Knowledge and Attitude Towards Genetic Testing Among Public Selected Setting in Ethiope East Local Government Area (LGA)

Etiyopya Doğu Yerel Yönetim Bölgesinde (LGA) Kamu Tarafından Seçilen Ortamda Genetik Testlere Yönelik Bilgi ve Tutum

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ABSTRACT

Objective: This study determined the knowledge and attitude towards genetic testing among public selected setting in Ethiope East Local Government Area (LGA)
Methods: This study was carried out in Abraka, Ethiope East, Local Government Area (LGA), Delta State using a cross-sectional study design.
Results: This study found out that 80.3% of the study participants were aware of genetic testing, 90.9% of the study participants agreed that it is possible for early detection of certain disorders using genetic testing, 55.4% of the study participants think the genetic testing can cause any physical risk, and genetic testing is a reliable tool in diagnosing and predicting diseases. Attitudes were mixed regarding the consequences of testing. 55.3% participants agreed that deoxyribonucleic acid (DNA) test will change the future, and 51.4% study participants worry about the consequences of DNA testing for the chances of finding a job.
Conclusion: This study found out there was a significant relationship between the age and the knowledge of participants (p>0.05). There was also a significant difference between knowledge and attitude of participants (p>0.05). There was also a significant difference between knowledge and attitude of participants (p>0.05). It is recommended that future studies should explore the relationship between genetic knowledge with associated factors like gender.

Keywords: Genetic testing, Knowledge, Deoxyribonucleic acid, Ribonucleic acid

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ÖZET

Amaç: Bu çalışma, Etiyopya Doğu Yerel Yönetim Bölgesi'nde (LGA) seçilmiş halk ortamında genetik testlere yönelik bilgi ve tutumu belirledi.
Yöntem: Bu çalışma Abraka, Doğu Etiyopya, Yerel Yönetim Bölgesi (LGA), Delta Eyaleti'nde kesitsel bir çalışma tasarımı kullanılarak gerçekleştirilmiştir.
Bulgular: Bu çalışma, araştırmaya katılanların %80,3'ünün genetik testlerden haberdar olduğunu, araştırmaya katılanların %90,9'unun genetik test kullanarak belirli bozuklukların erken saptanmasının mümkün olduğunu kabul ettiğini, araştırmaya katılanların %55,4'ünün genetik testlerin neden olabileceğini düşündüğünü buldu. herhangi bir fiziksel risk ve genetik test, hastalıkların teşhisinde ve tahmininde güvenilir bir araçtır. Testin sonuçlarıyla ilgili tutumlar karışıktı. Katılımcıların %55,3'ü deoksiribonükleik asit (DNA) testinin geleceği değiştireceğine katılıyor ve %51,4'ü, iş bulma şansı için DNA testinin sonuçları konusunda endişeleniyor.
Sonuç: Bu çalışma, katılımcıların yaşı ile bilgi düzeyi arasında anlamlı bir ilişki olduğunu ortaya koymuştur (p>0.05). Katılımcıların bilgi ve tutumları arasında da anlamlı bir fark vardı (p>0,05). Katılımcıların bilgi ve tutumları arasında da anlamlı bir fark vardı (p>0,05). Gelecekteki çalışmaların, genetik bilgi ile cinsiyet gibi ilişkili faktörler arasındaki ilişkiyi araştırması önerilir.

Anahtar Sözcükler: Genetik test, Bilgi, Deoksiribonükleik asit, Ribonükleik asit

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INTRODUCTION

Genetic "test" refers to the analysis of human Deoxyribonucleic Acid (DNA), Ribonucleic Acid (RNA), chromosomes, or proteins used to detect abnormalities related to an inherited disorder (1). Tests can directly examine the DNA or RNA that make up a gene (direct testing), look at markers that are co-inherited with a disease-causing gene (linkage testing), examine the protein products of genes (biochemical testing), or examine the entire chromosome (cytogenic testing). Although these genetic tests require easily obtained blood specimens, genetic testing involves special considerations. Over the last decade, genetic testing has been transformed by an explosion of genomic data, powerful new technologies and analytical approaches (2).

Genomic innovation is presently being utilized worldwide in a variety of contexts to provide diagnostic, prognostic and therapy information for Patients in a manner that is predicted to change health care (3). Genetics Analysis is mainly used in a number of hospital settings, including unusual diagnosis in pediatric disease, prenatal treatment, ophthalmology, dermatology, ear, nose and throat surgery. Modern genetics and genomics have a more systemic understanding of genes. And how they function within cells than previous genetics, conceiving the environment and Epigenetic factors play an important role in the development of traits and diseases. Although there are some concerns that genetics is too gene-and cell-centric (4,5,6). Advances in the field of genetics as in the same way that genomics and genomic-based technologies are becoming incredibly influential. All areas and layers of contemporary society, from prenatal screening to direct-to-consumer genetic screening, personally tailored medicines, pharmacogenomics and modern cancer therapies (7).

Although public knowledge of modern genetics seems to be limited, studies on public attitudes towards genetics and gene technology show that public opinion in general, they are positive for genetic applications, particularly if there are compelling medical benefits (8). 1 However, there are several unique genetic technologies that the public is more skeptical about, for example, the cloning of human cells, human embryos study and use of genetic testing to determine whether or not to continue pregnancy (9). People appear to be ambivalent to genetically engineered food (10).

Genome evaluation is also enormously being used to guide treatment choices and more individualized risk evaluations, often referred to as 'precision' or 'personalized' medicines (11). This makes it possible for clinicians and genetic counseling counselors to discover propensities for developing future diseases, thus enabling intervention for prevention, testing and/or management. In addition, this may be connected to Pharmacogenomics – genetic screening used to support medications use in medicine. For instance, patients may be screened first to see if they are probable to metabolise certain drugs before prescription (12). This is also used in oncology, where Chemotherapy is aimed at people with such genetic profiles (13).

METHODS

This study was carried out in Abraka, Ethiope East, Local Government Area (LGA), Delta State. It adopted a cross sectional study design and a self-administered, structures survey was used to collect the required data.

Inclusion criteria and exclusion criteria for this study were as follows:

Inclusion criteria

- Male and female who were in residents in Abraka and were willing to participate.
- Males and females within the ages of 18-50 years.

Exclusion criteria

- Incomplete questionnaires were excluded from this study.
- Individuals who aren't residents in Abraka were also excluded.

Method of data collection

Data was collected from participants through the usage of printed questionnaire.

Ethical consideration

Ethical approval was obtained from the ethical committee of the department of human anatomy and cell biology of the faculty of basic medical science, delta state university, Abraka.

Statistical Analysis

The data obtained was subjected to statistical analysis using the Statistical Package for Social Sciences (SPSS). Results were presented using percentage frequency distribution and Chi-square test at 95% confidence interval was also used for this study and p-value lesser than 0.05 was considered to be statistically significant.

RESULTS

Table 1 shows that 80.3% participants of the study were conscious of genetic testing, 90.9% participants of the study agreed that is possible for early detection of certain disorders using genetic testing, 55.4% of the study participants think genetic testing can cause any physical risk, and 43.0% of the study participants think genetic testing is a reliable tool in diagnosing and predicting diseases. The most common knowledge source was the school (53.4%) followed by social media (15.9%), the internet (14.4%) at their work place (12.4%), and from friends and relatives (3.8%). It also shows that most participants disagreed that genetic testing is forbidden.

Table 1: Knowledge on genetic testing

	Frequency	Percentage
Are you familiar with the term genetic testing?		
Yes	317	80.3
No	78	19.7
What is the sources of knowledge?		
School	211	53.4
Work	49	12.4
Social media	63	15.9
Internet	57	14.4
Friends/family	15	3.8
Is it possible for early detection of certain disorders using genetic testing?		
Yes	359	90.9
No	36	9.1
Do you think the genetic testing can cause any physical risk?		
Yes	219	55.4
No	176	44.6
Do you think that genetic testing is forbidden?		
Yes	69	17.5
No	326	82.5
Diagnosing and predicting diseases?		
Yes	170	43.0
No	84	21.3
Maybe	141	35.7

Table 2: Attitude towards genetic testing

	Frequency	Percentage (%)
The development of DNA research is hopeful for the treatment of diseases.		
Strongly agree	**285**	**72.2**
Agree	**75**	**19.0**
Disagree	**15**	**3.8**
Strongly disagree	**20**	**5.1**
The development of DNA research is a positive medical progress		
Strongly agree	**215**	**54.4**
Agree	**145**	**36.7**
Disagree	**15**	**3.8**
Strongly disagree	**20**	**5.1**
Approve of using DNA- testing for early detection of diseases.		
Strongly agree	**218**	**55.2**
Agree	**105**	**26.6**
Disagree	**38**	**9.6**
Strongly disagree	**34**	**8.6**
Would inform my children or family about the results of a DNA-test for a specific disease		
Strongly agree	**79**	**20.0**
Agree	**303**	**76.7**
Disagree	**7**	**1.8**
Strongly disagree	**6**	**1.5**
Worry about the consequences of DNA-testing for being able to affect health insurance		
Strongly agree	**30**	**7.6**
Agree	**80**	**20.3**
Disagree	**108**	**27.3**
Strongly disagree	**177**	**44.8**

Table 2 shows the attitude of study participants to genetic testing. It shows that 72.2% of the study participants strongly agreed that the emergence of Deoxyribonucleic Acid (DNA) research is hopeful for the treatment of diseases, the evolution of Deoxyribonucleic Acid (DNA) research is a positive medical progress, and approve of using Deoxyribonucleic Acid (DNA)-testing for early detection of diseases. 76.7% agreed that they would inform their children or family about the results of a Deoxyribonucleic Acid (DNA)-test for a specific disease while 7.6% strongly agreed that they are worried about the consequences of DNA-testing for being able to affect health insurance.

Table 3: Attitude towards DNA testing

	Frequency	**Percentage (%)**
DNA-test will change ones future	212	53.7
Strongly Agree	108	27.3
Disagree	30	7.6
Strongly disagree	45	11.4
As long as a disease cannot be treated, I don't want a DNA-test		
Strongly agree	7	1.8
Agree	10	2.5
Disagree	111	28.1
Strongly disagree	267	67.6
I don't want a DNA-test to tell that I am at risk for a certain disease		
Agree	4	1.0
Disagree	182	46.1
Strongly disagree	209	52.9
I worry about the consequences of DNA-testing for the chances of finding a job		
Strongly agree	203	51.4
Agree	51	12.9
Disagree	46	11.6
Strongly disagree	95	24.1
The idea of a DNA- test frightens me		
Strongly agree	90	22.8
Agree	93	23.5
Disagree	60	15.2
Strongly disagree	152	38.5

Table 3 shows that it was strongly agreed by 53.7% participants that Deoxyribonucleic Acid (DNA)-test will change the future, and 31.4% were worried about the consequences of DNA-testing for the chances of finding a job. However, 67.6% strongly disagreed that as long as a disease cannot be treated, they do not want a DNA-test to tell them that they are at risk for a certain disease, and 23.5% agree that the idea of DNA-test frightens them.

Table 4: Relationship between age and the knowledge and attitude of participants

	F	**P value**
Knowledge	307.810	0.000
Attitude	1039.851	0.000

The table above showed that there was a significant interaction between the age and the knowledge of participants ($p<0.05$). There was also a significant relationship between the age and the attitude of participants ($p<0.05$).

Table 5: Relationship between knowledge and attitude of participants

Knowledge	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**
Yes	285(100%)	32(42.7%)	0(0%)	0(0%)
No	0(0%)	43(57.3%)	15(100%)	20(100%)

P value = 0.000

The table above showed that there was a significant difference between knowledge and attitude of participants ($p<0.05$)

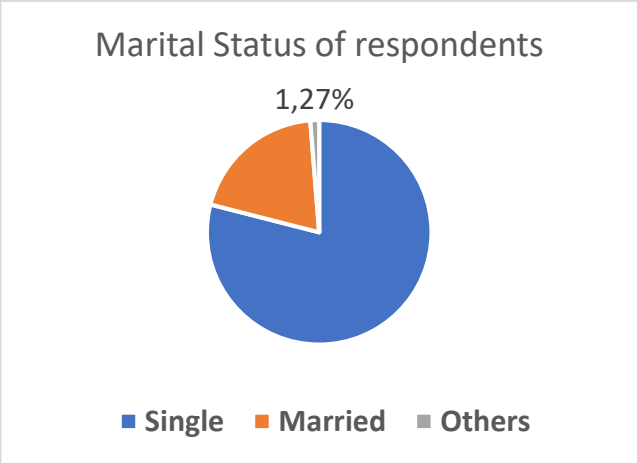

Figure 1: Marital status of respondents
The figure below shows the marital status of the respondents. Majority were single (79%), 78 (19.7%) were married, and 5 (1.3%) were neither married nor single.

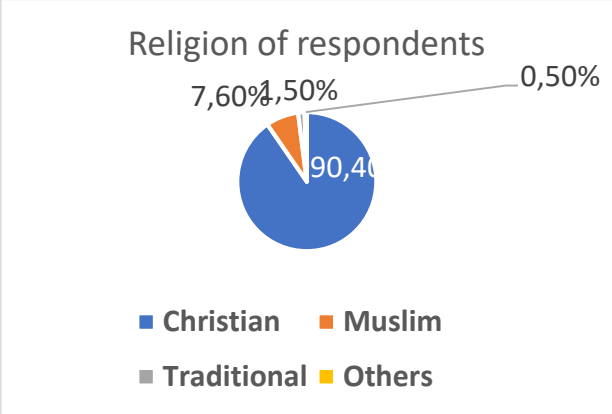

Figure 2: Religion of Respondents
The figure below showed that Christianity was the most practiced religion (90.4%), followed by Muslim (7.6%), traditional (1.5%), and others (0.5%).

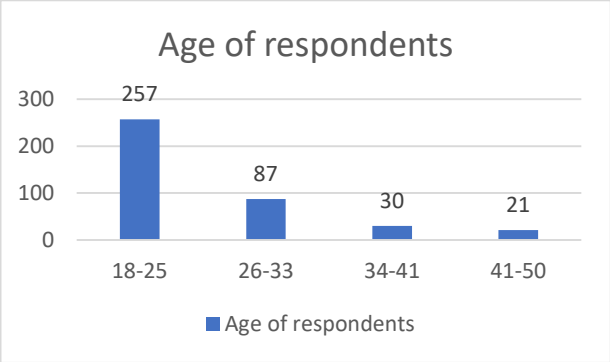

Figure 3: Age of respondents
The figure below shows the age groups of subjects in descending order. The ages are as follows: 18-25 years (65.1%), 26-33 years (22%), 34-41 years (7.6%), and 41-50 years (5.3%).

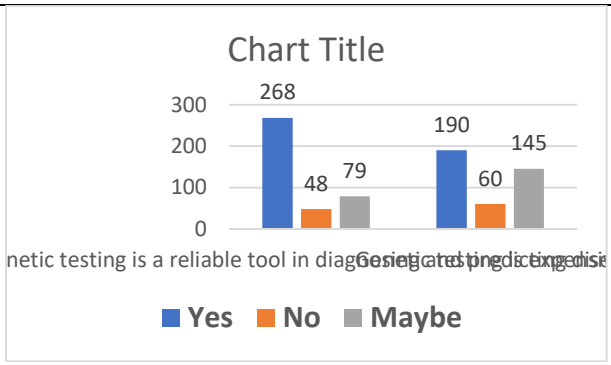

Figure 4: Perception on reliability of genetic testing and price
The figure below shows that it was agreed by most that genetic tests is a reliable instrument in diagnosing and predicting diseases, and that it is expensive.

DISCUSSION

This study made use of 395 subjects within the ages of 18-50 years. Most participants in the study were single and practiced Christianity. This study has found that 80.3% of its participants were aware of genetic testing, 90.9% agreed that is possible for early detection of certain disorders using genetic testing, 55.4% think the genetic testing is a reliable tool in diagnosing and predicting diseases. The most common knowledge source was the school (53.4%), followed by media (15.9%), the internet (14.4%), at their work place (12.4%), and from friends and family (3.8%). It also shows that 82.5% participants disagreed that genetic testing is forbidden. These findings did not conform with that of (14,15) who found that the participants had very little knowledge may be the relatively old age and low education of their studies. These factors that's been associated with low genetic knowledge. However, (16) who found that most of the participants agreed that is possible for early detection of certain disorders using genetic testing supported this study finding.

This present study showed that 72.2% study participants strongly agreed that the development of Deoxyribonucleic Acid (DNA) research is hopeful for the treatment of diseases, the development of Deoxyribonucleic Acid (DNA) research is appositive medical progress, and approve of using Deoxyribonucleic Acid (DNA)-testing for early detection of diseases. 76.7% agreed that they would inform their children or family about the results of a Deoxyribonucleic Acid (DNA)-test for a specific disease while 7.6% strongly agreed that they worry about the consequences of Deoxyribonucleic Acid (DNA)-testing for being able to affect health insurance. This finding was in line with that of (16) who discovered that most participants in the study agreed that they worry about the consequences of Deoxyribonucleic Acid (DNA)-testing for being able to affect health insurance. It was also supported by the study of (17,18) and (10) who found that the study participants were aware of genetic disease-related concepts than scientific facts.

Attitudes were mixed regarding the consequences of testing. 27.3% participants agreed that Deoxyribonucleic Acid (DNA)-test will change the future, and 31.4% worry about the consequences of Deoxyribonucleic Acid (DNA)-testing for the chances of finding a job. However, 67.6% strongly disagreed that as long as a disease cannot be treated, they do not want a Deoxyribonucleic Acid (DNA)-test, 1.0% do not want a DNA-test to tell them that they are risk fir a certain disease, and 22.8% of the study participants thinks the idea of Deoxyribonucleic Acid (DNA)-test frightens them. This finding was in line with that of (16) who found that most of the participants agreed that Deoxyribonucleic Acid (DNA)-test will change the future, and they worry about the consequences of Deoxyribonucleic Acid (DNA)-testing for the chances of finding a job.

This study found that there was a significant relationship between the age and the knowledge of participants ($p>0.05$). There was also a significant relationship between the age and the attitude of participants ($p>0.05$). There was also a significant difference between knowledge and attitude of participants ($p>0.05$). These finding was not in accordance with that of (16) who found that there was no significant relationship between sociodemographic data and attitude ($p>0.05$).

This inconsistency may be due bigoted reporting of the advantages of genetics studies for clinical applications in the news as opposed to possible harms.

CONCLUSION

The majority of survey participants (80.3% and 90.9%, respectively) were aware of genetic testing and agreed that genetic screening can help detect certain disorders early. While 55.4% believe genetic testing poses a physical risk, 43.0% believe genetic screening is an effective tool for diagnosing and predicting diseases. Concerns about the repercussions of testing were divided. 27.3% of respondents agreed that the Deoxyribonucleic Acid (DNA)-test will affect the future, and they are concerned about the ramifications for job prospects.

Conflict of interest

No conflict of interest was declared by the authors.

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