

Product Expiry Date Information and Consumer Health Action in Awka Urban, Anambra State, Nigeria

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Abstract— The need for expiry date of products cannot be overemphasized as consumers are duty bound to check product expiration dates before purchase and consumption. The intake of expired products may pose some health implications. Expiry dates of products have always been fundamental information for consumers to know the state of a product's freshness and quality. This study sought to find out consumers that are aware and bother to check product expiry date before purchase and consumption. Also, the health implications witnessed by consumers as a result of consuming expired packaged product. Using survey research method and hinged on Health belief model (HBM), a sample of 384 from two grocery shops in Awka urban, Anambra state, Roban and Radopin shops (using Philip Meyers calculation for infinite population) were investigated. Questionnaires were distributed accidentally to consumers who shop at these two grocery shops. Findings show that 80 percent of the consumers of packaged products in the state do not bother to check the expiry date information before consumption despite the fact that majority of the consumers are aware of the health implications caused by expired product. The researcher recommends that the agency responsible for the administration of packaged products in Nigeria National Agency for Food and Drug Administration and Control (NAFDAC) should educate people on the need to check on product expiry date, medical personals should advice patients on the need to check on product expiry date.

Index Terms— Expiry Date, Product Information, Consumer, Health Action, Health Communication.

I. INTRODUCTION

In contemporary Nigeria, many people buy packaged products whether food or drug. Few products cannot last forever, especially when it comes to foods and drugs. Companies print the expiration dates of these products on the product packaging to give consumers an indication of when the product must be used. Afreen, Kausar, Amulya and Monisha (2019), posit that for consumers who consume some expired food or take some expired drugs, the result could even be life threatening.

The actual term "Expiration Date" refers to the last date a food should be eaten or used. Last means last—proceed at your own risk. Lawrence (2021) asserts that the expiry date is the last day the product is at its highest level of quality which

may have a serious effect on the consumer's health. This is because the chemicals used in preserving packaged products do break over time, becoming more potent (or poisonous) or ineffective. A report conducted by the National Resources Defence Council (NRDC) and Harvard Law School's food law and policy clinic concluded that Americans are prematurely throwing out their food. This is mainly due to confusion over what expiration dates mean which should not be visible to them. Unfortunately, a majority of consumers mistakenly believe expiry dates on packaged product indicate the safety of the product when truthfully, these dates are related to the risk of an individual getting food poisoning or a food borne illness.

In South-Eastern part of Nigeria, because of the technological advancement in the world over, many people especially the working class and artisans in order to save time, cost and energy have resulted to patronizing packaged products than unpackaged and perishable products. Simply stated, packaged products like foreign canned foods drive shopping mall traffic and this is what draws consumers into the store (Hennessy 1998). A better understanding of consumer's attention to products expiry date and the health risks can benefit store managers, public policy makers and consumers alike. When consumers pay attention to product expiry date, they can draw the attention of store attendants and managers of some products approaching its shelf life, if unnoticed. In such situation, discounting products as they approach their expiration dates come to play, when which seems like an effective means of selling aging inventory to reduce waste.

Instead, there is evidence to support that the short and long –run effectiveness of price promotion is greater for canned foods than for other categories (Nijs, Dekimpe & Steenkamp, 2001). However, managers of packaged foods and canned foods are reluctant to use such promotions for fear that doing so will tarnish the reputation of their product and store. Even though there is no research to prove or refute this point. This research is also relevant because some consumers have the impression that products expiry dates are not very important. The worst that can happen is, they become a little less effective and can result to serious health implications, while others suggest that whether the expiry date of product is correct or not, as far as its past, it should be discarded immediately. Against this backdrop, this study is primarily concerned with the product expiry date information and consumer health action in Awka Urban, Anambra State, Nigeria.

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II. STATEMENT OF THE PROBLEM

Stakeholders in public health management have observed that some people are still too impatient to notice the expiry date on foods and drugs, not minding the consequences of such. When it comes to expiry dates, consumers should use common sense and determine if packaged product is still edible based on personal standards by its feel, smell and even taste. Some consumers even erroneously believe that some food items and drugs can still be potent months after expiration. In order words, this study investigated answers to these questions: Are consumers are aware of packaged products' expiry dates? Whether consumers have the consciousness on the need to check expiry date of products before purchase? And lastly, do consumers know the health implications of consuming expired products? This is the empirical knot which this study sought to untie.

III. OBJECTIVES OF THE STUDY

The study generally took a critical look at product expiry date information and consumer health action in Awka urban, Anambra state. Thus, the specific objectives are:

1. To find out the extent to which consumers in Awka urban are aware of packaged products expiry dates.
2. To find out the extent to which consumers in Awka urban bother to check or pay attention to product expiry date before purchase.
3. To ascertain the extent to which consumers in Awka urban are aware of the health implications of consuming packaged product that have exceeded their shelf life.

IV. RESEARCH QUESTIONS

These objectives led to the following research questions:

1. To what extent are consumers in Awka Urban aware of packaged products' expiry dates?
2. To what extent do consumers in Awka Urban bother to check or pay attention to the product expiry date before purchase?
3. To what extent are consumers in Awka Urban aware of the health implications of consuming packaged products that have exceeded their shelf life?

V. PRODUCT EXPIRY DATE: AN OVERVIEW

From a general perspective, an expiration date is a date after which a consumable packaged product such as food or medicine should not be used or eligible for intake because it may be spoiled, damaged or ineffective debarring one from consuming it. Expiry dates on packaged products is a valuable source of information for consumers. Date on products include when they are manufactured and when they will expire. An expiry date indicates the shelf life and stability of a product.

Shelf life is the length of time that a commodity may be stored without becoming unfit for use or consumption. It applies to foods, beverages, pharmaceutical drugs, chemicals and many other perishable terms. Expiry dates for packaged products are often marked "EXP" and are printed on the label or stamped onto the bottle or box of the product.

Expiry dates are especially important for medications

because they offer the only indication about whether the product is still safe for use. Food items on the other hand, often look or smell bad when they have passed their "best buy" dates (Tardi, 2021). Carla (2021) notes that using expired foods and drugs products may potentially harm one's health, in the late 1970s the United States Food and Drug Administration (FDA) mandated that all prescription of packaged products contain an expiry date. A study conducted by the U.S. Food and Drug Administration covered over 100 drugs, prescription and over-the-counter. The study showed that about 90% of them were safe and effective as long as 15 years of their expiration dates. Expiration date has been required by law in the United States since 1979, the expiry date specifies the date the manufacture guarantees the full potency and safety of a product. It does not necessarily mean how long the product is actually good or safe to use (Altschuler, 2012). Most expiry date is used as guideline based on normal and expected handling and exposure to temperature. Use prior to the expiration date does not guarantee the safety of a food or drug and a product is not necessarily dangerous or ineffective after the expiration date. The expiration date of pharmaceuticals specifies the date the manufacturer guarantees the full potency and safety of a drug (Altschuler, 2012).

Paying attention on the expiry date of products can help to safeguard consumer's health and provide some assurance that okay will really be okay (Canadian society of intestinal research, 2003). In Nigeria, the agency responsible for checking the products expiry dates is National Agency for Food and Drug Administration Control (NAFDAC). George (2020) states that NAFDAC urged consumers to scrutinize products and check the expiration dates before buying so as to determine the freshness of the products. Most grocery shops sell expired products at slashed prices as they are preventing to face loss in their businesses not minding the health implications of such expired products on consumers. According to Goldhammer (2020), safety, purity, and potency must be tested and established over time by drug manufacturers. If a drug says the expiration is 18 months hence it means these three qualities can only be guaranteed that long assuming the drug is stored properly. In essence, Goldhammer implies that some drugs may be ok longer than noted but the manufacturers have not done, say a 10-year study of how long the drug is good. They try to establish a reasonable date to allow for time in the supply chain and pharmacy shelves.

VI. PRODUCT LABELLING AND ITS IMPORTANCE

Labelling is any written, printed or graphic matter that is present on the label, accompanies packaged products or is displayed near the products, including that for the purpose of promoting its sale or disposal. NAFDAC Guide to Food Labelling (2014), also offer a law that the information on packaged products must be clear, accurate and not mislead consumers to a material degree. In addition, the labelling must not attribute to any food stuff, the property of preventing, treating or curing a human disease. This body added that packaged products shall not be described or presented on any label or in any labelling in a manner that is false, misleading

or deceptive or is likely to create an erroneous impression regarding its character in any respect. Labelling is very important for any product. It usually guides the consumer as to the shelf life of the product, nutritional information and other relevant information regarding the product and its effects on health. Reading production nutritional labels isn't the only way to ensure you're choosing the best food for your family. Understanding the expiry date is another way to keep your family healthy and safe.

Proper product labelling allows consumers who may suffer from any allergies or intolerance after consuming the content of the product to know exactly what ingredients a product contains, and it will help them make more informed health and nutrition choices (Marcotriglano et al, 2018). According to Vann (2011), the reality is that you can eat food past the food expiration date and it might still taste good — or it might not. For example, milk may sour around the expiration date or a few days afterwards, depending on how cold your refrigerator is. The risk of [food-borne illness](#) also increases after that date, especially if your storage conditions are less than optimal.

VII. THE LANGUAGE OF PACKAGED PRODUCT LABELLING

According to a Food Safety expert Catherine Strohbehn, adjunct associate professor of hotel, restaurant and institution management at Iowa State University in Ames “It is confusing because there is no standardization in packaging dates. To help clarify the wording of packaged product expiration dates printed on packages, she gave common labelling terms:

- **Sell by:** This date gives you tips on what is cheap as well as food safety information. “Sell by” labelling is more for the grocery than it is for the consumer. Consumers are fine to purchase packaged products by this date. Generally, stores will discount product closer to this date, so consumers looking for a bargain can purchase up to the sell date and the use as soon as possible use refrigerated products within the next day or so frozen goods can be stored in your freezer for up to three months.
- **Use by:** are intended to assure consistent packaged product quality. This type of dating provides guidance to the consumer, but the guideline are somewhat loose products can last longer than the ‘use by’ dates depending on how the product is handled and stored.” Some canned goods will keep for years if there haven't been wide temperature fluctuations. Higher –acid products like canned pineapple have a shorter shelf life but are still good for a year or longer. Infant formula and baby food are significant exception to this rule it is best not to give your baby formula or food after the “use by date.
- **Freeze by:** occasionally packaged product will be labelled “use or freeze by” which means that you can freeze them for a period of time after that date.

VIII. IMPORTANCE OF READING PACKAGED PRODUCT LABEL

These are some reasons why reading the expiration dates of packaged product is important They include:

- i. Some persons have health issues that may require a

certain amount of nutrient.

- ii. Some people may have health issues that may require them to stay away from certain nutrients whether in high dose or any at all.
- iii. You might be on a diet and counting calories.
- iv. You need to know what you are eating.
- v. You may be allergic to an ingredient. In the same vein without a label the consumer won't be able to tell.
- vi. What kind of packaged product it is (in the case of cans)?
- vii. When the packaged product was manufactured or processed.
- viii. What is the shelf life?
- ix. Where it was processed.

IX. HEALTH IMPLICATIONS OF CONSUMING EXPIRED PRODUCTS

Intake of expired products such as food or drug may lead to many health implications. Consumption of expired packaged foods leads to food poisoning and symptoms like fever, chills, stomach cramps, diarrhoea, nausea and vomiting are obviously no fun (Younghans, 2020). Eating expired foods can expose one to dangerous bacteria infection. Some food stored past its use by date in poor conditions can even become contaminated with serious bacterial infections like salmonella or listeria. These bacteria don't magically appear once that expiration date passes, though — they are likely present at the time you purchase the item, according to the [U.S. National Library of Medicine](#).

Packaged products when passed its suggested expiration date, the product will not be effective. Products like packaged foods could lose some of its nutritional value and it could lead to abdominal pain. Consumption of expired food may contain dangerous amounts of harmful bacteria such as *E. coli* and Bacteroides which can be life threatening and also poses the risk of exposure to bacterial toxins which damage kidneys possibly leading to a life-threatening situation (Leiva, 2019). Medical experts advise consumers to discard all expired packaged products despite post-expiration potency to avoid any risk of health challenges from expired packaged products consumption.

X. THEORETICAL FRAMEWORK

This study is anchored on the Health Belief Model (HBM) that is a psychological model that attempts to explain and predict health behaviours. This is done by focusing on the attitudes and beliefs of individuals on expired packaged products. The HBM was first developed in the 1950s by Rosen stock and keeps working in the U.S Public Health Services. The concept posits that if consumers of packaged products have a positive expectation that by taking a recommended action in constantly checking product expiry date information the consumer will avoid a negative health condition

Studies have shown that as health risk associated with an expired product increase, the greater information prior to making a purchase of packaged products will be in serious doubt. In this context, consumers should scribble to properly check the expiration dates of packaged products in order not to face any health risk. It is apparently apt for consumers to

understand the expiration dates written on products as some expired products may pose somelife-threatening health challenges after consumption (Dowlin & Starlin, 1994).

XI. METHODOLOGY

This research was conducted using the survey approach. The survey questions were in regard to the respondent frequency to checking product expiry date information and the health implication attached. The population comprises all men and women who purchase packaged foods from grocery shops in Awka urban. This population is regarded as infinite since there is no documentation on the exact number of consumers.

A sample size of 384 was determined using Philip Meyer calculation for an infinite population. Roban and Radopin grocery shops in Awka, Anambra state, were purposively selected for this study because of the possibility of getting a good number of respondents with different educational qualifications, occupation and income level. Questionnaire was designed as the instrument to elicit responses from respondents. A total of 384 copies of the questionnaire were administered, 384 were returned because the researcher used the accidental sampling method. The respondents who qualified for selection were those who made purchases in these grocery stores the day the researcher visited. They were given copies of the questionnaire to fill after making their purchases. The researcher was also on stand-by to answer questions that may arise.

XII. DATA PRESENTATION AND ANALYSIS

Data from 384 respondents from the two grocery shops in Awka Urban, Anambra State show that 269 of respondents representing 70% were female representing more than half of the total sample 115 respondents representing 30% were male. This shows that majority of the sampled respondents were female. Also 35% falls within the age bracket of 25-30. Those within the age brackets of 31-45 account for 40% and those within the age of 46 and above constituted 25% of the respondents. Out Of the respondents investigated, 154 representing 40% are civil servants, 96 representing 25% are entrepreneurial, 77 representing 20% are Artisans while 57 representing 15% are unemployed. This shows that a greater number of respondents are civil servants.

Research Question 1: To what extent are consumers in Awka Urban aware of packaged products' expiry dates?

Table 1: Respondents' Frequency of buying Packaged Products

Response	Frequency	Percent
Very often	108	28
Often	106	28
Seldom	94	24
Not often	76	20
Total	384	100

Responses from Table 1 showed that 28% the respondents buy packaged products very often. While 20% of the respondents do not often buy packaged products. What this means is that the majority of the respondents buy packaged products.

Table 2: Respondents' Level of Awareness of Packaged Product Expiry Date

Response	Frequency	Percent
Strongly Aware	102	27
Aware	100	26
Unaware	84	22
Strongly Unaware	98	25
Total	384	100

Table 2 shows that 27% of the respondents are strongly aware of packaged product expiry date while 22% of the respondents are not aware of packaged product expiry date. Hence, it could be seen that most of the respondents are aware of product expiry date.

Research Question 2: To what extent do consumers in Awka Urban bother to check or pay attention to the product expiry date before purchase.

Table 3: Respondents' views on Checking of Packaged Product Expiry Date before Consumption

Response	Frequency	Percent
Regularly	77	20
Occasionally	107	28
Not at all	200	52
Total	384	100

Data in Table 3 show that 20% of respondents do check packaged product expiry date regularly before consumption while 52% of the respondents said that they do not check packaged product expiry date before consumption. This conclusively means that a greater number of respondents do not check the product expiry date information before consumption.

Table 4: Respondents' notion that packaged Product expiry Date does not really affect the product.

Response	Frequency	Percent
Believe	118	31
Don't believe	97	25
Can't say	169	44
Total	384	100

Table 4 shows that 31% of the respondents believe that packaged product expiry date does affect the product while only 44% believe that packaged product expiry date does not really affect the product.

Research Question 3: To what extent are consumers of packaged products in Awka Urban aware of the health implications of consuming packaged products that have exceeded their shelf life?

Table 5: Respondents who know that expired packaged product has health implications after consumption.

Response	Frequency	Percent
Yes	253	66
No	100	26
Undecided	31	8
Total	384	100

Data from Table 5 show that the majority of the respondents 66% know that expired packaged product has health implications after consumption while 26% do not know about the health implications.

Table 6: Health Implications of Consuming Expired

Packaged Products

Response	Frequency	Percent
Nausea	58	15
Stomach Cramps	77	20
Diarrhoea	165	43
Fever	84	22
Total	384	100

Diarrhoea was indicated as the most health implications of consuming expired packaged product as 43% of the respondents attested to this. This is followed by fever (22%) stomach Cramps (20%) and Nausea (15%).

XIII. DISCUSSION OF FINDINGS

Findings from the study have indicated that majority of the consumers buy packaged products and are aware of product expiry date. This is in line with Hennessy (1998) posits that packaged products drive shopping mall traffic and draws consumers into the store. Also, Altschuler, (2021) discussed that expiry date is the date the manufacturer guarantees the full potency and safety of a product.

The second finding of the research reveals that a great number of consumers do not bother to check packaged product expiry date before consumption. As aptly captured by Canadian society of intestinal research, (2003) that paying attention on the expiry date of products can help to safeguard consumer's health and provide some assurance.

Similarly, Marcotriglano et al, (2018) posit that proper product expiry date labelling allow consumers who may suffer from any allergies or intolerance after consuming the content of the product to know exactly what ingredients a product contains and it will help them make more informed health and nutrition choices.

The third finding of the research holds that consumers in Awka Urban, Anambra State largely are aware of the health implications in consuming expired packaged product when it has passed its shelf life. According to the Health belief model (HBM) concept posits that if consumers of packaged products have a positive expectation that by taking a recommended action in constantly checking product expiry date information the consumer will avoid a negative health condition.

Generally this research reveal that consumers indicated some health implications caused by consuming expired product as Lawrence (2021), asserts that the expiry date is the last day the product is at its highest level of quality which may have a serious effect on the consumer's health. Also, Younghans (2020), posits that consumption of expired foods leads to food poisoning and symptoms like fever, stomach cramps, diarrhoea and nausea. Also, Powlin and Starlin (1994), state that consumption of some expired products may pose some life-threatening health challenges after consumption.

XIV. CONCLUSION AND RECOMMENDATIONS

This study concludes that consumers are aware and few of the consumers check product expiry date information but majority of the consumers do not bother to check the product expiry date information despite the fact that they are aware of

the health implications of consuming expiry products.

Thus, the researchers recommend that:

1. Since majority of the consumers do not bother to check product expiry date before consumption agencies like NAFDAC Saddled with the responsibility of educating and sensitizing consumers on the effect of product expiry date information should step up effort in making consumers be conscious of checking product expiry date information regularly to avert some health effects.
2. Medical practitioners who treat sicknesses caused by the consumption of expired products should advice patients on the need to check the quality, freshness of packaged products.

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