Research Article

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Rural Folks Perception of Suicide Drivers in rural communities of Delta State, Nigeria: Implications for Societal and Agricultural Security

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Abstract: The study examined rural folks' perception of suicide drivers in rural communities of Delta state, Nigeria and the resultant implications for societal and agricultural security. The objectives of the study are to: describe the socio-economic characteristics of the respondents, ascertain the perceived suicide rates in rural households; identify the main causes (or drivers) of suicide in rural communities, ascertain the means of committing suicide, and determine respondents' perception of the effect of suicide on agricultural production and their families. A multi-stage sampling procedure was used in composing 351 respondents who furnished information on suicide situation in the study area. Results indicated some cases of suicide in the area; several perceived suicide drivers were identified by the respondents, and the respondents identified some perceived deleterious effects of suicide as illness among family members, depression of surviving members, loss of income and output of agricultural production and scattering of family of suicide victim. Logistic regression of relationship between perceived social economic characteristics and suicidal death indicated that marital status, education, family size, family income, membership of association and extension contact were significant in preventing suicide. From the findings, it was recommended that all stakeholders including the government, private sector, religion organizations, health and welfare institutions, rural communities, and individuals have crucial role to play in curbing suicidal deaths in rural communities.

Keywords: Suicidal death; Rural communities; Logistic regression; Suicide drivers, Nigeria

1 Introduction

In spite of the fact that Nigeria depends heavily on the oil industry for its revenues, the country relies predominantly on agriculture. Approximately 70 percent of the population engages in agricultural production (The National Bureau of Statistics estimates 2017) mainly at a subsistence level. About 50% of Nigerians live in rural areas (Nwajiuba 2017), most of this population being farmers facing one form of challenge. The pressures faced by farmers and other rural dwellers are likely to continue and even become more severe (McCann 2014). The pressure facing farmers usually emanates from the precarious situation in which they operate. What stands out is that it is most often a combination of numerous issues that brings about serious problems for rural dwellers and leads to individuals and families feeling helpless and exposed (McCann 2014). As a result, this may lead to hopelessness among farmers.

Hopelessness may culminate in suicide, with the resultant effect on agricultural production. Untimely death rates through suicide have been acknowledged as mainly high in rural areas, with the bulk of these deaths considered preventable (Kennedy et al. 2014). In rural communities, any death has a great blow on direct family members, and cuts across the community (Kennedy, et al. 2014). Although the rural populations consist of heterogeneous individuals, the group that usually predominate is the farming population.

Farming has now globally diversified to include variations from subsistence level by individuals to large commercial production enterprises by multinationals, and a whole range in-between (Kennedy, et al. 2014). Since farming is the dominant activity in the rural areas, any catastrophe, including suicide in the rural areas, is likely

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to impact more on farming communities. Carleton and Baysan (2015) asserted that suicide among rural communities has drawn particular academic and media attention.

1. This shows that in Nigeria, rate of suicide is on the increase. In 2016, 7 states recorded more than 62 cases of suicidal death according to information from the Police commands: Ogun recorded the highest, followed by Lagos, Ebonyi, Delta, Oyo, Ondo and Kano (Azoma 2017). According to Ukwu (2016) and (Azoma 2017), Delta State is ranked 4th among the seven leading States in Nigeria with the highest incidence of suicide.

The World Health Organisation (WHO) (2018) reported that no fewer than 800,000 people, about one person every 40 seconds, commit suicide annually, the second principal cause of death among people between the ages of 15 and 29 in 2016. Most of this death by suicide occurs in the rural communities of less developed countries like Nigeria. Meanwhile, a study conducted by the World Health Organisation (WHO) ranked suicides per 100,000 cases, and Nigeria had 15 percent per 100,000. By these statistics, Nigeria was placed fifth in the ignominious column of countries with acute cases of suicide. The list was topped by South Korea with 24,000,000 cases; followed by Russia with 18,000,000; India, 16,000,000 and Japan coming fourth with 15,400,000 suicide instances (THISDAY 2018).

WHO (2018) further observed that people of all ages commit suicide, and suicide is a tragedy that affects families, communities and entire countries, leaving behind long-lasting effects. Worldwide, suicide accounts for 50 per cent of all violent deaths in men and 71 per cent in women.

Compared with other occupational groups, those involved in agricultural activities have been identified as a risk group for suicide death (Page and Fragar 2002; Gun et al. 1996). Page and Fragar's (2002) analysis of the period from 1988 to 1997 recorded 921 farm suicides, of which 97% of the victims were male. Page and Fragar (2002) observed that of the 621 farm manager suicide cases, about half occurred in ageing farmers 55 years and older. The identified patterns of suicide death were reversed in agricultural labourers, with more than half of the 300 suicides occurring in the 15–39 years age bracket. According to them, firearms accounted for 51% of farmer suicides, compared with 23% of suicides among the general Australian male population during the same time period. Higher rate of suicide from firearms among farmers when compared with the general population is a trend corroborated by international research (Booth et al. 2000). This pattern has been attributed to the easy accessibility of firearms for farmers who commonly use guns for pest reduction and livestock (Page and Fragar 2002). It is also worth examining whether this trend exists in the Nigerian context in general and Delta State in particular.

Given the high mortality risk following death by external causes, particularly by suicide, it is critical that loss following such modes of death, the causes of such deaths and their effects be explored. Goldberg (2018) reported that according to the Centers for Disease Control and Prevention rural areas have the highest suicide rates, as well as a high concentration of veterans, who experience higher rates of suicide than nonveterans. Rates of drug abuses in rural areas have increased more than those in urban areas. Also Ron Manderscheid, executive director of the National Association for Rural Mental Health, asserted that there are numerous elderly people, who are often socially isolated and at risk for depression (Goldberg 2018). Given the above scenario, the rural areas are tagged place for being at high risk for suicide (Goldberg 2018).

Also Safi (2017) from India made this report: "One drought-hit state of India, Maharashtra, reported 852 farmer suicides in the first four months of 2017, while in 2015, one of the worst years on record, about 12,602 farmers killed themselves across India. Overall, more than 300,000 farmers and farm workers have killed themselves in India since 1995".

In US, the Western part recorded the highest suicide rate, with Montana accounting for 26 deaths per 100,000), Alaska 25.4 deaths per 100,000 and Wyoming having 25.2 deaths per 100,000). in the more urban states of Massachusetts, New Jersey and New York, rates were around three times lower (Maciag 2018). Booth et al. (2000) also reported very high suicide rates among farmers in England.

In recent times the rate of suicide has been escalating in Nigeria. Several factors have been adduced to cause suicide in Nigeria and elsewhere. It has been estimated that there are 250,000 deaths annually from pesticide self-poisoning worldwide, accounting for 30% of the suicides globally (Chitra et al. 2006). The World Health Organization maintained that an estimated 3 million farmers in developing countries experience acute poisoning from pesticide and 18,000 of them eventually die from this (WHO 2000). The Daily Times (2018) identified 13 causes of suicide in Nigeria among which are mental illness, unemployment, depression, financial stress and social isolation. Thus it is very obvious that the rural areas have the highest suicide rates. Hazell et al. (2016) of Centre for Rural and Remote Mental Health, indicated that rural suicide results in serious distress to individuals,

households, work environment, and communities and needs to be given urgent attention. Thus from the brief review, it is very glaring that suicide in agrarian communities is a global phenomenon that merit serious attention. Are these factors also the main cause of suicide in Delta State, Nigeria?

It seems strange that someone should deliberately terminate his own life. What could lead to this form of deviant behaviour is not fully understood. However, several scholars have propounded different theories to explain suicidal behaviour. Some of these theories are reviewed.

1.1 Durkheim and Sociological Theory

The first popular theory of suicide, which examined suicide from societal point of view, was postulated by Emile Durkheim. The major features identified by him were social assimilation and social guideline, and how these features relate to the four types of suicide identified by him were examined, namely: Egoistic suicide (observed in individuals with no social assimilation and are isolated from customary social bonds or society as these individuals are often ostracized and have no place in the society; Altruistic suicide, occur when persons are very totally socially incorporated, and sense that their demise would do good to the society. Anomic suicides occur mainly in societies where there is low social regulation, usually with a failure to inculcate a logic of importance – or a failure to offer a moral structure – in the lives of its people and leads to a situation of social and economic turmoil. The fourth type, Fatalistic suicides, occurs in societies with excessive social regulation with oppressive and controlling authority. Individuals with suicide ideation in such societies would prefer dying to continue living in such restrictive situations (Durkheim, 2006). Durkheim's wield much influence, and his suicide theory was the foremost endeavour to look at suicide from non-moralistic or hypercritical views (Selby et al. 2014).

1.2 Psychological Theories

From the ever evolving discipline of psychology at the early 20th century emerged the foremost main theories of acts of suicide at the individual level. A person usually have a "death instinct" that is balanced by a life instinct, and is most often blatantly expressed as rage. If anger is culturally controlled by communal mores, regulations and laws, the expression of it toward others is subdued and turned inwards. In severe cases, this suppression leads to suicide.

1.3 Baumeister and the Escape Theory of Suicide

The "escape theory" was proposed by Roy Baumeister in 1990. It has received wide attention, especially in describing suicides among adult males. He looked at suicide as process with six sequential steps. The steps are:

1. Standards fall and a person could not achieve idealistically high life vision or witnesses depressing experiences in life or setbacks.

2. Self-blame is internalized. This is when mistakes are internalized as the sole responsibilities the individual's defect and this leads to low self-worth.

3. Sense of self becomes aversive when an individual has a harsh or distorted pessimistic view of himself but has a optimistic outlook of others and becomes tightly rooted.

4. Negative consequences – these are the outcomes of the earlier step which can articulated as gloominess, apprehension or rage.

5. The escape of negative consequences by either deliberate or inadvertent evasion and rejection of "meaningful thought" is Cognitive constriction. The individual gives attention to day-to-day needs at the expense of forward thinking, and, as a result, experiences narrowed thinking or "tunnel vision".

6. Thoughtless attitudes, lack of emotion, and irrational thought make up the final step of this theory. These factors are often expressed as abuse of substance, self-injury, dangerous behaviours, and/or social isolation. Suicide ideation becomes less frightening. Occasionally this desire to escape leads to suicide (Baumeister 1990).

1.4 Edwin Shneidman Psychache Theory

Foremost suicidologist Edwin Shneidman (1918-2009) is of the view that the fundamental factor in all cases of suicide is the existence of "psychache", and the power of psychache on theoretical thinking of suicide has been

great. According to Shneidman (1993), Psychache is the "hurt, agony, discomfort, and hurting psychological pain in the mind". It is "the pain of disgrace or blame, or degradation, or seclusion, or fear, or fear of becoming old" (Shneidman 1993).

Suicide is seen not as the wish to die but rather a process of terminating the psychological pain the individual experiences. Psychache occurs when a person's vital needs are either not satisfied or are thwarted. Shneidman asserted that most suicidal deaths were due to frustration of needs witnessed in these four ways: Thwarted love, recognition or belonging; extreme powerlessness or the feeling of lack of control; ruined personality leads to feelings of escaping, disgrace, overpower, and humiliation; and spoilt relationships, with the subsequent feelings of misery (Shneidman 1993).

Different threshold is possessed by each individual for enduring psychache. If the threshold is attained, the psychache becomes unbearable and overwhelming to the individual, and the way to drastically minimize it is to commit suicide.

1.5 Leenaars' Multidimensional Model of Suicide

To carry out suicidal analysis, Leenaars used both idiographic (specific) and nomothetic (general) elements. He relies on assets like individual documents, discussions with survivors of victims, official reports from government, notes left by victims, and every other available information sources. Leenaars describes both intrapsychic and interpersonal characteristics to interpret what leads a person to commit suicide: The intrapsychic were:

- Psychological pain that is unbearable
- Cognitive construction rigid thinking, tunnel vision
- Indirect expressions of unsure thoughts toward living, opposing feelings
- Insufficient modification cannot cope with troubles, losses and undermined ego
- Interpersonal features include:
- Interpersonal relations strained relationships
- Rejection/belligerence loss or neglect, aggression that is turned inward
- Identification/egression tough attachment to another person that is not achieved, need to break away from (Leenaars 1996).

Leenaars sees suicide as a "multidimensional malaise", or as interplay of "biological, psychological, intrapsychic, interpersonal, social, cultural and philosophical" elements, in contrast to the simple avoidance of pain (Leenaars 1996). Leenaars believed that an insightful examination into the person's life experiences provides us much additional information of the "why" a person should commit suicide (Leenaars 1996).

1.6 Joiner's Interpersonal Theory of Suicide

The Interpersonal Theory of Suicide propounded by Thomas Joiner's in 2005 has been very helpful in elucidating the frequency of suicide among older adults, particularly older adult males. According to Joiner, 3 factors must be met for one to commit suicide:

1. Thwarted Belongingness: lack of important links to others or a strained/lost of beforehand well-built relationships.

2. Perceived Burdensomeness: when a person perceived that he is a burden on someone. He believes that he fails to make significant contributions to humanity and sees himself as a liability. These two combined factors constitute the desire for suicide.

3. Acquired Capability for Suicide: the extent to which a person is able to commence a suicide attempt. A constant exposure to fear and pain is a precondition for grave suicidal behaviour. A person can become vulnerable to the idea of suicide by frequent experience of painful actions and behaviours like self-injury.

1.7 Beck's Hopelessness Theory

The Hopelessness Theory, which was postulated by Aaron Beck in the 1970s, suggests that there is a possible force compelling a person to go against and overrule the "survival" instinct to commit suicide. Beck identified hopelessness as that force – the accelerator of suicidal desire. He sees hopelessness as a stronger force for suicidal plan than even depression (Beck et al. 1974).

The individual has a potential reservoir of pessimistic models which dictates how they will perceive and understand novel information. In situation of suicidal thoughts,

these models worsen feelings of hopelessness at the expense of optimistic, useful information.

1.8 Klonsky and May Three Step Theory of Suicide

The Three-Step Theory of suicide (3ST) was propounded by Klonsky and May (2014) who are of the opinion that the conception to actual committing of suicide ("ideation-to-action") framework should guide suicide theory, research, and prevention. According to this theory, the development of idea of suicide and the graduation to suicide attempts are different processes with different explanations. The Three-Step Theory proposes that the idea of committing suicide emanates from the blend of pain (usually psychological pain) and hopelessness. The theory further asserted that among individuals suffering pain and hopelessness, remedy is a prominent protective factor against increasing ideation, and that development from ideation to suicidal attempts is fuelled by dispositional, acquired, and useful contributors to the capacity to attempt suicide.

The theories of suicide are reviewed are by no means exhaustive, there are many more that are not discussed. The essence of this review is to sensitize us about the reasons behind why an individual may choose deliberately to terminate his own life. It should be noted that no single theory can describe the intricacies of suicide or suicidal ideation, whether such theory is entrenched in any discipline. Also, it is impracticable to conclude that every theory of suicide can be employed successfully to prevent the act of committing suicide. Some of these theories may influence newer ones or may loss credence completely. What remains stable is the growing understanding of reasons for someone taking his or her own life. When this is understood, it will assist in alleviating the untold hardship that suicidal death can cause in a society. A loss of life by untimely death through suicide can impact negatively in any rural society, hence knowing the causes and how this affects rural societies is worth examining.

Rural areas play a cardinal role in the economic prosperity of Nigeria, with over 80% of the food produced coming from rural areas. Given the increasing rate of suicide in Nigeria and also bearing in mind that most of the suicide committed is in the rural areas where most of the residents are engaged in Agriculture, it is imperative that this issue be seriously addressed and if possible nipped at the bud before the situation gets out of hand. This is more so in Delta State as one the State in Nigeria with a very high suicide rate; hence this issue of suicide is now a very topical issue in Nigeria in general and Delta State in particular. The location of rural communities usually makes them exposed to many pressures. As a result, rural communities are liable to change in terms of prosperity, viability and even sustainability. Moreover, Mohanty (2005) asserted that almost all cited causes of current suicide trends are agricultural in nature and mainly in rural areas. Yet, detailed statistics relating to suicide in rural communities, especially as they correlate with agriculture in Delta State is lacking. A comprehensive study of suicide drivers in rural areas of Delta State is particularly not available. Moreover, ascertaining whether the drivers of suicide as reported by Daily Times and other sources mentioned so far is also applicable to rural areas in Delta State is also necessary. Thus investigating the drivers of suicide in the rural communities of Delta State where agriculture predominate, and also ascertaining the effect of suicide on agricultural activities and societal security at large becomes a topical issue that merits examining. This is so because identifying the causes of suicide will enable suicide issue to be addressed seriously and this will curb the drain or loss of manpower in the agricultural sector. The following questions thus arise: What are the socio-economic characteristics of rural households in Delta State, Nigeria? Are there any suicide cases in these rural households? What are rural folks perceived main causes of suicide in these households? By what means do those who committed suicide take their lives? What is rural folks' perception of the effect of suicide on agricultural production, family of the deceased and the community at large? The objectives of the study are therefore to: describe the socio-economic characteristics of the respondents; ascertain the perceived suicide rates in rural households; identify the perceived main causes (or drivers) of suicide in rural communities; ascertain the means of committing suicide; and determine respondents' perception of the effect of suicide on agricultural production and their families. The study tested the following null hypothesis: there is no significant relationship between the socioeconomic characteristics of farm family and possibility of committing suicide (tested using binary logit model).

2 Methodology

2.1 Study area

Delta State was the study area. Delta State was split off from the former Bendel State on August 27th, 1991. Delta State lies between longitudes 5°00 and 6°45'E and lati-

tudes 5°00 and 6°30'N. The State has a total land area of 16,842 km^2. The states sharing common boundaries with Delta State are Edo to the north, Ondo to the northwest, Anambra to the east and Bayelsa and Rivers to the southeast. On its southern flank is 160 km of the coastline of the Bight of Benin. Delta is an oil producing state of Nigeria situated in the area known as the Niger Delta in the South-South Geo-political zone with a population of 4,098,291 (Males: 2,674,306 Females: 2,024,085 (see Federal Republic of Nigeria Official gazette, 2010) The capital city of Delta State, Asaba, is located at the northern part of with an estimated area of 762 km^2,while the city of Warri is the economic nerve of the state and also the most populated city located in the southern part of the state. Agricultural activities are also carried out on a very large scale in Delta State.

2.2 Sampling procedure and sample size

The sampling frame consisted of all rural households in Delta State of Nigeria. Delta State was purposively selected because of its proximity to the researcher and reported cases of suicide in the rural areas. The lists of the rural households were obtained from the state Capital, Asaba. A multi-stage sampling procedure was used in identifying respondents for the study. In Stage 1, three Local Government Areas (LGAs) were randomly selected from each of the three agricultural zones that are in Delta State. Thus a total of nine LGAs were selected for the study. Stage 2 involved the selection of three communities from each of the selected local government area. Twenty seven communities were selected.

In the third Stage, family heads were selected. Ten percent of the family heads in each community were also randomly selected using simple random sampling technique. A total of 358 farmers were selected for the study. The actual numbers of family heads employed were 351 due to the fact that some copies of questionnaires were improperly filled and others were missing. The procedure for sample size selection is presented in Table 1.

2.2.1 Method of data collection

Data were obtained by personal interview with the aid of structured and unstructured interview schedule. Interview was conducted at the home of the respondent in order to review overall condition of the family by enumerators and researcher. For effective collection of data, six well-trained enumerators that can communicate with the respondents were engaged. Secondary data were also obtained from published and unpublished research works, books and academic journals and other relevant documents. Data were collected from folks in the rural communities for 3-year period (2016 – 2018).

2.3 Measurement of variables

The major variables of the study are the socio-economic variables of the family heads, no of deaths either by suicide or otherwise. Age: respondents were asked to state their age in years. Gender: respondents indicated whether they were male or female. Marital Status: This was determined by asking respondents to indicate whether they currently have spouses or not. Educational Level: Respondents were asked to indicate their level of educational attainment from a list of five options that was provided. Farm size: This was measured in hectares.

Table 1: Sample identified to work with

Study area	LGA Selected	Communities Selected	Sample size	Actual sample
Delta South	Burutu	Odimodi, Ogulagha, Yobebe	29	28
	Isoko North	Akiewhe, Oyaro, Otigho	36	35
	Warri South	Ikpisan, Ubeji, Ode-Itsekiri	38	38
Delta Central	Ethiope West	Arherhi, Egbo, Umoro	36	36
	Sapele	Atamua, Egbeku, Ebada	32	32
	Udu	Egini, Ubogu, Owhrode	54	52
Delta North	Aniocha South	Adonte, Ewulu, Nsukwa	43	43
	Ndokwa West	Emu-Obodeti, Ogbeani, Umuseti	48	46
	Ika North East	Owa- Ofie, , Agban, Owa Oyibu	42	41
Total	9 LGA	27 communities	358	351

Family size: This was measured as the number of persons that constitute the family. Membership of association: respondents were asked to indicate yes or no to ascertain if they belonged to any association. Extension contact: respondents indicated yes if they had extension contact and no otherwise. Family income: this was measured in monetary unit (naira). Rate of suicide was determined by dividing the number of deaths by suicide in the area by the total number of all deaths and multiplying the result obtained by 100.

A list of suicide drivers (causes of suicide) as obtained from literature was provided for the respondents and respondents were asked to indicate the ones that cause suicide by ticking either yes or no. Respondents were also allowed to indicate any other cause that they know of. Thereafter frequency counts and percentages were used to determine the major causes of suicide. The list of the causes of suicide provided included: alcohol abuse, smoking, Natural disasters like flooding, high temperatures, mental derangement, physical health deterioration, loss of job, unemployment, strained relationship, financial problem, drug abuse and social isolation (Daily times 2018). Rural folks were asked to indicate their opinion on the methods of committing suicide in their area whether it was done by hanging, use of firearms, poisoning, drug overdoses or any other means. They ticked yes or no depending on their opinions about the means of committing suicide.

The effect of suicide was determined by asking respondents to express their opinions on the effect suicidal death of member of the community is likely to have on the families of those who committed suicide and the entire community at large. Respondents gave a wide range of effects as this question was open-ended and triangulation was also employed to solicit information from the respondents. Frequency counts and percentages were thereafter used to determine the major effects of suicidal deaths.

2.4 Method of data analysis

Data were analysed using descriptive and inferential statistics. Descriptive statistics used included frequency counts, mean, standard deviation and percentages. The logit regression model was used to test the stated hypothesis.

2.5 Model specification

The model which was used to test the hypothesis was the logit regression (also known as the logit analysis). Logit model is a technique for estimating the probability of an event that can take one of two values (yes 1, no = 0). The model assumes that the dependent variable follows a logistic distribution.

In this study, binary logit regression was employed. Binomial (or binary) logit regression is a form of regression which is used when the dependent variable (in this study the probability of an individual committing suicide) is a dichotomy and the independent variables are of any type. The binary logit model assumes that the dependent variable follows a logit distribution; the equation is simply specified as:

$$Y_i = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_7X_7 \; + +b_6X_6et \quad (1)$$

or

$$Y_{i=F(Zi)} = F[b_o + \sum^{n}_{i=1} b_iX_i] = [\frac{1}{1+e-(bo+\sum biXi)}] \quad (2)$$

where

Y_i = (1, probability of an individual i committing suicide; 0, otherwise)

b_0 = Constant

bi = b_1,b_2,b_3...b_7 = respective coefficients

X_1=Gender (male = 1; 0 otherwise)

X_2=Age (chronological age measured in years)

X_3=Marital status (With spouse = 1, 0, otherwise

X_4= level of education (no of years spent in schooling)

X_5= Farm size (measured in hectares)

X_6= Family size (no of people in a family)

X_7= Family income (measured monetary terms, in naira)

X_8= membership of association (membership = 1; 0, otherwise)

X_9= Extension contact (contact = 1; 0, otherwise)

The logistic regression model is the natural log of the odds that Y equals one of the categories:

$$Ln(p/1\text{-}p)=b_0 + b_1X_1 + b_2X_2 + \ldots b_9X_9 \quad (3)$$

Where X_1 _ X_9 are as defined previously.

A link function is simply a function of the mean of the response variable Y that we use as the response instead of y itself. All means is when Y is categorical, the logit of Y was used as the response in the regression equation instead of just Y.

3 Results and discussion

3.1 Socio-economic characteristics of the respondents (rural folks)

The socioeconomic characteristics of respondents are presented in Table 2. The result in Table 2 shows that majority (88.89%) of the rural folks were males. The modal age group was the class above 60 years whereas the mean age was 55 years. This implies that most family heads were adults. Most of the respondents (82.34%) were married and living with their spouses implying that marriage is well cherished in rural communities. This is not surprising as most rural communities regard married people as responsible and mature. In fact, in rural areas of Delta State, people looked at those who are not married as miscreants or irresponsible people.

Majority (56.41%) of the respondents had secondary education, while 14.82% had primary education and 17.09% had tertiary education; only a minute 11.68% had no formal education. This means the literacy level of the sampled communities is high. Ogunmefun and Achike (2015) are of the opinion that education is a vital variable that can free one from ignorance. This can help an individual to see suicide as improper. Moreover, with their education rural folks can help in enlightening members of the community to avoid suicide.

The respondents had average farm size of 12 hectares and average family members of 18 persons. The mean farm size is thus small seeing that this is for a whole family. If the mean farm size is divided by the family members, each member will get less than 1 hectare. The mean annual income of about 180,000 naira implies that poverty prevails in rural communities of Delta State. This is a dire situation as this small income puts the family in a precarious state; poor earnings are likely to fuel misery and hopelessness.

Nearly all the respondents (99.43%) belonged to one form of association or the other. The implication of the respondents belonging to association is that for the rural dwellers, this may reduce loneliness among them and help to ease tension. Farmers groups according to Ofuoku et al. (2008), help rural dwellers access to credit, acquire knowledge, ideas, exchange information, and gain access to extension services. This may prevent isolation and hopelessness among rural folks.

The extension contact among the respondents is very poor as about 84.33% of them had no contact with extension agent for the entire year. Only about 15.67% of the respondents had contact with extension agents. This implies that rural folks may not be exposed adequately to information about decent living since the extension is a major source of information to rural dwellers.

3.2 Rural folks' perceived suicide rates in rural Communities Delta State, Nigeria

The rate of suicide among rural communities is presented in Table 3. The results presented show that the suicide rates for the period under study was highest in Delta North (0.9%), followed by Delta South (0.76%), and was least in Delta Central (0.56%). Of the 1353 reported deaths by respondents in the period covered, 10 were due to suicide. This represents about 0.74% of all deaths recorded in the period. However, attempted suicide cases were much higher. This is a disturbing situation as those who actually committed suicide are known to have attempted suicide in the past. The high proportion of those who attempted suicide clearly shows that there are potential suicidal deaths, which if not presently addressed adequately could lead to increase in suicidal death in the future.

3.3 Folks' perception of suicide drivers in rural communities

Table 4 presents rural folks' perception of major suicide drivers in rural communities. The major drivers identified are: drunkenness or alcohol abuse (92.3%), smoking (85.75%), Natural disasters like flooding, high temperatures (95.16%), mental derangement (99.15), physical health deterioration (59.26), loss of job (51.28%), unemployment (56.70), strained relationship (50.71%), financial problem (44.44%), drug abuse (37.89%) and social isolation (15.95%). Booth et al. (2000) opined that physical health problem, work problem including recent loss of job, relationship problem including separation, family problem, recent bereavement, and financial problems as some suicide drivers. Suicide and suicide attempts often occur in people with mental disorders such as schizophrenia, depression, and drug and alcohol abuse, financial difficulties or strained relationship; suicide attempts are often fuelled by quest for relief from guilt, shame, rejection, loneliness or loss (O'Connor and Sheehy 2000; Hawton and van Heeringen 2009). The result was also corroborated by the report in The Daily Times (2018) which identified 13 causes of suicide in Nigeria among which are mental illness, unemployment, depression, natural disaster, financial stress and social isolation.

Table 2: Socioeconomic characteristics of respondents

Variable	Frequency (351)	Percentage	Mean/mode
Gender			
Male	312	88.89	Male
female	39	11.11	
Age			
30 – 40	35	9.97	
41 – 50	44	12.54	
51 – 60	105	29.91	55 years
Above 60	167	47.58	
Marital Status			
Married	289	82.34	Married
No spouse	62	17.66	
Education attainment			
No formal	41	11.68	
Primary	52	14.82	
Secondary	198	56.41	Secondary
Tertiary	60	17.09	
Farm size (hectare)			
1 – 5	76	21.65	
6 – 10	53	15.10	
11 – 15	79	22.51	12 hectares
Above 15	143	40.74	
Family size (number)			
< 10	64	18.23	
11 – 20	155	44.16	18
> 20	132	37.61	
Family income (naira)			
< 100000	108	30.77	
100000 – 200000	199	56.70	180,000
> 200000	44	12.54	
Membership of Asso.			
Yes	349	99.43	Yes
No	2	0.57	
Extension contact			
Yes	55	15.67	
No	296	84.33	No

3.4 Rural folks' perception of means of committing suicide

The respondents' perceived means of committing suicide is presented in Table 5. Results showed that hanging (99.72%), use of firearms (94.87%), poisoning (62.96%), and drug overdoses (31.91%) were the principal means identified by respondents used by suicidal victims in killing themselves. This result agrees with other findings of many scholars the world over who asserted that

Table 3: Suicide rates in rural households (2016 - 2018)

Agricultural Zone	Reported Death	Suicidal Death	Attempted suicide	Percentage of suicidal death
Delta South	395	3	55	0.76
Delta Central	512	3	61	0.56
Delta North	446	4	98	0.90
Grand Total	1353	10	214	0.74

Table 4: Causes of suicide in rural communities

Suicide driver	Frequency	Percentage
Alcohol abuse	324	92.31
Smoking	301	85.75
Natural disasters	334	95.16
Mental derangement	348	99.15
Physical health issue	208	59.26
Unemployment	199	56.70
Loss of job	180	51.28
Relationship problems	178	50.71
Financial problem	156	44.44
Drug abuse	133	37.89
Social isolation	56	15.95

Table 5: Perception of methods of committing suicide

Methods of suicide	Frequency (351)	Percentage (100)
Hanging	350	99.72
Fire arm	333	94.87
Drowning	0	0.00
Cutting	0	0.00
Poisoning	221	62.96
Drug overdoses	112	31.91

hanging, firearms, and poisoning, are the three most common methods of suicide. This finding is corroborated by other findings in different parts of the world. Hanging is a prevalent method of suicide in several countries. (Center for Disease Control and Prevention 2005; Khalid 2001; Kanchan et al. 2009; Sarma and Kola 2010; Solarino et al. 2007; Large and Nielssen 2007; Gac 2006; Khan and Hyder 2006; Gunnell et al. 2011). Drug overdoses (31.91%) was also used by some to commit suicide

3.5 Perceived effects of suicidal death on rural communities and agriculture

Suicide as a societal evil creates severe personal, social and economic consequences within family and even in the community where the suicide is committed. Thus suicidal death costs to families and also the social and psychological costs to individuals, families and communities are immeasurable. The effects of suicidal death on family members, rural communities and agricultural production as perceived by respondents and presented in Table 6 included depression including illness among family members (98.29%), feeling of hopelessness among family members (86.04%), loss of farm income (82.34%), reduction in farm output (82.34), indebtedness of bereaved/family members (82.34%), Children drop from school (75.50%), engagement of deceased children in child labour (75.50%), households dislocation and dissolution (71.79%), desecration of agricultural land, Development of family conflict (69.52%), Loss of interest in work (57.55%) and tension in communities affected. Several scholars supported this finding. This finding is supported by WHO (2018) which observed that suicidal death is a tragedy that affects families, communities and entire countries, leaving behind long-lasting effects. Jacob (2006) asserted that suicide is inimical to the development of the family and retard social and economic development in a society. Kale et al. (2014) observed that suicide leads to family disturbance and creates psychological problems. According to them, such effects included Children of the victims had to leave the school and went for wage earning, Households dislocation and dissolution (particularly victims' wife), Impediments of marriages of family members, scattering of Children to live with relatives, Development of anxiety and stress which leads to mental instability, heath deterioration of family members, Developed a sense of hopelessness, Lowered the income of family, Loss of interest in work and creation of conflict in family. The findings of O'Dea and Tucker (2005) portrayed that suicidal death costs the society a lot. They categorized such costs broadly as follows: economic costs – services used in cases of

suicide and attempted suicide; economic costs – lost production from exit or absence from the workforce; non-economic costs – lost years of disability-free life; and grief of family and others. Thus suicidal death can pose a serious threat to not only agricultural production, but the survival of the rural society as well.

3.6 Relationship between suicidal death and socioeconomic variables

The logistic regression results of the respondents (folks) perceived socio-economic determinants of suicide in the studied area are presented in Table 7. The Nagelkerke r^2 of 0.56 suggests that 56% of suicidal cases can be explained by the socioeconomic variables. The remaining 44% was explained by other variables not entered in the model. The significant socioeconomic variables were: marital status, education, family size family income, affiliation to an organization or association and extension contact. These variables were significant at $p < 0.05$. Gender, age and farm sizes were found not to be significant. Adewuya et al. (2016) observed that marital status of respondent strongly correlate with suicide. They observed that people living with their spouses are less likely to commit suicide compared to those without spouses. According to Hawton and van Heeringen (2009), suicide occurs in all ages and backgrounds, so age was insignificant. Koenig (2009) found that individuals who belonged to an association especially religious organization were less depressed and that depressed patients who engaged in religious activities were more likely to overcome their depressive symptoms than depressed patients who did not engage in these activities. Koenig (2009) also discovered also that depressed individuals were less likely to have affiliations, to be religious, and to pray or read scriptures.

4 Conclusion and recommendations

Evidence from the study indicates that suicidal death is quite low in rural households of Delta State. However, with the present economic hardship and several suicide drivers as attested to by the respondents, it is feared that suicidal death is likely to escalate in the future with the dire consequences on rural communities and agricultural production. The desecration of the land by those who committed suicide will invariably lead to the abandonment of agricultural activities for a while. Moreover, families of suicide victims abandoned agricultural activities for a long time. All these will lead to decline in agricultural production. This being the case suicide is a societal evil that must be tackled. The prevention of suicide in rural communities is not the singular responsibility of health services or of mental health services. All hands must be on deck to curb this societal menace: The governments, private sector, religion organizations, health and welfare institutions, rural communities, and individuals all have vital role to play. Therefore, the following recommendations are suggested:

Table 6: Perceived effects of suicide on agriculture and rural communities

Effect	Frequency	Percentage
Depression including illness among family members	345	98.29
Feeling of hopelessness among family members	302	86.04
Loss of farm income	289	82.34
Reduction in farm output	289	82.34
Indebtedness of bereaved/ family members	271	77.21
Children drop from school	265	75.50
Engagement of deceased children in child labour	265	75.50
Households dislocation and dissolution	252	71.79
Desecration of communal agricultural land	244	69.52
Development of family conflict	244	69.52
Loss of interest in work	202	57.55
Tension in affected communities	200	56.98

Table 7: Rural folks' perception of socio-economic variables associated with suicide

Variable	coefficient	Standard error	P – value	Odd ratio
Gender	-0.056	0.451	0.744	1.880
Age	-0.420	0.556	0.464	3.303
Marital status	-0.115	0.781	0.040**	1.994
Education	-0.311	0.320	0.021**	2.799
Farm size	2.440	0.982	0.425	0.438
Family size	0.055	0.202	0.049**	0.421
Family income	0.002	0.001	0.037**	1.111
Association member	0.668	0.233	0.033**	0.322
Extension contact	0.244	0.488	0.048**	1.001
Constant	-7.146	1.732	0.004	0.022
Model chi-square	6.111			
Sample size	351			

Chi-square= 6.111, d.f. = 9, Sig. = 0.722, -2 Log likelihood = 211.661, Cox & Snell r^2 = 0.49; Nagelkerke r^2 = 0.56; overall percentage of right prediction = 91%; sample size = 351
Family heads. **significant at p<0.05

Health extension professionals and experts should establish regular source of health care and seek help for mood disorders, substance abuse and or suicidal tendencies. Medical and training institutions should provide adequate, prompt and accessible treatment and preventive services and support for health professionals with mental and substance use disorders and suicidal tendency. Assistance should be provided to farmers, their families and rural residents experiencing significant stress and challenges as this tend to reduce suicidal thoughts.

There is also a need for advocacy in order to sensitize rural populace that to commit suicide is morally wrong. Government should create employment opportunities or enabling environment to create jobs so that the youth could be gainfully employed. This becomes crucial because there is a popular saying that the idle mind is the Devil's workshop. It is hoped that when the government institute the right policies in collaboration with all stakeholder, the menace of suicide – causing societal and agricultural insecurities – will be tackled.

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