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# Assessment of Ocular Morbidity Associated With Indigenous Gastronomic Processing Methods Somewhere in Rivers State, Nigeria

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**ABSTRACT:** Processing of cassava into various products comes with a lot of environmental as well as occupational health hazards to the environment, consumers and especially the processors. Hence, the objective of this paper is to investigate the ocular morbidity associated with indigenous gastronomic processing methods of garri in Ogbogoro, Obio Akpor local government area, Rivers State. One hundred (100) subjects within the age range of 15–69. Results showed that the common range of ocular hazards include lid burns from smoke (14%), eye itching (12%), corneal foreign bodies (12%), blurred vision (11%), eye dryness (10%), pinguecula (8%), pterygium (6%), and allergic conjunctivitis (6%), and other issues such as cataracts (3%) and corneal ulcers (2%). In terms of garri processing stages, frying appeared to pose the greatest risk, accounting for 26% of ocular hazards, followed by sieving (22%), compressing (16%), milling (13%), and harvesting (6%). In conclusion, this research underscores the importance of addressing occupational safety in traditional food processing practices, particularly within the context of ocular health.

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Cassava (*Manihot esculenta, Crantz*) is a starch containing root crop, traditionally processed into several food staples and serve as major sources of calories for people in Sub-Saharan Africa (Ogunyinka and Oguntuase, 2020). More than half of the world's cassava is produced in Africa, where it is a cheap and major source of calories for over 40% of the population (Arthur *et al.,* 2009). Cassava has become economically important in several tropical countries. The carbohydrate content of its enlarged root is consumed in diversified forms in most African countries, including Nigeria (Ikechukwu and Maduabum, 2012). The crop can be planted any time of the year and harvesting can also be done all year round. Oyegbami, (2004) reported that processed food products from cassava include garri (fermented and roasted granules), fufu (fermented and steamed cooked), pupuru (fermented smoked dried balls and also gelatinized), lafun (fermented, sun dried flour and then gelatinized). Arguably, the processing of cassava into various products comes with a lot of environmental as well as occupational health hazards to the environment, consumers and especially the processors (Koledoye *et al.*, 2012). It is important to state that safety of the processors should be considered in crop processing (Ikechukwu and

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Maduabum, A., 2012). Cassava processing entails numerous steps which include harvesting, peeling, grating, dewatering, fermentation, roasting or drying and finally packaging for sales (Abass *et al.*, 2012). Reportedly, the most widely adopted method (traditional method) of cassava processing has led to various pathological issues ranging from general body aches, pains and fatigue, and high body temperature due to exposure to smoke in the roasting environment (Oyegbami, 2004) Thus, processing of cassava has its occupational health hazards and must be given high consideration as cassava products is inseparable from man and animals especially in the developing countries where it is the cheapest staple food used to combat hunger (Omueti, 2004). Materials or situations that could injure the eyes are known as eye hazards. Toxic fumes, heated air or splashes of hot fluid, dust, projectiles/flying objects (fragments, chips, and bits of materials including wood, metal, and glass), chemical splashes, toxic fumes, intense light/harmful radiation, and infectious materials are a few of them. These risks can result in minor to severe injuries, which can result in irreversible visual loss. The cyanide toxicity associated with the chronic consumption of cassava cyanogenic glycosides are reported to lead to diseases such as thyroid dysfunction, goiter, cretinism, tropical ataxic neuropathy and optical atrophy (Okafor; Oluwole and Onabulu, 2004).

The key processing steps involved in garri production (peeling, washing, grating, pressing and fermenting, dewatering, sieving and frying) as well as the inefficient accompanying handling practices of the byproducts (for example, the peels and spent liquid waste), usually present several occupational-related hazard conditions to the small-scale garri producers. These health hazards include inhalation of cyanide and smoke (Grill and Martin, 2015). Adenugba and John, (2014) reported knife cuts, ergonomic hazards, eye irritations, and exposure to intense heat and smoke as some additional occupational hazards associated with cassava processing into garri. The processing of cassava into various products comes with a lot of environmental as well as occupational health hazards to the environment, consumers and especially the processors. Unfortunately, there is little documented information in Ogbogoro and Nigeria at large on the ocular problems associated with local methods of processing garri.

Hence, the objective of this paper is to investigate the ocular morbidity associated with indigenous gastronomic processing methods of garri in Ogbogoro, Obio Akpor local government area, Rivers State,Nigeria

## MATERIALS AND METHODS

*Ethical Considerations:* Ethical consideration for this study was obtained from Madonna University Research Ethics Committee with reference MUN/MUREC/OPT/2024/012. Verbal consent was solicited from the participants after clear explanation of the study and the purpose of which the research work was conducted. The data collected was kept confidential and used for only research purposes.

*Research Design:* A descriptive cross-sectional design was used to determine the common ocular hazards in local method of processing garri in Ogbogoro, Obio-Akpor Local Government Area, Rivers State, Nigeria.

*Area of Study:* Ogbogoro is a town in Obio Akpor LGA. Obio-Akpor is a local government area in the metropolis of Port Harcourt, one of the major centres of economic activities in Nigeria, and one of the major cities of the Niger Delta, located in Rivers State. Ogbogoro is located 12.2 kilometers from Port Harcourt. Ogbogoro is a town in Obio Akpor LGA. Obio-Akpor is a local government area in the metropolis of Port Harcourt, one of the major centres of economic activities in Nigeria, and one of the major cities of the Niger Delta, located in Rivers State. Ogbogoro is located 12.2 kilometers from Port Harcourt. It is surrounded by Rumuokwachi, Ozuoba etc and is bounded by the old Calabar river on the left side. The inhabitants of Ogbogoro are predominantly farmers and fishermen.

*Data Collection:* A researcher's administered questionnaire was used to collect the required data from participants. The researcher explained all the rights of the participants and a verbal consent was obtained from the eligible participants. Participants were then allowed adequate time to fill in the questionnaires. Those who are unable to read and write were interviewed and answers were written for them while those who are able to write and understand it were handed the questionnaires to fill in. Each questionnaire completed by the respondents was checked for accuracy and consistency of the responses to the items on the instrument. After editing, a template was developed and used to create a data analysis matrix on the computer, as well as code responses to the items on the instrument. The data was entered into Statistical Package for Social Sciences (SPSS) version 21.0.

*Population of Study:* Everyone involved in local method of garri processing in Ogbogoro, Rivers State, Nigeria.

*Inclusion Criteria:* People who were present at the time of data collection and willing to participate.

*Exclusion Criteria:* People who were not present at data collection and those not willing to participate.

*Sampling Technique:* Convenience sampling was used to select respondents for the study. Participation of the respondents was voluntary and verbal consent was given before the collection of data. Also, participant had the right to withdraw from the study at any point in time and the anonymity of the respondents was guaranteed throughout the research endeavor.

*Procedure for Data Collection:* A researcher's administered questionnaire was used to collect the required data from participants. The researcher explained all the rights of the participants and a verbal consent was obtained from the eligible participants. Participants were then allowed adequate time to fill in the questionnaires. Those who are unable to read and write were interviewed and answers were written for them while those who are able to write and understand it were handed the questionnaires to fill in. Each questionnaire completed by the respondents was checked for accuracy and consistency of the responses to the items on the instrument. After editing, a template was developed and used to create a data analysis matrix on the computer, as well as code responses to the items on the instrument. The data was entered into Statistical Package for Social Sciences (SPSS) version 21.0.

*Data Analysis:* Frequencies, mean and standard deviation were determined with the descriptive statistics of Statistical Package for Social Sciences (SPSS) version 21.0. Results are presented in tables and graphs.

*Validation/Reliability of Instrument:* Standard of questions in the structured questionnaire was inspected, verified and deemed fit by the research supervisor.

## RESULTS AND DISCUSSION

Results in Table 1 indicate that the respondents' age ranged from 15 to 69 with a mean value of 36 years. Table 2 Shows that respondents with primary education background had the most occurring frequency (43%), those with secondary education background came next (30%), whilst those without any formal education settled for the least place (27%). Results presented in Table 3 shows the unequal distribution of ocular incidence across respondents in the study area.

**Table 1:** Age range of respondents

| Age group (Years) | Mid class (x) | Frequency | Frequency (x) |
|---|---|---|---|
| 15 – 25 | 20 | 25 | 500 |
| 26 – 36 | 31 | 28 | 868 |
| 37 – 47 | 42 | 29 | 1,218 |
| 48 – 58 | 53 | 10 | 530 |
| 59 – 69 | 64 | 8 | 512 |
| **Total** | | **100** | **3,628** |

*Mean x = $\mathcal{E}fx$/ Where Efx = 3,628; n =100 Mean = 36 years*

**Table 2:** Distribution of Educational Background of Respondents

| Variable (Level of education) | Frequency | Percentage |
|---|---|---|
| Primary | 43 | 43.0% |
| Secondary | 30 | 30.0% |
| OND | Nil | Nil |
| HND | Nil | Nil |
| Degree | Nil | Nil |
| Post graduate | Nil | Nil |
| None | 27 | 27.0% |
| **Total** | **100** | **100%** |

**Table 3:** Distribution of common ocular hazards in local method of processing Garri across respondents

| Variables (ocular hazards) | Frequency | % |
|---|---|---|
| Eye itching due to sand particles entering the eye | 12 | 12% |
| Eye infection due to wood particles entering the eye | 10 | 10% |
| Eye infection due to Particles of cassava leaves entering the eye | 6 | 6% |
| Foreign body on the cornea due to splinters or small particles from the cassava | 12 | 12% |
| Eye dryness due to exposure to fire and smoke | 10 | 10% |
| Allergic conjunctivitisexposure to fire and smoke | 6 | 6% |
| Blurred vision exposure to fire and smoke | 11 | 11% |
| Corneal ulcer | 2 | 2% |
| Pinguecula due to prolonged exposure to dust, heat, smoke and fire | 8 | 8% |
| Pterygium due to prolonged exposure to dust, heat, smoke and fire | 6 | 6% |
| Cataract due to prolonged exposure to dust, heat, | 3 | 3% |
| smoke and fire | | |
| Lid burns from fire sparks | 14 | 14% |
| **Total** | **100** | |

Lid burns has the most occurrence (14%), and in descending order, eye itching and eye infection comes next at 12% and 12% respectively. Corneal ulcer has the least occurrence (2%), Cataract (3%), Pterygium, Allergic conjunctivitis and eye infection all share 6% occurrence. Pingucula (8%), eye dryness (10%), Blurred vision (11%).

**Table 4:** Distribution of ocular hazards in local method of processing garri across genders of respondents

| | Variable (male) | | Variable (female) | |
|---|---|---|---|---|
| **Ocular hazards** | **F** | **%** | **F** | **%** |
| Eye itching due to sand particles entering the eye | 4 | 23% | 6 | 7% |
| Eye infection due to wood particles entering the eye | 3 | 18% | 6 | 7% |
| Eye infection due to Particles of cassava leaves entering the eye | 2 | 12% | 4 | 5% |
| Foreign body on the cornea due to splinters or small particles from the cassava | 3 | 18% | 4 | 5% |
| Eye dryness due to exposure to fire and smoke | 1 | 6% | 6 | 7% |
| | 1 | 6% | 10 | 12% |
| Blurred vision exposure to fire and smoke | 0 | Nil | 8 | 10% |
| Corneal ulcer | 0 | Nil | 3 | 4% |
| Pingucula due to prolonged exposure to dust, heat, smoke and fire | 2 | 12% | 6 | 7% |
| Pterygium due to prolonged exposure to dust, heat, smoke and fire | 1 | 6% | 4 | 5% |
| Cataract due to prolonged exposure to dust, heat, smoke and fire | 0 | Nil | 12 | 14% |
| Lid burns from fire sparks | 0 | Nil | 14 | 17% |
| **Total** | **17** | | **83** | **100%** |

*Where F = frequency*

Table 4 presents results obtained from diagnosis of ocular defects in the gender of respondents. A male population of 17% has the least ocular incidence as Pterygium (1%), eye dryness (1%), Allergic conjunctivitis (1%). The highest occurrence are eye itching (23%), eye infection (18%), foreign body on cornea (18%) Pinguecula(12%). A female population of 83% has the most occurrence: Lid burns (17%),Cataract (14%), Allergic conjunctivitis (12%), Blurred vision (10%). Corneal ulcer the least (4%). This displays an unequal distribution of ocular incidence across the gender of respondents. According to recorded results in Table 5 respondents aged 42 had the most ocular incidence (29%), those aged 31, 20, 53 and 64 had an occurrence of 28%, 25%, 10% and 8% respectively. The occurrence of ocular hazards in different stages of garri processing is displayed on Table 6; frying (26%), Sieving (22%), compressing (16%), washing (13%), Milling (9%), Peeling (8%) and Harvesting (6%). With a mean value of 21 years, Table 7 indicates that respondents with 16 years of experience have the most occurrence of ocular incidence (29%). Respondents with 6 years (25%), 26 years (24%), 36 years (12%) and 46 years (10%).

**Table 5:** Distribution of Common Ocular Hazards in Local Method of Processing Garri Across the Age Groups of Respondents

| **Age group (Years)** | **Mid-class (x)** | **Frequency** | **Percentage** |
|---|---|---|---|
| 15 – 25 | 20 | 25 | 25% |
| 26 – 36 | 31 | 28 | 28% |
| 37 – 47 | 42 | 29 | 29% |
| 48 – 58 | 53 | 10 | 10% |
| 59 – 69 | 64 | 8 | 8% |
| **Total** | | **100** | |

**Table 6:** Distribution of ocular hazards in different stages of local method of processing garri

| **Variables (stages of processing)** | **Frequency** | **Percentage** |
|---|---|---|
| Harvesting | 6 | 6% |
| Peeling | 8 | 8% |
| Washing | 13 | 13% |
| Milling | 9 | 9% |
| Compressing | 16 | 16% |
| Sieving | 22 | 22% |
| Frying | 26 | 26% |
| **Total** | **100** | |

**Table 7:** Distribution of years of experience in local method of processing Garri across respondents

| **Variables (years of experience in local method of processing garri)** | **Mid class (x)** | **Frequency** | **Frequency (x)** |
|---|---|---|---|
| 1 – 10 | 6 | 25 | 150 |
| 11 – 20 | 16 | 29 | 464 |
| 21 – 30 | 26 | 24 | 624 |
| 31 – 40 | 36 | 12 | 432 |
| 41 – 50 | 46 | 10 | 460 |
| **Total** | | **100** | **2,130** |

Mean x = $\boldsymbol{Efx/n}$ Where $\boldsymbol{Efx}$ **= 2,***130 n =100 Mean = 21 years*

**Table 8:** Factors influencing respondents awareness of protective clothing

| **Variable** | **Coefficient** | **P-value** | **Marginal effect** |
|---|---|---|---|
| Gender | 0.297 | 0.359 | 0.097 |
| Age | -0.216 | 0.513 | -0.071 |
| Education | 0.027 | 0.004** | 0.038 |
| Length of garri processing | 0.091 | 0.490 | 0.030 |
| Knowledge of Hazards of garri processing | 1.812 | 0.003** | 0.367 |
| Training on occupational health hazards | 0.291 | 0.031* | 0.134 |
| Visit to health facility relating to condition sustained at work | 0.353 | 0.019* | 0.115 |
| Constant | -1.103 | 0.089 | |
| Regression diagnosis | | | |
| Log Likelihood | -46.701 | | |
| Pseudo $R^2$ | 0.401 | | |
| LR $chi^2$ (7) | 18.20 | | |
| Prob> $chi^2$ | 0.011 | | |

**indicates 5% significance level; **indicates 1% significance level*

The majority of the respondents (68.9%) had no awareness of protective equipment as applicable to their work, with only 31.1% having awareness. Table 8 presents regression results to determine factors that influence processors' awareness of wearing protective equipment when processing cassava into garri. From the Table, education, knowledge of hazardous of garri processing, training on occupational health hazard and a visit to health facility relating to condition sustained at work influence awareness of wearing protective equipment. The pseudo $R^2$ of 0.401 implied that the independent variables jointly influenced 40.1% of the variation that occurred in the dependent variable (processors awareness of protective clothing) in the model. The education of garri producers significantly ($p < 0.01$) influenced the awareness of wearing protective equipment (PPE) during processing. The result implies that the probability of a processor being aware of PPE during processing increases education attainment. A processor's education increases his/her knowledge about the harmful effects of exposure to heat for long hours and cassava effluent containing cyanide. For each additional educational level, individuals were 3.8% more likely to be aware of protective equipment. Processors with knowledge of hazardous of garri production were 36.7% more likely to be aware of wearing protective equipment. Processors who had training on occupational health hazards associated with garri production were 13.4% more likely to be aware of protective equipment. Similarly, those who had ever visited a health facility concerning a health condition sustained at work were 11.5% more likely to be aware of protective equipment.

**Table 9:** Factors influencing the use of safety gears

| Variable | Coefficient | P-value | Marginal effect |
|---|---|---|---|
| Location | -0.066 | 0.812 | -0.003 |
| Gender | -0.403 | 0.430 | -0.158 |
| Age | -0.168 | 0.440 | -0.007 |
| Education | -0.047 | 0.836 | -0.002 |
| Experience in garri processing | 0.624 | 0.002** | 0.024 |
| Knowledge of garri processing to be hazardous | 15.235 | 0.000** | 0.055 |
| Training on occupational health hazards | -16.420 | 0.000** | -0.098 |
| Awareness of protective equipment | 1.235 | 0.008** | 0.065 |
| Visit to health facility relating to condition sustained at work | 0.906 | 0.010** | 0.117 |
| Constant | -17.862 | 0.000 | |
| Regression Diagnostics | | | |
| Log pseudolikelihood | -37.243 | | |
| Wald $chi^2$ (9) | 1148.08 | | |
| Prob> $chi^2$ | 0.000 | | |

***indicates 1% significance level*

For personal protective equipment (PPE), only 3.3%, 16%, and 17.8% used footwear, working gear and coat, respectively (Table 9) during production. Table 9 presents regression results to determine factors that influence garri producers' decision to wear protective equipment. From the Table, years of processing experience, knowledge of health risk associated with garri production, awareness of protective equipment and visit to health facility relating to condition sustained at work had a positively significant ($p < 0.01$) influence on wearing of PPE during the processing of cassava into garri. However, training on occupational health hazards negatively influenced the wearing of PPE. Location, gender, education and age did not influence the wearing of PPE by processors. For each increase in experience in garri production, processors were 2.4% more likely to wear PPE. The result implies that the probability of garri producers using PPE increases with an increase in years of experience in garri production. Processors with knowledge of hazards associated with garri production were 5.5% more likely to use protective equipment. The result implied that the probability of a processor using PPE during garri production increases with knowledge of cassava processing hazards. Knowledge of health hazards will motivate wearing of protective equipment during processing. Similarly, awareness of protective equipment was 6.5% more likely to increase its use. Respondents who visited a health facility in relation to health condition related work were 11.7% more likely to wear PPE. However, individuals who had training on occupational health hazards associated with garri production were 9.8% less likely to use.

The processing of cassava into different staple foods, including garri, comes with occupational ocular hazards. This study aimed at assessing the common ocular hazards associated with the local method of processing cassava. One hundred (100) garri producers were randomly selected from Ogbogoro community in Obio-Akpor Local Government Area and interviewed using structured questionnaire. It is important to note that; majority of cassava processors in the study area were aware of health hazards associated with the production of garri. However, most did not take measures to reduce or mitigate exposure to health risk. Results presented on Table 1 indicated that the local method of processing garri in the research is dominated by women (83%) as opposed to men (17%). The roles of women are distributed across the various stages that require less strenuous activities such as Sieving and Frying, whilst the men lend their strength to predominantly the Harvesting, Peeling and Milling stages. This agrees with the research of Ferrar, (1992) who reported that the processing of garri is carried out mainly by women. From Table 2, the ages of the respondents range from 15 years – 69 years Having a mean value of 36 years. The production process least attractive to respondents at 64 years (8%) and most attractive to respondents at 42 years (29%); closely followed by respondents at 31 years (28%), 20 years (25%) and 53 years (10%). The results indicate that respondents who age range from 20 until mid-40's possess the agility and strength required to be efficient in the local method of processing garri. The educational background of respondents was gathered and displayed on Table 3, with 43% and 30% of the respondents having the basic primary and secondary education qualification. Securing any form of education was of no concern to 27 respondents possessing no form of educational qualification. The educational qualification of respondents involved in the local method of processing garri is not of any direct implications, hence, only sustainable knowledge of processing garri is paramount. A safe and healthy work condition/environment is crucial for worker's safety and well-being (Ilochi, et al., 2019) , and subsequently, directly proportional to quality and quantity of production. Results contained in Table 4 displays the distribution of identified causes of ocular hazards in local method of processing garri the highest being from lid burns from sparks (14%), followed by foreign body on the cornea due to splinters or small particles from the cassava (12%), and eye itching due to sand particles entering the eye (12%), the lowest is from corneal ulcer (2%). Those with more years in practice are, in advertently, the most exposed to ocular hazards in local method of processing garri as proven by the results in Table 5. Respondents at the age of 42 are the most affected by an ocular hazard (29%), closely followed by those aged 31 (28%), 20 years (25%), 53 years (10%) and 64 years (8%). From results obtained from the research in the sample area, Table 6 indicates that Lid burns from fire sparks is the most occurring ocular hazard (14%), whilst joined by Foreign body on the cornea (12%), eye itching (12%), Blurred vision (11%), eye infection (10%), eye dryness (10%), Pingucula (8%), Pterygium (6%), Cornea (3%), Cataract (2%). This result confirms the existence of ocular hazards in local method of processing garri in the study area with little or no medical care or awareness. Furthermore, it can be understood that the Frying stage constitutes more hazard than other stages and this can be combated by the use of safety glasses or use of a different frying setup (other than burning woods) when frying the processed cassava. Exposure to smoke, fire and heat isn't only the lead cause of Lid burn as it causes Blurred vision, eye dryness, Pingucula and Pterygium (Arthur, Paul, and Ogadinma, 2018). Results obtained from the distribution of ocular hazards in local method of processing garri across the gender of respondents is displayed on Table 7. Within a minimal male population of 17, eye itching due to sand Particles entering the eyes hold the most identified ocular hazard (23%), closely tallying with eye infection from wood particles (18%), foreign body on the cornea due to splinters entering the eyes (18%), eye infection due to Cassava leaves entering the eyes (12%), Pingucula (12%) and Pterygium (6%). These identified hazards in the male population (17%) are constituent with activities found in the Harvesting and peeling stages, thus, confirming the predominant activities of male in the local method of processing garri. Conversely, within the female population (83%), Lid burns from fire sparks tops the chart (17%). Coming behind is Cataract (14%), Allergic conjunctivitis (12%), Blurred vision (10%), Pinguecula (7%), eye dryness (7%), foreign body on the cornea (5%) eye infection (7%). This result indicates that the predominant ocular hazards originate from activities consistent with Frying. The female population recorded a low frequency of occurrence of ocular hazards originating from the Harvesting and peeling stage, hence, indicating low participation. A close look at the different stages of processing garri to identify the stage that pose the biggest threat of ocular risks sees Frying (26%) top Table 8, following behind is Sieving (22%), Compressing (16%), Washing (13%), Milling (9%), Peeling (8%), Harvesting (6%). This result indicates that the Frying stage constitutes more ocular hazards as a result of exposure to smoke, heat and fire. Harvesting projects, the least threat (6%) from dust particles, leaves particles and sand particles. As far exposure goes with the respondents, the categorized years of experience in local method of processing garri plays a part in determining the frequency of occurrence ocular hazards. Table 9 indicates that those respondents having 16 years of practice poses more ocular hazards (29%), closely followed by those having 6 years (25%), 26 years (24%), 36 years (12%) and 46 years (10%). This result demonstrates that as the experience in practice grows, certain mistakes and unnecessary exposures are learned to be avoided and gone past. The higher number of females than males in the garri production industry could be attributed to that fact that women play a principal role in food processing and the wholesomeness of food (Obeng-Ofori and Boateng, 2008). This is in line with the findings of (Quaye et al., 2009), who reported an average of 94.5% female involvement in cassava processing. The majority of the respondents are within the most active years (20 – 49) of life. This might be due to the labour-intensive nature of cassava processing and high exposure to health hazards, hence less attractive to people above 50 years (Adenugba and John, 2014). In advanced age, tolerance to health risk conditions was minimal, which suggested the low involvement of people with age group ≥50 years as argued by (Yidana et al., 2013). The finding in this study was in line with (Akabanda et al., 2017), who reported in research conducted that only 20 % of people within this age group are involve in food processing and handling. Higher education level is reported to have a link with access to information on improved technologies and production challenges (Ademola and Ilochi, 2024; Paltasingh and Goyari 2018) and health. Many studies showed a positive relationship between the education level of the household head and the adoption of improved technologies (Ilochi, et al., 2021; Danso-Abbeam et al., 2017; Deressa et al., 2009). (Bello et al., 2013) argued that low-level education of cassava processors had implications on adopting modern technology. Conversely, the section of respondents who had higher-level education indicated likely ease of understanding of information. This educated group could serve as focal points in disseminating information to individuals of a lower education level or no education. None of the respondents made use of hand gloves and nose masks. This was in contrast with (Adepoju et al., 2019) findings which reported that 76% of the garri producers often used overall during garri frying to prevent skin irritation in Oyo State, Nigeria. Respondents attributed the less usage of the overall working gear and coat to considerable discomfort they experienced when using them. The high atmospheric temperature, coupled with intense heat emanating from the furnace, hindered the frequent usage of this PPEs. However, the usage mitigated the skin irritations experienced when cyanide-laden cassava mash comes in contact with the skin and burns. (Ademola, et. al., 2024; Lucas et al., 2014) reported that heavy physical workloads and/or protective equipment create strenuous and potentially dangerous thermal loads for the worker during hot and humid climatic conditions. Hot and humid conditions create a thermal heat extreme as heat loss from the body to the environment becomes increasingly difficult (Ilochi, et al.,2018) Lucas et al., 2014). (Bishop et al., 2013) also reported that thermal comfort was key in using protective equipment. The result implied that the probability of garri producers using PPE increased with increased years of experience in garri production. This result is in line with the finding of (Okoffo et al., 2016), who reported an influence (but negative) of years of farming experience on wearing of protective equipment by cocoa farmers in Ghana. Processors with knowledge of hazards associated with garri production were 5.5% more likely to use protective equipment. The result implied that the probability of a processor using PPE during garri production increases with knowledge of cassava processing hazards. Knowledge of health hazards will motivate the wearing of protective equipment during processing. Summarily, these identified ocular hazards ranging from Eye infection, Allergic conjunctivitis, Pingucula, Pterygium, Cataract, foreign body on the cornea, cornea ulcer, eye itching, eye dryness to Lid burns originates from all stages of local method of processing garri in the research area.

*Conclusion:* This study showed results consistent with a high occurrence of ocular morbidity associated with indigenous gastronomic processing methods of garri in Ogbogoro, Obio Akpor local government area, Rivers State. In ogbogoro, garri processing is predominated by females and more ocular hazards were experienced by the women involved in activities involving Frying. The male population experienced the most ocular hazards but in activities surrounding harvesting. Some diagnosed ocular hazards include, Eye itching, eye dryness, eye infections, foreign body in cornea, cornea ulcer Allergic conjunctivitis, Pinguecula, Pterygium, Cataract and Lid burns.

*Declaration of Conflict of Interest:* The authors declare no conflict of interest

*Data Availability Statement:* Data are available upon request from the first author or corresponding author or any of the other authors

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