



RESEARCH ARTICLE

AWARENESS, ACCEPTANCE AND PRACTICE OF EGG DONATION AMONG FEMALE NIGERIAN POPULATION

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ABSTRACT

**Introduction:** Providing options for couples who are having difficulty conceiving represent an important part of solution to the rising rate of infertility. **Objective:** to assess the awareness, acceptance and practice of egg donation among female Nigerian population. **Methodology:** A descriptive cross-sectional study which involved 200 females that attended Eke-Akiyi Market in Umulokpa, Uzo-Uwani LGA of Enugu State, Nigeria. A minimum sample size of 200 was calculated for the study and a structured self-administered questionnaire employed in gathering information on socio-demographic characteristics, knowledge, attitude, and willingness to participate in egg donation. Simple random sampling was employed in selecting participants from different wings of the Market. Data was analyzed using Statistical Packages for Social Sciences (SPSS) version 23. Descriptive statistics was used to summarize the results which were presented with the aid of charts and frequency tables. The level of significance was set at 95% probability level ( $p < 0.05$ ). **Result:** Most of the research participants were within the age group 18 – 27 years (34.0%), with mean age of 24.2+ 1yrs. The study population comprised mainly of people who had formal education (93.0%). There was high level of awareness of egg donation in the studied Nigerian population (81%). However, the willingness and practice of egg donation was generally poor. Only 16% of the participants have donated egg in their life-time and only about 33% of the research participants agreed to donate egg in case of need. Financial benefit was mainly the reason for accepting to donate egg as noted in 68.8% of research participants. Religious inclination, cultural factors, and fear of pain constituted the bulk of the reason for refusal to be involved in egg donation. On perception of the respondents concerning egg donation, they were more in support of widows and divorcees donating egg than they were of singles and the married. **Conclusion:** The low level of acceptance and practice of egg donation observed in this study in the phase of rising rate of infertility calls for health education of the populace, especially the prospective donors.

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INTRODUCTION

Oocyte donation is a 'third party' infertility treatment<sup>1, 2</sup>. The donated eggs are needed by women who cannot produce their own eggs or are at high risk of transmitting genetic conditions<sup>1</sup>. Infertility which is defined as inability of a couple to achieve pregnancy after one year of adequate, regular, and unprotected coitu is a worldwide problem affecting about 10-15% of married couples and has social, economic and psychological implications<sup>3</sup>. It constitutes about 50% of gynaecological consultations in developing countries and it is estimated that about 30-40% of women in Sub-Saharan Africa

Outside the notable causes of infertility, societal changes have immensely distorted typical childbearing pattern. Large number of women has recently experienced delay in childbearing for a number of reasons, including quest for higher education, professional career, constraints of taking time off work and the enormous expense of raising a child<sup>5, 6</sup>. This delay in childbearing will invariably continue to add to the rate of infertility due to the association of infertility with age. More serious problems with fertility can be found among 10% of all couples, and roughly 5% of them will be involuntarily childless<sup>7</sup>. Third-party reproductions like egg donation have become one of the widely used fertility

Egg donation is a component of assisted reproduction which includes techniques that bypass some of the natural processes with the aim of achieving conception by allowing gamete manipulation outside the body and subsequent embryo transfer. Assisted Reproductive Technologies (ARTs) offer couples with fertility issues multiple options and one of them is the possibility of conceiving with donated eggs. The first human In-vitro fertilization (IVF) pregnancy was achieved in 1973, while the delivery of the first baby was in 1978<sup>9, 10</sup>. The practice of oocyte donation dated back since 1983<sup>11</sup>. There is wide increase in the demand for donor eggs for in-vitro fertilization (IVF) cycles, almost doubling between 2000 and 2010<sup>12</sup>. The overall demand for donor eggs has increased by 50% in the same period of time<sup>13</sup>. In the recent data made available to the public domain by Centers for Disease Control and Prevention, donor eggs were used in 24,300 of a total of 263,577 ART cycles, representing approximately 9% of all ART cycles<sup>13</sup>. About 8% of all IVF cycles require the use of donor eggs. The indications for the use of donor eggs will include; diminished ovarian reserve from any cause, carriers of significant genetic defects, poor oocyte and/or embryo quality, gestational surrogacy among same sex couples, single people due in part to increasingly restrictive international adoption laws and multiple failures from prior In-vitro-fertilization attempts<sup>14</sup>.

There are different types of donors, such as patient donors – individuals taking part in IVF who for some reason decided to donate their reproductive cells or unused embryos and Non-patient donors who are usually known commercial and voluntary donors<sup>15</sup>. The reasons why people agree to donate their eggs varies, some donors provide eggs with no compensation, or limited reimbursement for direct expenses, particularly in countries with a more regulated approach to third party reproductio<sup>16,17</sup> while majority of others who provide eggs do so in exchange for payment. The regulation of egg donation programs varies from one country to the other, while the oocyte donation programs are well regulated in some countries, in others; the guidelines/regulations are not well defined. Egg donation is not legal in all countries, while some countries allow egg donation with donor anonymity, others allow non-anonymous donors who are open to contact when the child comes of age. But, even if the donor is anonymous, the recommendation is that the parents not hide any information related to the specificities of conception from the child<sup>18</sup>. The process of egg donation is very challenging as various religious and cultural belief and practices impair egg donation and acceptance of donated gamete, as well as the perceived risks associated with egg donation. These factors have contributed to unmet need of oocyte donation especially in developing countries where assisted reproductive techniques are not under health insurance coverage. Also, Lack of knowledge of processes involved in egg donation is another significant factor which drives people away from donation<sup>19</sup>. Encouraging early births and increasing options for couples who are having difficulty conceiving represent an important part of solution to rising rate of infertility. Sequel to the above, there is every need to assess the knowledge base of prospective egg donors and their readiness to egg donation if there is need

## METHODOLOGY

A descriptive cross-sectional study which involved 200 females that attended Eke- Akiyi Market in Umulokpa, Uzo-

Uwani LGA of Enugu State, Nigeria. A minimum sample size of 200 was calculated for the study using the Kish formula for cross sectional studies. Simple random sampling was employed in selecting participants from different wings of the Market. A structured self-administered questionnaire was employed in gathering information on socio-demographic characteristics; knowledge, attitude, and willingness to participate in egg donation. Participation was voluntarily and data obtained treated with absolute confidentiality. Data was analyzed using Statistical Packages for Social Sciences (SPSS) version 23.0 (IBM Corporation, Armonk, USA). Descriptive statistics was used to summarize the results which were presented with the aid of a pie chart and frequency tables. The level of significance was set at 95% probability level ( $p < 0.05$ ).

## RESULTS

The research participants for the study included 200 females of age 18 years and above. Most were in the age groups 18 – 27 years (34.0%), 28 – 37 years (24.0%), and 38 – 47 years (26.0%). They were mainly students (29.0%), petty traders (10.0%), civil servants (13.0%), and unemployed people (20.0%).

**Table 1. Frequency distribution of demography of respondents**

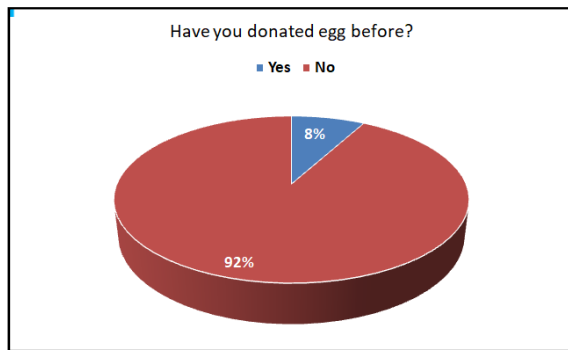
Demography	Value (%)
Age (year)	
18 – 27	68 (34.0)
28 – 37	48 (24.0)
38 – 47	52 (26.0)
48 – 57	18 (9.0)
58 – 67	8 (4.0)
> 67	6 (3.0)
Total	200 (100)
Occupation	
Student	58 (29.0)
Apprenticeship	10 (5.0)
Petty trading	20 (10.0)
Farming	2 (1.0)
Unemployed	40 (20.0)
Civil servant	26 (13.0)
Business executive	12 (6.0)
Professional	16 (8.0)
Retired	4 (2.0)
Artisan	10 (5.0)
Nurse	2 (1.0)
Educational status	
Non-formal	14 (7.0)
Primary	26 (13.0)
Secondary	92 (46.0)
Tertiary	42 (21.0)
Post-graduate	26 (13.0)
Marital status	
Single	100 (50.0)
Married	74 (37.0)
Separated	20 (10.0)
Divorced	2 (1.0)
Widowed	4 (2.0)
Religion	
Christianity	158 (79)
Muslim	10 (5.0)
Traditional	22 (11.0)
None	10 (5.0)

They comprised people who had no formal education (7.0%), and most who had formal education (93.0%) either primary, 26 (13.0%), secondary, 92 (46.0%) , tertiary, 42 (21.0%), and post-graduate 26 (13.0%). They were mostly single (50.0%) and married (37.0%) people (Table 1).

**Table 2. Knowledge of egg donation among research participants**

Knowledge	Value (%)
Awareness of egg donation	
Yes	162 (81.0)
No	38 (19.0)
Source of awareness	
Social media	62 (40.2)
Radio	12 (7.6)
Television	40 (25.3)
Newspaper	10 (6.3)
Friends	26 (13.0)
Teacher	12 (7.6)
Total	162

Among the 200 respondents, 162 (81.0%) have previously heard about egg donation. Their source of information on egg donation included Social media (40.2%), Friends (13%), Radio (12%), Television (25.3%), Newspaper (6.3%), and Teachers (7.6%).

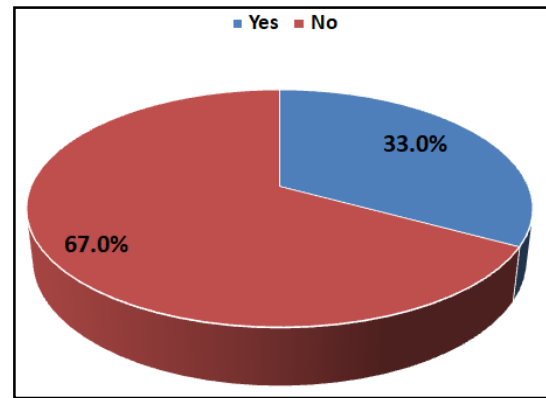


**Figure 1. Number of previous egg donors to previous non-donors among**

Among the 200 Participants, only 16 participants (8%) had donated egg before while 184 participants (92%) of the participants have not been involved in egg donation (Figure 1).

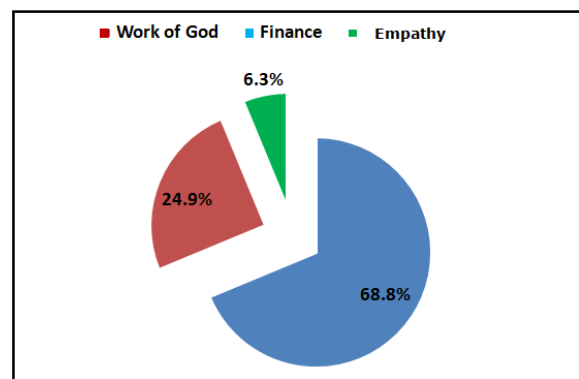
**Table 3. Perception on egg donation among participants**

Perception	Values (%)
Thinks egg donation can cause problem in the future	
Yes	140 (70.0)
No	60 (30.0)
Do you think egg donation can finish the egg in the donor?	
Yes	130 (65.0)
No	44 (22.0)
Don't know	26 (13.0)
What do you think is the reason people donate egg?	
Humanitarian purpose	62 (31.0)
Money involved	138 (69.0)
Does the egg donor mother have any claim over the baby?	
Yes	108 (54.0)
No	42 (21.0)
Don't know	50 (25.0)
Would you like the recipient of the egg to know the donor mother?	
Yes	40 (20.0)
No	160 (80.0)
Would you like the donor to know the recipient?	
Yes	38 (19.0)
No	162 (81.0)
Is it right for a single lady to donate egg?	
Yes	70 (35.0)
No	130 (65.0)
Is it right for a married woman to donate egg?	
Yes	82 (41.0)
No	118 (59.0)
Is it right for a widow to donate egg?	
Yes	124 (62.0)
No	76 (38.0)
Is it right for a lady who is separated from her husband to donate?	
Yes	102 (51.0)
No	78 (39.0)

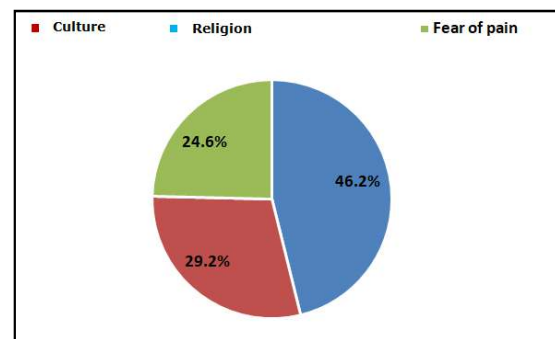


**Figure 2. Willingness to donate egg among participants**

**Participants**



**Figure 3. Reasons behind the willingness to donate egg among**



**Figure 4. Reasons behind the participants' unwillingness to donate egg**

The participants' disposition towards egg donations was poor. Only 33% of them agreed to donate their egg to others should there be a need while 67% of them have strong aversion for egg donation. Willingness to egg donation was mainly due to financial benefit (68.8%) and the main reason for unwillingness to donate egg was due to religions inclination (46.2%)

## DISCUSSION

Most of the research participants were within the age groups 18 – 27 years (34.0%) with mean age of 24.2+ 1yrs. The study population comprised both people who had no formal education (7.0%), and most who had formal education

tertiary, 42 (21.0%), and post-graduate 26 (13.0%). They were mostly single (50.0%) and married (37.0%) people (Table 1). Majority were Christian faithful (95%). Eke-Akiyi Market, which operates every 4 days (Eke day) is a famous and well patronized market. People, mainly young ladies come from both within and outside the state to buy food materials and other goods for themselves or their parents which they sell in the city for profit making. This makes the market to always have enough population of women who fit into the study. There was high level of awareness about egg donation in the studied Nigerian population (81%). This finding was similar to that noted in previous studies done in Nigeria<sup>2</sup> and developed country<sup>20</sup> that noted awareness level of 87.3% and 90% respectively. Social media was the commonest source of awareness of egg donation and this was not surprising owing to the proliferation of communicating gadgets as well as platforms via which information can easily circulate online. Despite increased awareness of egg donation, the willingness and practice of egg donation was generally poor. From the study population, only 16% of them (8 participants) have donated egg in their life-time and only 33% of the research participants agreed to donate egg in case of need. The observation was not far from a similar finding in a study done in South-West Nigeria<sup>2</sup>. While financial benefit was mainly the reason for accepting to donate egg as noted in 68.8% of research participants, religious inclination constituted the bulk of the reason for refusal to be involved in egg donation, others included cultural factors and fear of pain (Figure 3). The role of religion in decreased acceptability of assisted reproduction has been noted in similar studies<sup>2, 21, 22</sup>

The perception of the respondents concerning egg donation is presented in Table 3. Majority of the respondents (70%) think that donating egg could cause a problem in the future. When asked whether they think that donation of egg could finish the egg in the donor, 130 (65%) answered in the affirmative while 44 (22%) disagreed. The number of people who thought that egg donor may have some claim to the baby were more than those opposed to such claim (54.0% vs. 21.0%). Most of the people would not want the egg donor to know the recipient (80.0%), and vice versa (81.0%). They were more in support of a widow or divorcee donating egg than they were of singles and married.

## Conclusion

The low level of acceptance and practice of egg donation observed in this study in the phase of rising rate of infertility calls for health education of the populace, especially the prospective donors

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