



Assessment of Traders' Attitude towards Prevention of Mycotoxin Contamination in Markets in Federal Capital Territorial, Abuja

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Abstract

This study assessed traders' attitude towards prevention of mycotoxin contamination in Federal Capital Territorial markets, Abuja. Two research questions, two research objective and two hypotheses guided the study. This adopted survey research design. The population for this study comprises all traders' in major market in Abuja, which includes Wuse market, Garki international market, UtaKoultra modern market, Kado fish market, Karmo market, Gudu market, and Maitama farmers' market, the estimated population for this study is ten thousand and seventy three (10,073). Accidental sampling procedure was used to distribute copies of questionnaire to the respondents. The instrument used for the study was researcher's developed questionnaire, named questionnaire on assessment of traders' attitude towards prevent of mycotoxins contamination. The validity was established using the face and content, the reliability of the instrument was 0.81. Descriptive statistics of frequency counts, percentage, mean and standard deviation was used to describe the demographic characteristics and to point out respondents' opinion on research questions formulated while inferential statistics of chi-square and independent t-test was used to test all the formulated null hypotheses at 0.05 alpha levels. All the tested hypotheses were accepted at 0.05 alpha levels. It is concluded that traders in FCT Abuja have no good attitude towards prevention of mycotoxin contamination; and there is no significant difference in attitude of traders towards prevention of mycotoxin contamination among traders in Abuja based on gender. Therefore, it is recommended general public should be educated on dangers of mycotoxin in order to improve their attitude positively towards mycotoxin contamination.

Keywords: Traders; Attitude Prevention; Mycotoxin; Contamination

Introduction

Mycotoxins are fungal secondary metabolites produced by the toxigenic strains of the fungi, and these compounds contaminate various food substances and agricultural crops [1]. Mycotoxins are very stable, and their contamination in agricultural commodities can be pre-harvest, during

harvest, and post-harvest [2], resulting in the classification of the mycotoxin-producing fungi as field and storage fungi. Mycotoxin production is affected by several conditions which can be biological, chemical, and physiological. However, some of these factors are beyond human control, especially ecological and environmental factors such as temperature, nutrient content of substrate, and relative humidity, which

play important roles in toxin production. Most mycotoxins are produced in hot and humid climates, mainly the tropical countries, most of which are African countries [3]. Food safety is an integral part of food security among traders and a pressing global problem. The development of sustainable agriculture must entail efforts to support nutrition-sensitive agricultural programs where food safety is addressed alongside food security. Throughout Africa, and especially in Malawi, maize is a staple crop that makes up the majority of peoples' diet and is susceptible to contamination with mycotoxins—"secondary metabolites produced by microfungi that are capable of causing disease and death in humans and other animals [4]. Exposure to mycotoxin has been linked to stunting and is a known hepatic carcinogen [5]. Malawi has the highest prevalence of esophageal cancer in the world (24.2 per 100,000 people), alongside widespread stunting, liver cancer, and other comorbidities associated with mycotoxin exposure. Globally, experts are calling for greater attention to mycotoxins, including social science research to understand the complexity of factors contributing to risk and agricultural practices [6].

Attitude refers to a set of emotions, beliefs, and behaviors of traders toward prevention of mycotoxin contamination. Actions to reduce food waste resulted in the founding of food movements such as food sharing and dumpster diving, with an increasing appeal and adoption among young population [7]. These movements are united by the motivation to raise awareness of food waste and by tendencies to anti-consumption. Food sharing consists of the exchange of food, mostly of no longer saleable groceries from supermarkets, meals or leftovers from commercial and private sources through non-traditional or informal channels such as social networks and online platforms [8]. Participants in food sharing collect food from a variety of food providers before it is thrown away or enters a 'waste' state and share it for free regardless of the social status [9]. Molds can be found in different places such as soil, plants, dead organic matter. Mould produces toxins known as mycotoxin. Some mycotoxins cling to the surface of mold spores, others may be found within spores. Adesiji, Matanmi, Onikoyi and Saka stated that over 200 mycotoxins have their origin from common molds. Consumption of mycotoxin contaminated foodstuffs by man or animals impairs food intake, efficiency of feed utilization, individual health and immunity [10]. Ingestion of mycotoxins has serious health problem in the body of the individual consuming contaminated food. This health problem range from organ and tissue spoilage and sometimes to death on the number of quantity and duration it was consumed. In a study conducted in University of Nigeria, Nsukka, the results showed that 95% of the farmers have sufficient knowledge that both man and animals are vulnerable to mycotoxin contaminated feed-stuffs, while 5% neither agree nor disagree with animal vulnerability to

mold infested feed-stuffs. It is against this background this study was conducted to assess traders' attitude towards prevention of mycotoxin contamination in market in federal capital territory Abuja.

Methodology

Research Design

Survey research is the collection of information from a sample of individuals through their responses to questions. This type of research allows for a variety of methods to recruit participants, collect data, and utilize various methods of instrumentation [11]. Survey research has historically included large population-based data collection. The primary purpose of this type of survey research was to obtain information describing characteristics of a large sample of individuals of interest relatively quickly. These surveys were often provided through the questionnaire, mail and were intended to describe demographic characteristics of individuals or obtain opinions on which to base programs or products for a population or group [12].

Population and Sampling

The population for this study comprises all traders' in major market in Abuja, which includes Wuse market, Garki international market, Utakoultra modern market, Kado fish market, Karmo market, Gudu market, and Maitama farmers' market, the estimated population for this study is ten thousand and seventy three (10,073). The sampling procedure was as follows accidental sampling procedure was used to assign or distribute copies of questionnaire to respondents in Wuse market, Garki international market, Utakoultra modern market, Kado fish market, Karmo market, Gudu market, and Maitama farmers' market.

Instrument Use for Data Collection

The instrument used for the study was researcher's developed questionnaire, named attitude of traders towards prevention of mycotoxins contamination among in FCT Abuja, Nigeria. The validity of the instrument adopted in this study was established using the face, content and construct validities. Content and face validities deal with assessing how all the items of the questionnaire measure all the different dimensions of the concept in all its characteristics and appropriateness of the statements. To establish content and face validities of the instrument, a draft of the self-designed questionnaire was presented to psycho-metrics who examined it and offered corrections that were incorporated. The corrected version was given to experts in experts in Public Health. The reliability of the research instrument was ascertained through a pilot study called split-half, using

cronbach's alpha model of measuring reliability. One of the markets will be used to conduct a pilot study, outside those used for the main study within the zone.

Results and Discussion

Table 1 which is on demographic information of the respondents shows that 214 (61.1%) were male, while 136 (38.8%) were female. This implies that majority of the marketers in Abuja are male.

S/N	Gender	Percentage (%)
1	Male	214 (61.1%)
2	Female	136 (38.8%)

Table 1: Demographic Information of the Respondents.

S/N	Statement	Yes	No
1	Do you observed mycotoxin attack during drying season?	59(16.8%)	291(83.1%)
2	Do you do winnowing grain to remove dirt before Storage?	95(27.1%)	255(72.5%)
3	Do you assess moisture content before Storage?	38(10.8%)	312 (89.1%)
4	Do you observed disease attack on maize in the field?	47(13.4%)	303(86.5%)

Table 2: Frequency counts and percentage on attitude towards mycotoxins contamination.

H_{01} : There is no significant in attitudes of traders toward mycotoxins contamination in FCT Abuja

Table 3 indicates there is no significant in attitudes of traders toward mycotoxins contamination in FCT Abuja. Responses from the questionnaire on the tested chi-square (X^2) calculated is 0.054 which is less than the table value of 3.841 at 0.05 level of significant, therefore the null hypothesis was accepted. This indicates that there is no significant in attitudes of traders toward prevention of mycotoxins contamination in FCT Abuja.

Variables	Observed N	Expected N	Residual	df	Chi-square	Prob	Decision
YES	157	175	-18	1	3.703 ^a	0.054	Accepted
NO	193	175	18				
Total	350						

Table 3: Summary on attitudes of traders toward mycotoxins contamination in FCT Abuja.

H_{02} : There is no significant difference in attitudes of traders toward mycotoxins contamination in FCT Abuja based on gender

A t-test presented that there is no significant difference in attitudes of traders toward mycotoxins contamination in FCT Abuja based on gender. Therefore the null hypothesis was retained, meaning that there is no significant difference in attitudes of traders toward prevention of mycotoxins contamination in FCT Abuja based on gender (Table 4).

variables	N	Mean	Std.Dev	S E M	Df	t-test	Prob	Decision
male	162	4.9691	0.63464	0.03916	348	0.3981	0.253	accepted
female	188	5.0266	0.63274	0.02615				

Table 4: t-test summary on attitudes of traders toward mycotoxins contamination in FCT Abuja based on gender.

Discussion

This study assessed traders' attitude towards prevention of mycotoxin contamination in market in federal capital territory Abuja. Traders in FCT Abuja markets (Wuse market,

Do Traders in FCT Abuja have Positive Attitude towards Mycotoxins Contamination?

Table 2 which is knowledge of traders about mycotoxins contamination shows that 59(16.8%) of the respondents do observed mycotoxin attack during drying Season, while 291(83.1%). 95(27.1%) of the traders winnowing their grains remove dirty, but 255(72.5%) of them do not winnowing. Furthermore, 38(10.8%) of the respondents assessed moisture content before storage whereas 312 (89.1%) do not carried out assessment moisture content before storage. The table also revealed that 47 (13.4%) of the respondents observed disease attack on maize in the field, while 303(86.5%) of them do not. This implies that traders in Abuja markets had poor attitude towards mycotoxin contamination.

Garki international market, Utako ultramodern market, Kado fish market, Karmo market, Gudu market, and Maitama farmers' market Abuja Markets Management Limited, 2005) have poor attitude towards prevention of mycotoxin

contamination. Persons with age greater than 35 years who had been farming maize and groundnuts in the past 20 years were more likely to perceive that mould infections had been a problem than people with age less than 35 years. This can be seen as about 291(83.1%) of the study participants do not observed mycotoxin attack during drying season. This is not in-line with the study of Matumba L [13] who explained that majority of their respondents recognized that molds were dangerous to human health (88%); however, about 50% of respondents were not informed that mold toxins are thermally stable and that they are not destroy-able by normal cooking processes. About 33% of the respondents asserted that they buy moldy maize, while approximately 20% of respondents reported that they consume moldy fruits having discarded moldy fraction. The reasons for the difference could as a result of high level of awareness and enlightenment programme received by the participants. The result of this study corroborate the study of Muñoz K, et al. [14], the researchers lamented that knowledge and attitude of mycotoxins among participants in their study was rated as low. The result of this study is also similar with the study of Koch L, et al. [15] in which 1001 participants German were interviewed on the topic of “contaminants in food” by means of computer-assisted telephone interviews. Only three participants spontaneously listed “mould toxins” as example of undesirable substances in foods.

The test of hypothesis one indicates that there is no significant different in attitudes of traders toward prevention of mycotoxins contamination in FCT Abuja. This is in line with the study conducted by Sulaiman HS, et al. [16] among residents in Hulu Langat, Selangor, Malaysia. The authors explained that significant difference was not demonstrated between attitude and practice instead knowledge towards aflatoxin with urinary occurrence. Regardless of the education levels, majority of the respondents (53.6%) did not have the knowledge of aflatoxins and less than half (46.4%) of them were aware of aflatoxin contamination in products. Similarly, less than half of the respondents had positive attitude (39.6%) and good practice (46.4%) in controlling aflatoxin contamination from their food. Interestingly, the likelihood of having detected urinary AFM1 was higher among those with positive attitude and good practice as compared with those with negative attitude and poor practice. Furthermore, the null hypothesis was retained, meaning that there is no significant difference in attitudes of traders toward mycotoxins contamination in FCT Abuja based on gender. This is in line with the study of Adekoya I [17,18], who studied awareness and prevalence of mycotoxin contamination in selected Nigerian fermented Foods who explained that knowledge of fungi correlated positively with their ability to identify foodstuffs contaminated with fungi which could be due to their experience of fungal contamination. Moreover, findings also revealed that the level of education had a

significant but slightly positive influence ($p < 0.01$, $r = 0.296$) on their apprehension of fungi and mycotoxin contamination ($p < 0.01$, $r = 0.308$) [19,20].

Conclusion

Based on the findings of this study, it was concluded that traders in FCT, Abuja had poor attitude towards prevention of mycotoxin contamination as a result of which, they had poor practice of mycotoxin contamination [21-24]. The result of this study showed that traders attitude towards prevention of mycotoxin contamination has not positively improved across the entire demographic Characteristic (age, gender, sex, education among others).

Recommendations

Based on the findings of this study, the following recommendations were made:

- Combined efforts should consider the awareness aspects as well as suitable monitoring studies in order to assess the relevance and efficacy of preventative measures to reduce mycotoxin exposure and improve public attitude towards mycotoxin.
- General public should be educated on dangers of mycotoxin in order to improve their attitude positively towards mycotoxin contamination.

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