder.

The perception and attitudes of medical students on food additives and MSG (in particular) is important. Because positivity in the duo will stimulate them to act reasonably and it will boost their morale for educating the laymen, advocacy and creating awareness.

CONCLUSION

The examined respondents in this study are mostly aware on basic knowledge of MSG and they think care should be taken when buying food products.

REFERENCES

- Ahmed, H., Batool, W., Khalid, S., Ijaz, A., Nasir, H.A. J., and Rafique, M.H. (2016). Assessment of the perception of harmful health effects of monosodium glutamate as food additive among medical and dental students of an institution in Lahore-Pakistan. *Biomedica*,32(4):239-245.
- Al-Harthy, M. A., Harib, A., Al-Shaabi, J.A., Altuobi, S.S., Abu-Khader, M.M.(2017).
- Dar, H.Y., Shirami, C., Karishma, S., Azam, Z., Anupam, K. et al., (2017). Immune modulatory effects of food additives .*Int. J. Immunotherapy Cancer Re.*,3(2):019-031.
- Harsha. K.H.N., Anshu, K.J., Khushboo, K.T. Khrishan, K., Hafeez, M.S. (2013). A study on consumer awareness, safety perceptions and practices about food preservatives and flavouring agents used in packed / canned foods from South India .*National J. of Community Medicine .Vol.4(4): 402-406.*
- Isawang, T., Selmi, C., Pethert, S., et al., (2012). Monosodium Glutamate (MSG) intake is associated with the prevalence of metabolic syndrome in a rural Thai population. *Nutrition and Metabolism*, Vol.9(1):50-56.
- Legesse, A., Muluken, A. and Getasew, A. (2016). A survey on awareness about health problems of food additives in packaged foods and their attitude toward consumption of package foods: a case study at Jimma University. *Int. Food R. J.* ,23(1):375-380.
- McCann, D., Barrett, A., Crumpler, D. et al., (2007). Prolonged use of the food dye tartrazine (FD and Yellow no. 5) and its effects on the gastric mucosa of wistar rats. *Brazilian Journal of Biology*, 67:141-145.

- Szucs, V.(2014). Consumer risk perception of food additives. A PhD thesis submitted at Corvinus University Budapest.
- Tarnavolyi, G. (2003). Analysis of consumer's attitudes towards food additives using focus group survey. Agriculture Conspectus,Vol.68(3):193-196.
- Tuorma, E.T. (1994). The adverse effects of food additives on health: a review of the literature with special emphasis on childhood hyperactivity. J. of Orthomolecular Med.,Vol.9(4): 225-243.
- Veronika, H. and Daniella, D. (2013). Mono sod Glutamate toxic effects and their implications for human intake: A review. Journal of Medicine Research. Vol.2013(2013):1-13.