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## Interdisciplinary

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## Prevalence of Child Labor among Elementary School Students from 5<sup>th</sup> to 9<sup>th</sup> Grade in al Mukalla

By Abdullah Salem Bin Ghouth, Mohammed Ameen Bin Taleb, Ahmed AbdulsalamHadi, Majid Mubarek Algarzi, Ahmed Abdullah Bahartah, Emad Hamdi Bin Taleb, Khaled Ahmed Ba-dokhon, Mosaed Mabkhoot Alsayari, Mossab Munir Khader, Khalid mohammed Nasser, Saeed Ahmed Bajunaid, Khalid Mahamoud Guure, Ali Abdullah Al-bani, Ahmed Salim Al katherei, Ameer Amer Alamery, Ibrahim Alamoudy, Ali Omer Bin EAYfan, Khaled Masoud Shoaib, Fdhel Mohammed Dwihan & Qasem Mohammed Al jabery

*Hadramout University College of Medicine*

**Abstract- Purpose:** To determined the prevalence of the child labor among male primary school students in Mukalla district in Yemen.

**Methodology:** A cross-sectional study was designed to collect data from 5<sup>th</sup> grade to 9<sup>th</sup> grade primary school students in Mukalla city during the year 2015/2016.

**Results:** The study showed a high prevalence of child labor among school children in Mukalla city (54.2%) where the common reason of child labor is that children have the interest to help their families (69.9%). About (35%) of students reported that they exposed to different kinds of abuse in their owner's place. Child labor affects negatively on their school's achievements and about 20.7% of them thinking to leave school. Educational level of parents did not indicate significant association with child labor (p-value 0.11)

**Keywords:** child, labor, mukalla.

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**Conclusion:** High prevalence of child labor may affect on their school achievements and being a predisposing factor to school drop-out.

**Keywords:** *child, labor, mukalla.*

## I. INTRODUCTION

The term “child labor” is often defined as work that deprives children of their childhood, their potential, and their dignity, and that is harmful to physical and mental development. (1).

Interferes with their schooling by: depriving them of the opportunity to attend school; obliging them to leave school prematurely or requiring them to attempt to combine school attendance with excessively long and heavy work. (1).

More than one-fourth of the world's people live in extreme poverty, according to 2005 U.N. statistics. The intensified poverty in parts of Africa, Asia, and Latin America causes many children to become child laborers. (2)

Poverty and its related problems are some of the causes of child labor in Ethiopia. The 2001 survey

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reported that about 90 per cent of the children working in productive activities replied that they were working to either supplement family income (23.8 %) or to improve it (66%). (3).

However, research has recently shown that mothers who only went to primary or middle school don't generate much impact on their children, whereas those who have completed high school are much more committed to sending their kids to school. Quite understandably, the more you study, the more you gain the skills you need to climb up the social ladder and get better job. (4).

Long hours of work on a regular basis can harm children's social and educational development, U.S. adolescents who work more than 20 hours per week have reported more problem behaviors (e.g., aggression, misconduct, substance use), and sleep deprivation and related problems (falling asleep in school). They are more likely to leave the school. (5).

Growth deficiency is prevalent among working children, who tend to be shorter and lighter than other children; these deficiencies also impact on their adult life. (6).

Long-term health problems, such as respiratory disease, asbestosis and a variety of cancers, are common in countries where children are forced to work with dangerous chemicals. (6).

Exhaustion and malnutrition are a result of underdeveloped children performing heavy manual labor, working long hours in unbearable conditions and not earning enough to feed themselves adequately. (6). The International Labor Organization estimates that 215 million children between the ages of 5 and 17 currently work under conditions that are considered illegal, hazardous, or extremely exploitative. (7) Of an estimated 215 million child laborers around the globe: approximately 114 million (53%) are in Asia and the Pacific; 14 million (7%) live in Latin America; and 65 million (30%) live in sub-Saharan Africa (7).

In 2010, approximately 1.6 million children were actively working in Egypt, according to a comprehensive survey conducted by the Central Agency for Public

Mobilization and Statistics (CAPMAS) and the International Labor Organization (ILO). (8).

In 2000 The phenomenon of child labor in Yemen touched the life of more than 400 thousand who belong to the age group of 14-16 years with a male percentage of 48.6%, and a female percentage 51.4%. Studied proved that more than 97% of child workers are children of illiterate parents.(9) In Hadramout and especially in Mukalla city; this issue was not yet addressed and may be neglected. This study was designed to explore in-depth about this sensitive and hidden problem in Mukalla city (capital of Hadramout province at eastern Yemen) focusing on elementary school children, and to address its impact on schooling drop-out and also form the child rights perspective. The specific objective is to determine the prevalence of child

*Sample size calculation:*

The sample size was being calculated by using the following formula:

$$\text{Sample size (N)} = \frac{PQ(Z)^2}{(D)^2}$$

$p$  = proportion of the characteristic in the population. ( $p = 30\%$ )

$q = 1 - p$  ( $1 - 0.3 = 0.7$ )

$d$  = precision or error allowable. ( $d = 5\%$ )

$z = 1.96$  correspondence with 95% confidence level

$$N = \frac{3.841 \times 0.3 \times 0.7}{0.0025} \quad \frac{3.841 \times 0.21}{0.0025} \quad \frac{0.80661}{0.0025}$$

The minimum sample size required was 322 students, but actually we enrolled 330 students.

*Sampling Method:* A two-stage sampling was conducted:

*In the First stage:* the total number of governmental elementary schools in Al-Mukalla district were determined then three governmental elementary schools from the total governmental elementary schools were randomly selected by lottery method. The selected 3 governmental primary schools were: 14 October school, Al Gmaher school and Amar bin Yaser.

*In the Second stage:* The sample size (332 students) were distributed proportionally among the randomly selected 3 governmental elementary schools according to the total number of students in each governmental elementary school Then in each governmental elementary school the sample was distributed proportionally among each level according to the total number of students in each level. Students in every level were selected randomly by a lottery method.

*Data collection methods & tools:* The data was collected by self-administered questionnaire which included the following:

labor among school children in Mukalla and to identify the reasons behind the child labor and its consequences on the health of the child.

## II. METHODOLOGY

*Study design:* Across-sectional study was carried out by group (2) fourth year medical students of Hadhramout University in 2015-2016 to determine the prevalence of child labor in primary school students from 5<sup>th</sup> grade to 9<sup>th</sup> grade in AL-Mukalla city during 2015-2016.

*Study area:* The study was conducted in governmental elementary school students in Mukalla city, which is the capital of Hadhramaut governorate in Yemen.

*Study population:* all students in the governmental elementary schools in Al- Mukalla city.

1. Personal data. (age, sex, school, parents job and educational level).
2. Prevalence of child labor.
3. Reasons of child labor.
4. Education level of the parents.
5. The consequences of child labor on child health

The pre-testing of the questionnaire of the study was conducted on 20 students of October primary school at 10/5/2016. The sample of students used in this pre-test was not included in the study. The questionnaire was pre-tested to determine the age of students, question sequence, and the identification of difficult words. The questionnaire was initially constructed in the English language, which was later translated into Arabic language. During the pre-test a few difficult words in some questions were found and these words were changed into simple local words. Also extra necessary questions were added. These problems were discussed with the members of the research team and the questionnaire was modified accordingly.

*Statistics:* Data collected was organized and analyzed using descriptive statistics methods (frequency, percentages, range, mean and standard deviation),



computer programs applied are word and excel for the construction of tables.

*Ethical Considerations:* An approval of this study was obtained from Hadhramout University College of Medicine Department of Community Medicine. An institutional endorsement was obtained from the office of the Ministry of Education in Mukalla. Objectives of the study was clarify for the participant and verbal consent were obtained from them.

### III. RESULTS

A total of 330 students in elementary schools of Mukalla were enrolled in the study. The mean age of students are 14.6 years (SD 1.6 years) with a range from 11 to 18 years.

The study showed a high prevalence of child labor among school children in Mukalla city (179/330, 54.2%) where most of them (73%) were working at night after the school time. (Table 1).

Although (57%) of students working in a place where the owners are relative to them but they complain of at least one type of abuse in their work (35.2%) and the work is a hard duty (58.1%) (Table 1).

The Working students feel satisfied with this situation as (54.2%) reported that the working environment is clean, and the given salary is sufficient for them (57%), and their employer reward them (53.1%) (Table 1) while the main reason of child labor is that children have the interest to help their families (69.9%).

Child labor affects negatively on their school's achievements (63.4%) and about (20.7%) of them thinking to leave school while (79.5%) thinking continues in their work regardless of their schooling achievement. (Table 2). Educational level of parents may have a role in deciding child labor, but in this study, it has not ignificant association with child labor (p-value 0.11).

Child labor is not free from health consequences on the working children as (40.2%) of the studied working children were injured due to their work and (31.3%) of them admitted to hospital due to work-related problems. Psychologically, most of the studied working children feel fear (53.6%), guilt (16.8%) and depression (29.6%) (Table 3).

*Table 1:* Distribution of the working students by working characteristics, Mukalla, 2015/2016:-

| Working Characteristics                    | No. of students (N=179) | %     |
|--|-------------------------|-------|
| Working time                               |                         |       |
| At night                                   | 131                     | 73.2% |
| On the day                                 | 48                      | 26.8% |
| Work-load                                  |                         |       |
| Comfortable                                | 57                      | 41.9% |
| Hard work                                  | 104                     | 58.1% |
| Nature of the labor                        |                         |       |
| Fixed in place                             | 101                     | 56.4% |
| Mobile                                     | 59                      | 33%   |
| Others                                     | 19                      | 10.6% |
| The working environment                    |                         |       |
| Hygiene                                    |                         |       |
| Clean                                      | 97                      | 54.2% |
| Accepted                                   | 73                      | 40.8% |
| Bad  | 9                       | 5%    |
| consanguinity between child and work owner |                         |       |
| Relative                                   | 102                     | 57%   |
| Not relative                               | 77                      | 43%   |
| Salary                                     |                         |       |
| Sufficient                                 | 102                     | 57%   |
| Not-sufficient                             | 77                      | 43%   |
| Owner rewarding                            |                         |       |
| Yes  | 95                      | 53.1% |
| No   | 84                      | 46.9% |
| problems with place owner                  |                         |       |
| Yes  | 138                     | 77.1% |
| No   | 41                      | 22.9% |
| Child abuse from place owner               |                         |       |
| Yes  | 63                      | 35.2% |
| No   | 116                     | 64.8% |

**Table 2:** The impact of child labor on schooling achievements among working school children in Mukalla

| Student achievement   | No of working children<br>N=179 | %     |
|---|---------------------------------|-------|
| The child failing in their study  |                                 |       |
| Yes   | 114                             | 63.4% |
| No  | 65                              | 36.6% |
| Child have the interest to leave their school   |                                 |       |
| Yes   | 37                              | 20.7% |
| No  | 142                             | 79.3% |
| Child have the interest to continue working regardless to their schooling achievement |                                 |       |
| Yes   | 128                             | 79.5% |
| No  | 51                              | 20.5% |

**Table 3:** The health consequences of child labour among the working school children in Mukalla, 2015/2016

| Health consequences               | No of working children<br>N=179 | %     |
|-----------------------------------|---------------------------------|-------|
| Injury                            |                                 |       |
| Work-related injury               | 72                              | 40.2% |
| No work-related injury            | 107                             | 59.8% |
| Work related-hospitalization      |                                 |       |
| Admitted to Hospital              | 56                              | 31.3% |
| Not admitted to hospital          | 123                             | 68.7% |
| Work-related psychological effect |                                 |       |
| Fear                              | 96                              | 53.6% |
| Guilt                             | 30                              | 16.8% |
| Depression                        | 53                              | 29.6% |

#### IV. DISCUSSION

The high prevalence of child labor is reported in this study (54.2%), child labor is common in developing countries like Nigeria (64.5%) due to poverty.<sup>10</sup> Similar motivation like their interest to help their family (69.9%) was also reported in Ethiopia (46.7%).<sup>11</sup>

Families may encourage their children to work due to the poverty status and in this study no significant association exist between child labor and educational level of their parents ( $p$ -value=0.11), the situation is similar to Ethiopia<sup>11</sup>. The working environment is more or less comfortable to the studied students, but most of them are exposed to problems in the place of the work (77.1%) or being abused by their employer (35.2%). The same finding was reported in Ghana (40% abused)<sup>4,12</sup> Effect of child labor in their schooling children is in a negative direction; about (63.7%) of students have failed in their school due to work and (20%) of students wants to stop studying due to work, similar findings were reported in India.<sup>(4)</sup>

Health-related problems are reported in this study as 40.2% of students were injured at their place in contrast to Ghana (28.6%), this may be due to the nature of work and lack of regulations<sup>(12)</sup>.

#### V. CONCLUSION

High prevalence of child labor may affect on their school achievements and be a predisposing factor

drop-out. Working students are prone to health and psychological problems. Poverty and lack of legal protection of children are main constrains to save the child rights, and to protect them from abuse.

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## Impact Assessment of Non-Governmental Organization Development at Fugar, Nigeria

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**Abstract-** Over the years, it has been observed that Non- Governmental Organizations (NGOs) has increased their development profiles at local, national and international levels. NGOs have come to be recognized as important actors on the landscape of development on health, education, provision of water, construction of school buildings in Nigeria. The major aim of this study is to assess the impact of Non-Governmental Organization in community development in community and some of the objectives of the paper are to assess the socio-economic and infrastructural development impact Non- Governmental organization has made in rural communities and identifies the major areas Non-Governmental organization has really impacted on rural communities. Taking inventory of the impacts of NGOs in other countries, the 'Tanzania Education Network has embarked on over 5 educational programs which have benefited close to 100,000 students and more than 850 teachers to date. These include: The Madrasa Pre-School program, the School Improvement Programmes, the International Academic Partnership, the Aga Khan Education Service Tanzania and the Coastal Rural Support Program. While in Nigeria a lot of projects like health, education and infrastructure were executed by NGOs in this regard, more is expected to be put in place by the growing number of NGOs in Nigeria, for the overall wellbeing of the society.

**Keywords:** non-governmental organizations, community development, programmes, collaboration, nigeria.

**GJHSS-H Classification:** FOR Code: FOR Code: 160702



*Strictly as per the compliance and regulations of:*



# Impact Assessment of Non-Governmental Organization Development at Fugar, Nigeria

Edigan B.I <sup>α</sup>, Ikhanoba Aleakhue <sup>σ</sup> & Shaibu Segiru <sup>ρ</sup>

**Abstract-** Over the years, it has been observed that Non-Governmental Organizations (NGOs) has increased their development profiles at local, national and international levels. NGOs have come to be recognized as important actors on the landscape of development on health, education, provision of water, construction of school buildings in Nigeria. The major aim of this study is to assess the impact of Non-Governmental Organization in community development in community and some of the objectives of the paper are to assess the socio-economic and infrastructural development impact Non-Governmental organization has made in rural communities and identifies the major areas Non-Governmental organization has really impacted on rural communities. Taking inventory of the impacts of NGOs in other countries, the 'Tanzania Education Network has embarked on over 5 educational programs which have benefited close to 100,000 students and more than 850 teachers to date. These include: The Madrasa Pre-School program, the School Improvement Programmes, the International Academic Partnership, the Aga Khan Education Service Tanzania and the Coastal Rural Support Program. While in Nigeria a lot of projects like health, education and infrastructure were executed by NGOs in this regard, more is expected to be put in place by the growing number of NGOs in Nigeria, for the overall wellbeing of the society. However, the non-governmental organizations have some challenges which have limited their performances and also impeded their growth. Based on the findings, it has been recommended that Government should embark on aggressive development of the rural areas. Similarly, NGOs at the various levels should partner and work in collaboration with other private agencies. These can be done through an effective collaborative programmes and strategies with an effective and efficient leadership structure and Non-Governmental Organization should ensure that their programmes are not politicized. Allocation of projects/programmes should be influenced by felt needs of rural communities.

**Keywords:** *non-governmental organizations, community development, programmes, collaboration, nigeria.*

## 1. INTRODUCTION

Community development implies the provision of basic amenities such as roads, electricity, pipe borne water, health care facilities, schools including human capacity building and other necessities of life pertaining to man's general wellbeing. There is global realization of recent that, contemporary

government can no longer single handedly meet most communities' needs within their jurisdiction in terms of service provision. This notion has triggered off the urgent desire for synergies with development partners while enlisting community participation to actualize the spread of development to the rural areas (Colderin, 2001). According to Mulgunji (1990), the problem of rural development cannot be viewed as a narrow technical problem of increasing output, but that of the institutions to mobilize and induce members of the rural society to greater productivity, to help them overcome the constraints in the way of utilizing available resources, and to enable them distribute the results of their efforts to develop the rural areas. Non-governmental organizations (NGOs) are non-profit creation, self-governing group outside the domain of government in the areas of formation, funding, management, and the process and procedures in which their objectives are set, reflect a conscious effort towards the cultural, socio-economic and political transformation of all facets of the society (Eni, 2005, Angba, 2008, Omofunmwan and Odia 2009).

Studies have shown that, developmental activities of most NGOs usually focus on nature conservation, skill acquisition, economic empowerment, disease control and management, literacy schemes, capacity building, amenities provision, conflict resolution, charity, and peace promotion. For instance, in South Korea, (Eni, 2005) reported that an environmental conservation association provided in service training programme for administrators and managers in public and private sectors and in Kenya, the Mazingira Institute (NGOs) spear headed tree planting campaign through sensitization of pupils in public schools. A study by Adebayo (1997) revealed that most NGOs in Nigeria focus on development related issues which aptly indicate a positive drive to stamp out poverty plaguing the Nigerian citizenry at different levels.

Rural development is a veritable tool for fighting poverty and achieving economic prosperity at the grassroots level (Nwachukwu and Ezech, 2007). As an integral part of the overall national development, rural development is given prominent attention in development circles because dominant proportion of the population in most developing countries including Nigeria, live and derive their livelihood in rural areas. Also scholars in economic and broader social science literature have paid special attention to issues of

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agricultural and rural development, and their interaction with industrial and urban development (International Development Research Centre - IDRC, 2004). In most developing countries, the public sector plays a dominant role in the provision of agricultural and rural development services. However, it has been observed that government alone cannot provide resources for rural development, because of the dwindling national resources and ever increasing competing needs. Besides, the public sector is being criticized as outdated, top-down, paternalistic, inflexible, subject to bureaucratic inefficiencies and thus unable to cope with the dynamic demands of rural populace (Rivera et al., 2000). This has paved way for an enhanced and more extensive civil society involvement in activities previously carried out by the public sector, such as delivering social services, promoting grassroots development, and preventing environmental degradation. It has also resulted in upsurge establishment of NGOs and Civil Society Organizations (CSOs) with increased capacity to engage people at the grassroots level.

Also, in Nigeria there has been increasing involvement of NGOs in rural development activities. However, in more recent times, it has been observed that certain factors limit their performance in contributing to rural development. Farinde and Adisa (2005) reported that the constraints facing NGOs in Nigeria ranges from poor collaboration with government agencies, political instability and strong affiliation to over dependence on donor partners. Traditionally, most donor organizations work only with NGOs with a legal status and which are able to produce project proposals, to plan properly, and to handle budget administration and produce financial and technical reports regularly. Unfortunately, most grass-roots NGOs in developing countries do not comply with these requirements and therefore cannot benefit from donor funds.

In Nigeria, the network of NGOs is on the increase since the 1980s; and in recent decades, NGOs are networking with national and international agencies, with the aim of meeting national economic empowerment development strategy (NEEDS) and the millennium development goals (MDGs) by 2015. Specifically, NGOs in Nigeria contribute to national development in the areas of democracy and good governance, poverty alleviation, women empowerment, primary healthcare, STDs/AIDS and other health related matters, education and functional literacy .the development of the girl child, environment, conflict resolution, drug abuse and human rights (Akpanudoedehe, 2006). Despite government and NGOs efforts, human development index in the Nigeria especially in rural areas is far below countries like Kenya, Ghana and South Africa (UNDP, 2008: Agba, Ushie, Bassey & Agba, 2009). This may be because over 15 percent of total overseas development aid channel through NGOs are notoriously implemented

(World Bank, 2001) or that NGOs are not sensitive to the felt needs of Nigerians.

## II. RESEARCH METHODOLOGY

Research methodology is the various methods and techniques used in gathering research information. For any research to be meaningful data must be collected and analyzed. Research result can only be known if data collected are analyzed. Data on the other hand are facts relating to an element that is subject of study. Oniawu (2008). The research was carried out in the Fugar community. It covered six quarters. Data was obtained from people through open ended and face to face interviews with the respondents. In order to investigate how they view their plight and what they think can be the best solution to their vulnerability. Structured and semi-structured interviews were used for obtaining information. Household interviews were done using questionnaires.

## III. SOURCES OF DATA COLLECTION

Basically, there are two types of instrument of data collection; they are Primary and Secondary Methods of data collection. The primary method of data collection involved the use of interview and questionnaire, while the secondary method involves the use of published materials and unpublished materials such as textbook, newspaper, magazine e.t.c. For the purpose of this research, primary and secondary methods of data collection were used. To ensure effective data collection, the study area was subdivided into five quarters they are: (i) Iviarua Quarte r (ii)Iviokhile Quarters (iii) Ivinone Quarters (iv)Iviavia Quarters (v) Iviadachi.

### a) Survey Method

The information contained in questionnaire falls into three categories and they are discussed exhaustively such are:

- i. Personal data
- ii. Socio-economic Survey
- iii. Infrastructural Survey

*Personal Data:* The personal data survey which was contained in the Questionnaire displaced information which includes: Gender, Age, Marital Status, number of children and educational background of the respondent.

*Infrastructural Survey:* These are information relating to the existing social amenities and infrastructural facilities provided for the community either by Government or Non-Governmental Organization. It also give attention to social amenities the community lacks, the sufficient ones and the ones that is not enough to accommodate the need gap of the inhabitant of the area.

*Socio-Economic Survey:* This is a kind of survey that is conducted to gather information relating to the economic activities of the people in the study area. For

example; Farming, Trading, Civil servant, Artisan, public servant e.t.c.

#### b) Sampling procedure

The term sample may simply be defined as a representative proportion of the population of the study that observed, which enable the researcher to make inferences about the population. The systematic approach to selecting sample from a population is known as sampling. While the total subjects or elements from which the sample is selected is known as population. The individual items or subjects that make up the population are known as element. These elements can either be animal, human being, houses, events equipment e.t.c. depending of the problem under study. For the purpose of this research random sampling techniques will be utilized in selecting the sample.

Random Sampling Techniques: In research, these techniques are sampling methods were all the elements constitute the study populations have a chance of being selected in the sample. As a result of the size community and to ensure adequate information is gathered and too much time not to be over spent, the random sampling method was employed in selecting random sampling which every sixth house was selected and interviewed with the aid of questionnaire and oral interview.

## IV. RESULTS AND DISCUSSION

This section of the research exercise is very important. At this stage, data collected must be transformed from its raw state to relevant information which will yield meaning to the readers. Information gathered through the administration of questionnaires and oral interview in the study area (Fugar). These data are analyzed and interpreted with various statistical tools such as table and charts for easy comprehension and by which findings and recommendation will be justified in the next chapter of the research endeavor. In order to present explicit and logical information about the research problem that will form the basis for decision making. The research highlighted some of the relevant issues as contained in the questionnaire. Out of the 300 questionnaire distributed 200 were received which then represent 100% the numbers administered. Below is the order of data presented and analyzed in the study area.

#### a) Administration of questionnaires

The survey analysis in Table 1 shows how the questionnaires distributed were shared in the five quarters in Fugar. 30 % of the questionnaire which is 60 numbers was distributed to respondent in Iviavhia quarters because it has the highest numbers due to the fact that a lot of willing respondent was found in the zone. Also, 22.5 % of the questionnaire which is 45 numbers was distributed to respondent in Iviarua, 17.5

% of the questionnaire which is 35 numbers was distributed to respondent in Iviadachi quarter 15% of the questionnaire which is 30 numbers was distributed to respondent in Iviokhile quarter while 15% of the questionnaire which is also 30 was distributed in Ivinone quarters. The questionnaire were distributed using the random sampling method, where by every 6th house were interviewed with the aid of questionnaire and interview.

*Table 1:* Quarters distribution and respondent of questionnaire

| Quarters  | No of Respondents | Percentage % |
|-----------|-------------------|--------------|
| Iviarua   | 45                | 22.5         |
| Iviokhile | 30                | 15           |
| Iviavia   | 60                | 30           |
| Iviadachi | 35                | 17.5         |
| Ivinone   | 30                | 15           |
| Total     | 200               | 100          |

Source: Field Survey August, 2015

*Table 2:* Occupation of the respondents

| Occupation    | No of Respondent | Percentage |
|---------------|------------------|------------|
| Student       | 58               | 29         |
| Trader        | 26               | 12         |
| Civil Servant | 43               | 21.5       |
| Fishing       | 1                | 0.1        |
| Farming       | 46               | 23         |
| Artisan       | 5                | 2.5        |
| Unemployed    | 21               | 11         |
| Total         | 200              | 100        |

Source: Field Survey August, 2015

#### b) Occupation and income

Table 2 shows the occupation of the respondent. Looking at the obvious analysis, it therefore mean that the inhabitant of the area are more of students with 29% of the 58 respondent, 21.5 % of the respondent of 43 are trades, 13 % of the respondent of 26 are civil servant 0.1% of 1 of the respondent is into fishing, also 2.5 % of the five respondent was artisan while 11% of the 21 respondent was unemployed. With the analysis above, it is very clear that the resident of the study area (Fugar) are majorly mixed of civil servant, students and farmers. From the field survey, it was observed that the number of respondent that earn between ₦7,500-15,000 is 5%, 15% of the respondent earn between ₦15,000-22,000, also five percent of the respondent said they earn between ₦ 20,000-30,000. Moreso, 50% of the respondent earn between 25,000-40,000, 10% of the respondent said they earn between ₦ 35,000-45,000 while 15% of the respondent earn between ₦40,000-50,000. It therefore implies that, the average salary of the respondent falls with ₦ 20,000-40,000 as their monthly earnings.

c) *Infrastructure*

The analysis of the survey result shows that 12.5% of 25 respondent has erratic supply of power in their area while 50% of 100 respondent claimed they always witness very epileptic power supply in their area. However, 12.5 % of the 25 respondent claimed they experienced power once in a week, 15% of the 30 respondent were supplied twice in a week, while 10 % of the 20 respondent were on rotational basis as shown in Table 3. In addition water coverage in Fugar is not impressive. The outputs of the study indicated that 44% of the 88% respondents access water supply from borehole, while 17.5% of the 35 respondent access well water, 7.5% of the 15 respondent through pipe born water, 65% of 12 respondent access water from the river, 10% of the 20 respondent access stream water, while 15% of the 30 respondent gather water from the board as indicated in Table 4.

Table 3: Power supply coverage

| Power Stability             | No of Respondents | Percentage (%) |
|-----------------------------|-------------------|----------------|
| Epileptic                   | 25                | 12.5           |
| Very epileptic Power Supply | 100               | 50             |
| Once a week                 | 25                | 12.5           |
| Twice a week                | 30                | 15             |
| Rotational                  | 20                | 10             |
| Total                       | 200               | 100            |

Source: Field Survey August, 2015

Table 4: Sources of water supply

| Sources of Water Supply | No of Respondent | Percentage % |
|-------------------------|------------------|--------------|
| Borehole                | 88               | 44           |
| Well                    | 35               | 17.5         |
| Pipe Bore water         | 15               | 7.5          |
| River                   | 12               | 6            |
| Stream                  | 20               | 10           |
| Water Board             | 30               | 15           |
| Total                   | 200              | 100          |

Source: Field Survey August, 2015

d) *Non-Governmental Organization and Donor Agencies*i. *Existence of Non-Governmental Organization (NGOs) in the study area*

From the data collected on the existence of Non-Governmental Organization in the study area, Fugar, it was observed that Fugar has three basic functional Non-Governmental Organization (NGOs) namely as:

- Martins Imhore Agabi foundation
- Okakagbe Foundation
- Fugar Progressive Union (F.P.U)

Apart from the aforementioned three NGOs whose presence is fully established in the study area, other two NGOs have also carried out project in the study area, namely;

- The Clem Agba Foundation
- Pro-Health

The outputs of the investigation revealed that 39% of the 78 respondent claimed that the project in the study area were executed by philanthropist, whereas 55% of 110 respondent confirmed that the projects were done by Non- Governmental Organization (NGOs), while 6% of the 12 respondent laid claim that the project was done by individual effort as indicated in Table 5.

Table 5: Types of sponsors

| Sponsors       | No of Respondent | Percentage % |
|----------------|------------------|--------------|
| Philanthropist | 78               | 39           |
| Government     | -                | -            |
| NGOs           | 110              | 55           |
| Community      | -                | -            |
| Individual     | 12               | 6            |
| Total          | 200              | 100          |

Source: Field survey 2015

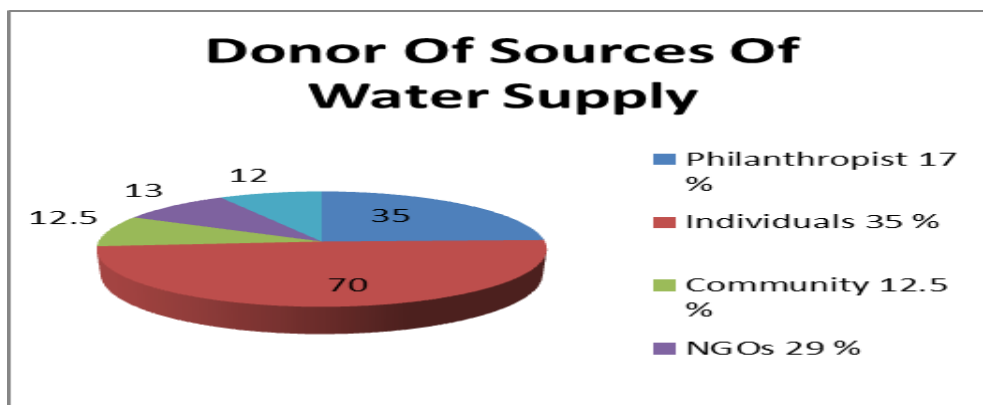


Fig.1: Activities of NGOs and Donors at Fugar: Source: Research study, 2015

The activities of NGOs at Fugar have tremendously contributed to the development of community and its environs. According to the analysis on the Table 5, 3.5 % out of the 65 respondent claimed that Martins Imhore Agabi Foundation has made impacts in the study area, 5% of the 10 respondent also claimed that Fugar Progressive Union also impacted on the lives of the resident of the study area in the Youth

Empowerment and Community Development, while 42.5 % of the 85 of the respondent claimed that Okakagbe Foundation has impacted on the lives of the inhabitant of the study area in the area of Health, Education and Women empowerment and finally 40 % of the 20 respondent reported that Clem Agba Foundation also impacted in the lives of the resident of Fugar in the area of health.

*Table 7: Names of NGOs that impacted on Fugar*

| NGOs                            | No of Respondent | Percentage % |
|---------------------------------|------------------|--------------|
| Martins Imhore Agabi Foundation | 65               | 32.5         |
| Fugar Progressive Union F.P.U   | 10               | 5.0          |
| Okakagbe Foundation             | 85               | 42.5         |
| Pro-Health                      | 22               | 11.0         |
| Clem Agba Foundation            | 18               | 9.0          |
| Total                           | 200              | 100          |

Source: Field Survey August, 2015

#### e) *Pro-Health International*

This is another Non-Governmental Organization (NGOs) that has also impacted on the lives of the resident of the study area in the area of health. For instance, on Saturday 12th July, 2014, Pro-Health International embarks on Health awareness creation in Fugar the Etsako Central Local Government Area of Edo State. The awareness program includes; Hand washing, hygiene, eating healthy food such as (fruits and

vegetables), Low cholesterol meals and also, enlightenment on Sexually Transmission infection and prevention, giving public talk on HIV/AIDS and voluntary counseling and testing Behaviour communication for people Living with Chronic diseases such as hypertension, Diabetes, asthma,. Also, visitation to secondary school for talks and chats with students on the issues of Sexually Transmitted Infection (STI) and HIV/AIDS and other health talks as depicted in Plate 1.



*Plate.1: Resources person at the pro-health health awareness program giving a practical demonstration on how to maintain good hygiene in Fugar*

#### f) *Challenges of non-governmental organizations in Nigeria*

Some of the challenges of non-governmental organizations in Nigeria include the following:

- Financial constraint. Their financial resources are made up almost exclusively of dues/contributions paid by members. Most at times, these dues and contributions are not paid regularly by members who affect their growth and also prevent them from performing their legitimate roles effectively.
- Leadership. Non-Governmental Organizations in Nigeria lack efficient leadership. They are characterized by illiterate and inexperienced leaders

- who lack requisite knowledge and managerial ability to pilot their affairs.
- Corruption. There is large-scale misappropriation, embezzlement of funds (gifts and dues) and other unprogressive activities. The prevalence of widespread corruptio limits their scope of activities and impede their growth.
- Tribalism, ethnicity and nepotism. Nigeria is a heterogeneous society and as a matter of fact, tribalism, ethnicity and nepotism are canker-worms that have eaten deep into the social fabric of the society. This problem has adversely affected the performance of non-governmental organizations in Nigeria.



- v. Insecurity. There is high-level and widespread insecurity in the country that has led to the wanton destruction of lives and property is also a major factor that has hampered the progress of nongovernmental organizations.

## V. CONCLUSION

The impacts of Non-Governmental Organizations have made towards the development of the society in general is enormous and inexhaustible, and its activities cut across all sphere of human endeavours. In this regard, more is expected to be put in place by the growing number of NGOs in Nigeria, for the overall well-being of the society. These can be achieved through collaborative programmes and strategies with an effective and efficient leadership structure. To be able to meet up with the millennium development goals (MDGs), strategizing to ensure sustainable development in Nigerian local communities, through empowerment of the people with knowledge required to participate actively in the process of development is important.

According to the World Bank (1992), many symptoms of poor government include failure to make a clear distinction between what is public and what is private that allows diversion of public resources for private gain; inability to establish a predictable framework of law and government behaviour conducive to development; or arbitrariness in the application of rules and laws; excess rules, regulations, licensing requirements, etc that impede the functioning of market and encourages rent seeking. Priorities inconsistent with development leading to misallocation of resources. Others are excessively narrowly based or non-transparent decision making. All the above and the exclusion of democracy impair our understanding of the political condition of economic, social and infrastructural development in rural communities.

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## Applying Cognitive Processing Therapy to Posttraumatic Stress Disorders Syndrome among Internally Displaced Youth Victims of Terrorism in Nigeria

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**Keywords:** *posttraumatic stress disorders syndrome; internally displaced youth victims of boko haran terrorism; cognitive processing therapy*

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*Strictly as per the compliance and regulations of:*



# Applying Cognitive Processing Therapy to Posttraumatic Stress Disorders Syndrome among Internally Displaced Youth Victims of Terrorism in Nigeria

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**Abstract-** The main concern of this research was to identify those who were experiencing Posttraumatic Stress Disorder Syndrome after Boko Haram terror attacks and to employ Cognitive Processing Therapy strategy in minimising or preventing probable long-term psychological distress. Four (4) practicing counselling psychologists were involved. Traumatic Screening Questionnaire (TSQ) and Checklist- Civilian Version (PCT-C) were pilot-tested and used for the research. Descriptive survey design was used. Purposive and Stratified random samplings were used to select the youths. Cognitive Process Therapy treatment model - Civilian Version (PCL-C) was applied. Total sample population was 76. Findings showed that, after undergone Cognitive Processing Therapy, a total population of 57 (75%) of the respondents experienced little to no severity PTSD while 19 (25%) of respondents experienced moderate to moderately of PTSD. There was no gender significant difference when comparing both sexes at pre-and post-tests results of PTSD Checklist – Civilian Version (PCL-C) In conclusion, Cognitive Processing therapy is one of the efficacious therapy in the treatment of PTSD.

**Keywords:** *posttraumatic stress disorders syndrome; internally displaced youth victims of boko haran terrorism; cognitive processing therapy.*

## 1. INTRODUCTION

Terrorism, according to the United Nations report in November 2014, is any act intended to cause death or serious bodily harm to civilians or non-combatants with the purpose of intimidating a population or compelling a government or an international organization to do or abstain from doing any act. Terrorism is, in the broadest sense, the use of intentionally indiscriminate violence as a means to create terror among masses of people; or fear to achieve a financial, political, religious or ideological aim. In this research, the above definitions of terrorism serves as the conceptual definition of Boko Haram terrorism in Nigeria.

### a) Boko Haram Terrorism in Nigeria

Boko Haram, an Islamic extremist group ("Group of the People of Sunnah for Preaching and Jihad") based in North Eastern Nigeria. Boko Haram is

also active in other countries of Chad, Niger and northern Cameroon (U.S. *Department of State* 2014). Boko Haram Sect was founded in 2002 by Mohammed Yusuf in Maiduguri, the capital of the North-Eastern state of Borno, (IRIN, 2015). The Sect has the political goal of creating an Islamic State and it has become a recruiting ground for jihadis, (Cook 2011). The name "Boko Haram" is usually translated as "Western education is forbidden" which is used to refer to secular Western education (Newman, 2013). Boko Haram has also been translated as "Western influence is a sin" and "Westernization is sacrilege (Newman, 2013; Nigerian Independent Newspaper 17 August 2014). After its founding in 2002, Boko Haram's increasing radicalization led to a violent uprising in July 2009 in which its leader was summarily executed in a controversial circumstance. He was succeeded by Abubakar Shekau, formerly his second-in-command. Boko Haram has maintained a steady rate of attacks since 2011, striking a wide range of politicians, religious leaders, security forces and civilian as targets. The group continued to capture territory in north-eastern and eastern areas of Borno, as well as in Adamawa and Yobe states. These attacks extended across the Nigeria's borders leading to many people being killed and millions displaced from their homes. Global Terrorism Index in 2015 indicated that, terrorism in Nigeria ranked as one of the world's deadliest terror group and estimated above 13,000 Nigerians have been killed in Boko Haram violence between 2009 and 2014; countless more have been wounded (Nigerian Emergency Management Agency Report, NEMA 2015). Amnesty International (AI-2017) has revealed that at least 967 people were reportedly killed by Boko Haram attacks in the four countries as from January to November 2017. In Nigeria alone, the insurgents increased their suicide attacks from 19 in 2016 to 38 in 2017. According to the report, 83 children have been used as human bombs this year. Of this number, 55 were girls, most often under 15 years old; 27 were boys, and one was a baby strapped to a girl. There were 1.7 million people displaced by the insurgency in the north-east, 85 per cent of them in Borno State, where most of

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these attacks took place. (World Report 2017: Nigeria | Human Rights Watch)

#### b) *Internally Displaced Persons in Nigeria*

According to a survey conducted by the National Emergency Management Agency, NEMA, in collaboration with International Organisation for Migration, IOM, identified 1,822,541 internally displaced persons, IDPs, in Adamawa, Bauchi, Borno, Gombe, Taraba, Yobe, Nasarawa states and Abuja through Displacement Tracking Matrix, DTM, as of October 2016. Nigeria's eight-year conflict with Boko Haram has resulted in the deaths of over 20,000 civilians and a large-scale humanitarian crisis (UN, 2017); approximately 2.1 million people have been displaced by the conflict while 7 million need humanitarian assistance;. In June 2017, According to UN Office for the Coordination of Humanitarian Affairs (2017) the number of internally displaced persons (IDPs) currently stands at 1.7 million in Borno, Adamawa and Yobe states, in addition to over 200,000 Nigerian refugees in neighbouring countries. In August 2017 alone, 4,509 new arrivals were recorded in Gwoza and 2,411 in Ngala, and many more in Dikwa, Kukawa, Damboa and Barna.

#### c) *Conditions of Living in IDP Camps in North-east Nigeria*

Many internally displaced persons in camps across Borno, Yola, and Yobe states are currently facing traumatic experiences due to the pitiable conditions of living in these camps, while some young girls have become victims of lascivious men and have contracted HIV (Bwala 2015, Sunday Tribune 15<sup>th</sup> February 2015). According to Bwala (2015), many of the internally displaced persons find it very difficult to adapt to the reality of life; to many of them, life has lost its meaning and the world has come to an end, judging by their attitude and resignation to fate. While physically injuries would have healed, the invisible scars left by those experiences would take far long (Saturday, Tribune 28<sup>th</sup> Feb; 2015). He further explained that, many of them in IDP camps complained of high rate of criminality; cases of rape have been on the increase while prostitution has been the only way out for most of the young girls there, most of whom are poor. He explained that, to make the matter worse, many of them were orphans whom have nobody to take care of them. 2.5 million IDP population, comprises children under the age of five, pregnant women and nursing mothers. The camps were overcrowded and lacking space due to continuous insecurity, precipitating food insecurity which remains a major concern with 5.2 million people in need of life-saving food assistance. In August 2017, attacks against civilians, including suicide bombings in IDP camps, remains a major concern with over 10 person-borne explosive device attacks took place during the reporting period in Borno alone. (UN Office for the Coordination of

Humanitarian Affairs: 2017). In realisation of then egative effects of Posttraumatic Stress Disorder on internally displaced persons, the Federal Government of Nigeria through the Office of the National Security Adviser (NSA), in collaboration with Murtala Muhammed Foundation established Crisis and Trauma a Counselling Centre in Kano in 2014 (IRIN 2015). IRIN report further explained that, also a new Crisis and Trauma Counselling centre has been opened in Maiduguri, the Borno state capital and the stronghold of Boko Haram. According to (IRIN, 2014), In collaboration with Programme Coordinator for the Murtala Muhammed Foundation, the CTCC was part of a strategy by the Federal Government to build capacity within Nigerians national mental health framework to treat PTSD among civilians and military personnel

## II. WHAT IS POSTTRAUMATIC STRESS DISORDER (PTSD)?

Posttraumatic stress disorder (PTSD) is a clinical syndrome characterised by intrusive memories, emotional avoidance, and heightened physiological arousal following exposure to a traumatic event (American Psychiatric Association [APA], (2013). Post-traumatic stress disorder (PTSD) can occur after an individual has gone through a life-threatening event. During this type of event, the victim may think that, his or her life or others' lives are in danger. The victim may feel afraid or feel that he or she has no control over what is happening. Among co-occurring psychiatric disorders, some mental health professionals have suggested, depression may be most prevalent--and most lethal (Palgi, Ben-Ezra, Langer, &Essar, 2009; Pinna et al, 2013). Such life-threatening events include: combat, military sexual trauma, terrorist attacks, physical violence, sexual violence, such as rape, serious accidents, such as a car wreck and natural disasters, such as a fire, tornado, flood, or earthquake. After any of these events, the victims might be thinking a lot about what happened, avoiding reminders about the events, and thinking negative thoughts about themselves and the world.

According to American Psychiatric Association [APA], (2013)identifies four types of PTSD symptoms

*Reliving the event (also called re-experiencing symptoms):* Memories of the traumatic event can come back at any time. The victim may feel the same fear and horror she or he did when the event took place. For example the victim may have nightmares such as a flashback feeling as if he or she is going through the event again or seeing or hearing, or smelling something that triggers the relive of the event. Examples of these could, news reports, seeing an accident, or hearing a car backfire

*A victim avoiding situations that is a reminder of the event:* The victim may try to avoid situations or people

that trigger memories of the traumatic event. She or he may even avoid talking or thinking about the event. For example the she or he may avoid crowds, because he or she may feel they are dangerous or keep very busy or avoid seeking help because she or he believes such action keeps he or her from having to think or talk about the event

*Negative changes in beliefs and feelings:* The way the victim thinks about himself or herself and others changes because of the trauma. This symptom has many aspects, including the following: the victim may not have positive or loving feelings toward other people by staying away from relationships or may think the world is completely dangerous, and no one can be trusted.

*Feeling keyed up (also called hyper-arousal):* The victim may be jittery, or always alert and on the lookout for danger. She or he might suddenly become angry or irritable. For example: she or he may have a hard time sleeping or .may has trouble concentrating or may be startled by a loud noise or surprise.

In summary, PTSD symptoms can change the victim's behaviour and how he or she lives his or her life. The victim may pull away from other people, work all the time, or use drugs or alcohol. The victim may find it hard to be in relationships, and you may have problems with your spouse and family. The victim may become depressed. Some people with PTSD also have panic attacks which are sudden feelings of fear or worry that something bad is about to happens

The main concern of this research was to identify those who were experiencing Posttraumatic Stress Disorder Syndrome after Boko Haran terror attacks and employ Cognitive Processing Therapy strategy to minimise or prevents probable long-term psychological distress. In other words, adaptation of Cognitive processing therapy is to treat acute stress disorder and prevent it from degenerate into chronic Post Traumatic Stress Disorder among the victims of Boko Haram in Nigeria terrorism.

### III. THEORETICAL FRAME WORK: COGNITIVE PROCESSING THERAPY FOR PTSD

According to *Field, Beeson, & Jones (2015)*, Cognitive Processing therapy is an aspect of Cognitive Behavioural Therapy. Cognitive Behaviour Therapy combines a cognitive approach (examining thoughts) with a behavioural approach (the things the individual does). The goal is to help the individual learn new positive behaviours which will minimise or eliminate the issue. They further explained that, it seeks to help the client to manage problems by enabling him or her to recognise how his or her thoughts can affect his or her feelings and behaviour. It aims to break overwhelming problems down into smaller parts, making them easier to manage (*Field, Beeson & Jones 2015*). While working

with individuals diagnosed with PTSD, counsellors often expected to target decreasing the severity of (a) recurrent and intrusive distressing memories of the traumatic event, (b) emotional avoidance, and (c) heightened physiological arousal (Makinson & Young, 2012). Outcomes may include decreasing aggressive outbursts, hyper-vigilance, and sleep disturbance that appeared or increased in intensity after exposure to the traumatic event (APA, 2013; Seligman & Reichenberg, 2012).

The objectives of Cognitive Processing Therapy are; to educate the client about the specific post-traumatic stress disorder (PTSD) symptoms and the way the treatment will help him/her overcome it; inform the client about his/her thoughts and feelings; helps the client develops skills of questioning his/her own thoughts; helps the client to recognise changes in his/her beliefs about what happened after going through the traumatic event. Theory behind CPT conceptualizes PTSD as a disorder of non-recovery, in which a sufferer's beliefs about the causes and consequences of traumatic events produce strong negative emotions, which prevent accurate processing of the traumatic memory and the emotions resulting from the events (Resick., & Schnicke, 1993, Monson. Schnurr., Resick, Friedman., Young-Xu., & Stevens., 2006). Because the emotions are often overwhelmingly negative and difficult to cope with, PTSD sufferers can block the natural recovery process by using avoidance of traumatic triggers as a strategy to function in day-to-day living. Unfortunately, this limits their opportunities to process the traumatic experience and gain a more adaptive understanding of it. CPT incorporates trauma-specific cognitive techniques to help individuals with PTSD more accurately appraise these "stuck points" and progress toward recovery (*National Centre for PTSD, (2016)*). A type of counselling called cognitive-behavioural therapy has been shown to be the most effective form of counselling for PTSD (Resick, & Schnick, 1993, Monson, Schnurr, Resick, Friedman, Young-Xu, & Stevens, 2006).)

#### a) *Efficacies of Cognitive Behavioural Therapy*

According to Nilamadhab Kar (2011), the current literature reveals robust evidence that Cognitive Behaviour Therapy (CBT) is a safe and effective intervention for both acute and chronic Post-Traumatic Stress Disorders following a range of traumatic experiences in adults, children, and adolescents. CBT has been found to be effective for PTSD following terrorist attacks, e.g., in the survivors of the 9/11 terrorist attack on the World Trade Centre (Levitt, Malta, Martin, Davis, & Cloitre, 2007), the 2005 London bombings (Brewin, Fuchkan & Huntley, et al ,2010) and the 1998 bomb explosion in Omagh, Northern Ireland (Gillespie, Duffy , Hackmann & Clark, 2002) CBT for the victims of the World Trade Centre attack was neutralized, applied

flexibly, in 12–25 sessions, by therapists with no prior training through to extensive training in Cognitive Behavioural Therapy. There were significant pre-post reductions in symptoms of PTSD and depression (Levitt, Malta, Martin, Davis, Cloitre M.). The improvement in PTSD in victims of the 2005 London bombings was well maintained at an average of one year later (Brewin, Fuchkan & Huntley, et al, 2010). Patients with PTSD secondary to the bomb explosion in Omagh received an average of eight treatment sessions by staff with modest prior training in CBT for PTSD. However, the degree of improvement was comparable with that in reported research trials, in spite of the fact that almost half of the patients (53%) had psychiatric co morbidity (Gillespie, Duffy, Hackmann &, Clark, 2002). For the purpose of this study, the researchers used Cognitive Processing Therapy.

*Cognitive Processing Therapy:* According to Schulz, Resick, Huber, Griffin, (2006), CPT teaches the client how to evaluate and change the upsetting thoughts she or he has had since his or her trauma. Cognitive Processing Therapy is 12-session psychotherapy for PTSD. CPT is based on information processing therapy of PTSD and includes education, exposure and cognitive processing (Resick & Schmicke (1992), Cognitive Processing Therapy (CPT) have been identified by Practice guidelines as one of the best and most evidence for treating PTSD. A typical 12-session run of CPT has proven effective in treating PTSD across a variety of populations, including combat veterans, (Monnson, Price, & Ranslow 2005, Chard, Schumm Owen & Cottingham 2010., Resick, Galovski, Uhlmansick, Scher, Clum & Young 2008) sexual assault victims, (Resick, Nishith, Weaver, Astin, & Feuer, 2002. Chard, 2005) and The CPT used a manualised, empirically supported treatment, Cognitive Processing Therapy, to address symptoms of PTSD in the refugees population (Schulz, Resick, Huber, Griffin, 2006). CPT can be provided in individual and group treatment formats

#### IV. RESEARCH QUESTIONS

##### Questions

1. What percentages of internally displaced youth victims of Boko Haran terrorism in Borno, Yobe and Yola states' IDP camps fell within the following ranges of PCL-C scores at pre- and post-cognitive processing therapy
  - a) 17-29 PCL-C scores
  - b) 17-29 PCL-C scores Little to no severity
  - c) 30-44 PCL-C scores Moderate to moderately High severity of PTSD symptoms
  - d) 45-85 PCL-C scores High Severity of PTSD symptoms?
2. What percentage of respondents scored above 17-29 in PTSD Checklist – Civilian Version (PCL-C

which is the cut-off point showing little to no severity after undergoing Cognitive Processing Therapy?

3. What percentage of respondents scored below 17-29 in PTSD Checklist – Civilian Version (PCL-C which is the cut-off point showing little to no severity after undergoing Cognitive Processing Therapy?

##### Hypothesis

There was no significant gender difference between scores of respondents in PTSD Checklist – Civilian Version (PCL-C) at pre and post test results in PTSD Checklist – Civilian Version (PCL-C)

#### V. RESEARCH METHODOLOGY

##### a) Research design

A descriptive survey method was used.

##### Eligibility

- Ages Eligible for study 15 years to 30 years of age
- Sexes Eligible for study; All sexes
- Volunteers Acceptance All the sample

##### Administration of Research Instruments

1. The four (4) researchers were practicing counselling psychologists and psychotherapists
2. A letter of introduction obtained from the University Management introducing the each researcher to the Camp Leader and seeking permission to carry out research in the Camp.
3. TSQ and PTSD checklist- Civilian Version (PCT-C) were pilot-tested for reliability using Jabi Abuja IDP camp and Cronbach alpha obtained were .74 and .85 respectively
4. The researchers, first of all, administered the Traumatic Screening Question to identify those who were experienced Post-traumatic Stress Disorder within the first week of April 2017
5. After the identification of patients, the counsellors then administered PTSD Checklist – Civilian Version (PCL-C) as pre-treatment measure in second week of April 2017
6. The researchers applied Cognitive Process Therapy treatment model - Civilian Version (PCL-C) within six weeks as from the second week of April to first week of June 2017, then, administered post treatment, PTSD Checklist – Civilian Version (PCL-C)

##### Inclusion Criteria

- Male and female youths in the Shuwari II IDP Camp in Maiduguri, Pompomari IDP Camp and Malkohi IDP Camp
- Diagnosed symptoms of PTSD screened via Trauma Screen Questionnaire (TSQ) and only samples who experienced PTSD were selected
- The participants must have experienced a specific insurgent -related event or suffered the death of a close relation or friend or witnessed the gruesome killing of their relations, or suffered the loss of

properties and their homes a result of attacks on their communities by the Boko Haram insurgents.

- Choice to participate in a study is an important personal decision
- Speaks Hausa Language fluently

#### b) *Sample and Sample techniques*

Purposive and Stratified random samplings were used to select youths who developed PTSD and were within the age range of 15 to 30 years from three (3) Internally Displaced People's camps of Shuwari II camp in Borno, Malkohi IDPs camp in Adamawa and Pompomari IDP camp (Damaturu, Yobe States of Nigeria with total sample population of 76. The choice of research locations for the study was premised on the profound and continuous Boko Haram terrorist activities in the North East of Nigeria since 2009 till date. First of all, random selections were done and Trauma Screening Questionnaire was used to screen and select participants who were found to be experiencing PTSD

*Shuwari camp: Borno state:* Total population was 850; Total number of sampled youths was 28 (13 male and 15 female) after screening using TSQ; Attrition rate was 6

*Pompomari Camp: Yobe State;* Total camp population was 200; Total number of sampled youths was 22 (10 male and 12 female) after screening using TSQ; Attrition rate was 0

*Malkoli Adamawa State;* Total population was 1325; Total number of sampled youth was 26 (14 male and 12 female) after screening using TSQ; Attrition rate was 2

Duration of Cognitive Processing Therapy in all the camps was six (6) weeks (2 sessions per a week cumulating into 12 sessions; The total sample population was 76

#### c) *Instruments for the Research*

Trauma Screening Questionnaire (TSQ) was used to identify Internally Displaced youths who experienced PTSD. Trauma Screening Questionnaire after initial pilot testing at Abuja Camp and Cronbach alpha was .74 was obtained; PTSD Checklist – Civilian Version (PCL-C) was used for pre-and post-treatment of PTSD. Pre and post-PTSD Checklist – Civilian Version (PCL-C) was administered within the interval of six weeks. Clients were assisted in filling both the Trauma Screening Questionnaire (TSQ) and PTSD Checklist – Civilian Version (PCL-C) through Research Assistants using Hausa Language, which is widely spoken in the Northern Nigeria. The therapists were all Hausa speaking Counselling psychologists and psychotherapists.

#### d) *Cognitive Processing Therapy-Cognitive-only version (CPT-C)*

The purpose of this study was to determine the efficacy of Cognitive Processing Therapy-Cognitive-only

version (CPT-C) on Boko Haram terrorism victims against the benchmark of 17-29 scores (cut off point) which shows little to no severity among post-treatment group results of PTSD Checklist – Civilian Version (PCL-C). The percentages of respondents who scored in various ranges were also determined. Also determined in this study were gender differences in the pre and post treatment results.

#### Treatment

- Posttraumatic Stress Disorder Checklist-Stressor-specific Version (PCL-C)
- Twelve 90-120 minute structured group sessions
- Essentially conducted by one counsellor and his or her assistance
- 6-8 victims of insurgency per group (2 weeks pre-test and post of Trauma Screening Questionnaire (TSQ) and PTSD Checklist – Civilian Version (PCL-C) and Six weeks for Cognitive Processing Therapy treatment
- Victims completed out-of-session practice assignments

#### Formats

- CPT includes a brief recorded oral narrated trauma account component in Hausa language, along with on-going practice of cognitive processing intervention techniques.
- The details of the recorded oral narrated trauma account were only shared by the group during sessions, while the emotional and cognitive reactions were identified while oral narrations were processed by the group.
- CPT- C was used for both individual and group sessions
- The groups combined practice assignments and the recorded oral trauma account, which were processed in additional individual therapy sessions
- Time Frame: Baseline, 2 sessions weekly during treatment,
- Benchmark of 17-29 scores in PTSD Checklist Version (PCL-C as cut off point showing little to no severity

#### d) *Data Analysis*

Descriptive statistic and t-test analyses were used to determine those who experienced PTSD before and after the treatment of cognitive processing therapy and to establish if there is gender difference between male and female samples. is significant or not

*Research Question 1;* What percentages of internally displaced youth victims of Boko Haram terrorism in Borno, Yobe and Yola states' IDP camps fell within the following ranges of PTSD Checklist – Civilian Version (PCL-C scores at post-cognitive processing therapy

- a) 17-29 PCL-C scores
- b) 17-29 PCL-C scores Little to no severity



- c) 30-44 PCL-C scores Moderate to moderately High severity of PTSD symptoms
- d) 45-85 PCL-C scores High Severity of PTSD symptoms?

**Table 1:** Total Percentage of Respondents in Each Level of Severity; Little to no Severity; Moderate to Moderately Severity and High Severity

| PTSD Checklist – Civilian Version (PCL-C scores) | Level of Severity               | Shuwari |    |       | Popomari |    |       | Malkoli |    |       | Percentage |               |
|--|---------------------------------|---------|----|-------|----------|----|-------|---------|----|-------|------------|---------------|
|  |                                 | M       | F  | Total | M        | F  | Total | M       | F  | Total |            |               |
| 17-29  | Little to no severity           | 10      | 12 | 22    | 07       | 09 | 16    | 09      | 10 | 19    | 57 (75%)   | Cut off Point |
| 30-44  | Moderate to Moderately severity | 03      | 03 | 06    | 03       | 03 | 06    | 05      | 02 | 07    | 19 (25%)   |               |
| 45-85  | High Severity                   | 00      |    |       | 00       |    |       | 00      |    |       | 00         |               |
| Total  |                                 |         |    | 28    |          |    | 22    |         |    | 26    |            |               |

In in Shuwari IDP camp in Borno State, PTSD Checklist – Civilian Version (PCL-C) was administered to 28 respondents out of which thirteen (13) were male and fifteen (15) were female. All the respondents showed PTSD before undergone Cognitive Processing Therapy. After undergone Cognitive Processing therapy, 10 male respondents showed little to no severity while 3 male respondents showed moderate to moderately severity of PTSD while twelve (12 ) out of fifteen (15) female respondents showed little to no severity and three (3) of them showed moderate to moderately severity of PTSD.

In Popomari IDP camp in Yobe State, PTSD Checklist – Civilian Version (PCL-C) was administered to 22 respondents out of which ten (10) were male and twelve (12) were female. All the respondents showed PTSD before undergone Cognitive Processing Therapy. But after undergone Cognitive Processing therapy, seven (7) of the male respondents showed little to no severity while three (3) of them showed moderate to moderately severity. For female respondents, nine (9) out of twelve (12) of female respondents showed little to no severity while three (3) of them showed moderate to moderately severity after undergone Cognitive Processing Therapy.

In Malkohi IDP camp in Adamawa state, PTSD Checklist – Civilian Version (PCL-C) was administered to 26 respondents out of which fourteen (14) were male and twelve (12) were female. All the respondents showed PTSD before undergone Cognitive Processing Therapy but after undergone Cognitive Processing therapy, nine (9) of the male respondents showed little to no severity while five (5) of them showed moderate to moderately severity. For female respondents, ten (10) out of twelve (12) showed little to no severity while two (2) of the female respondent showed moderate to moderately severity after undergone Cognitive Processing Therapy. From the above analyses, 75% of the respondents indicated little to no severity after undergone the Cognitive Processing Therapy while 25% of them showed moderate to moderately severity of PTSD. None of the respondents scored within the range of 45 -85 points which indicated high severity. Tables below, indicate Male and female Mean and Standard Deviation at pre and post Checklist – Civilian Version (PCL-C and T-Test Results of Pre and Post Tests Results of Male and Female Respondents.

**Table 2:** Male and female Mean and Standard Deviation at pre and post Checklist – Civilian Version (PCL-C

|      | Gender | N  | Mean    | Std. Deviation | Std. Error Mean |
|------|--------|----|---------|----------------|-----------------|
| pre  | 1.00   | 37 | 58.1081 | 6.30601        | 1.03670         |
|      | 2.00   | 39 | 59.7436 | 7.59057        | 1.21546         |
| post | 1.00   | 37 | 24.5135 | 2.91187        | .47871          |
|      | 2.00   | 39 | 25.0256 | 2.68021        | .42918          |



**Table 3:** T-Test Results of Pre and Post Tests Results of Male and Female Respondents

|      |                             | Levene's Test for Equality of Variances |      | t       | df     | Sig. (2-tailed) | Mean Difference | Std. Error Difference |
|------|-----------------------------|---|------|---------|--------|-----------------|-----------------|-----------------------|
|      |                             | F                                       | Sig. |         |        |                 |                 |                       |
| pre  | Equal variances assumed     | .949                                    | .333 | -1.0215 | 74     | .312            | -1.63548        | 1.60536               |
|      | Equal variances not assumed |   |      |         | 72.756 | .309            | -1.63548        | 1.59753               |
| post | Equal variances assumed     | .059                                    | .809 | -.7975  | 74     | .427            | -.51213         | .64151                |
|      | Equal variances not assumed |   |      |         | 72.659 | .428            | -.51213         | .64293                |

The T-test result obtained at pre-test was -1.0215

The T-test result obtained at post-test was -.7975

Level of significance was .005 alpha level

## VI. CONCLUSION: NOT SIGNIFICANT

The total male sample of 37 in all the sampled IDP camps put together has the mean score of 24.5135 with 2.911 standards Deviation in PTSD Checklist – Civilian Version (PCL-C) after undergoing six Cognitive Processing Therapy while the female counteract sampled population of 39 with mean score of 25.025 and 2.680 in Checklist – Civilian Version (PCL-C)

Using SPSS (Version 20), the T-test result of -1.0215 was obtained when comparing male and female respondents' pre-test mean scores results in PTSD Checklist – Civilian Version (PCL-C) while the t- test at the post in PTSD Checklist – Civilian Version (PCL-C) for both sexes was -.7975 and at .005 level of significance. The T-test results of both male and female respondents at pre-and post-tests of PTSD Checklist – Civilian Version (PCL-C) showed no significant differences

## VII. DISCUSSION OF RESULTS

**Research Question:** What percentage of respondents' scores fall between seventeen and twenty-nine (17 to 29) in PTSD Checklist – Civilian Version (PCL-C) an indication of the cut-off point for severity of PTSD?

On table 1 above, 75% of the respondents indicated little to no severity of PTSD after undergone the Cognitive Processing Therapy while 25% of the respondents indicated moderate to moderately severity of PTSD. None of the respondent indicated high severity after undergone Cognitive Processing Therapy.. Though 25% of the respondents scored above the cut-off points, the efficacy of Cognitive Processing Therapy on the treatment of terrorism victims is not in doubt as evidenced above. The 25% of the respondents which indicated moderate to moderately severity PTSD could be attributed to anxiety created by continuous bombings (suicide bombing), and other criminal activities such as rapes, trading sex for food reportedly perpetuated by security agencies and state of insecurity in IDP camps across North-east of Nigeria The researchers therefore

are suggesting eight weeks with two sessions per week of Cognitive Processing therapy for terrorism victims, improvement of security in IDP camps and four (4) weeks follow up therapy for more effective treatment.

These findings are in line with Blankenship's (2014) observation that, comparison studies of modalities, limitations, and training requirements of PTSD, identified five treatment modalities which are consistently recommended in the literature as most efficacious current treatments endorsed for PTSD prolonged exposure therapy: These are cognitive processing therapy, trauma-focused cognitive behavioural therapy, stress inoculation training, and eye movement desensitization and reprocessing therapy. He further explained that, research overall shows no significant differences in rates of efficacy between these treatments and therefore recommended for mental health counsellors to select any of the approach that best fits the client population and professional goals based on identified strengths and limitations of each therapy. Alvarez, Mclean and Harris (2011) state that, however, CPT appears to produce significantly more symptom improvement than treatment conducted before the implementation of CPT. They further observed that, there is still room for improvement, as substantial numbers of veterans continue to experience significant symptoms even after treatment with CPT in a residential program. Sur'is, Link-Malcolm, Chard, Chul and North (2013) explain that, established literature that has demonstrated the effectiveness of CPT in treating PTSD related to sexual assault in civilian populations. The T-test results of both male and female respondents at pre-and post-tests of PTSD Checklist – Civilian Version (PCL-C) showed no significant differences. Birkeland, Blix, Solberg and Heir (2015) report that, among individuals with considerable levels of posttraumatic stress symptoms, women reported higher levels of physiological cue activity and exaggerated startle response but no significant gender differences in the networks of posttraumatic stress were found. In order to determine if this finding can be applied to other

participants and circumstances, future studies should be conducted in various IDP camps in Nigeria.

## VIII. CONCLUSION

In conclusion, as indicated above by the findings of this study, Cognitive Processing Therapy has a significant impact in the reduction of PTSD among youth victims of Boko Haram in the North-east part of Nigeria. Also there was no significant difference in the efficacy of Cognitive Processing Therapy among the sexes (gender).

## IX. RECOMMENDATIONS

1. In every IDP camp in Nigeria should have a counselling centre man by qualified counselling psychologists or psychotherapist
2. Effective Security should be provided in all the IDP camps so as to forestall further attacks
3. Every camp should be provided with basic needs of life such as food, shelter, water etc.
4. There should be follow-up treatment even when the victims of terrorism have left their camps and settled in their communities
5. Federal Government of Nigeria must be proactive enough to nip on bud situations that will potentially degenerate into terrorism or insurgency
6. The state government of Northern Nigeria should critically look at Almajiri System of education which has served as a breeding ground for the dire terrorism of the Boko Haram with the view of regulating, supervising and modernising its curricula, in order to mitigating against Almajiri scourge.

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## Nanotechnologies and the Safe by Design: Seeking Alternatives for Risk Management Wilson Engelmann

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**Introduction-** The impacts and expansion of technological advances, the so-called Fourth Industrial Revolution (SCHWAB, 2016), is about historical changes in terms of size, speed and scope, and the unfolding of these transformations, their complexity and interdependence yet unknown. But what is known is that the parts interested in global society - government, business, universities and civil society - have the responsibility to work together in order to better understand these emerging trends as well as to deal with the risks of these innovations in a sustainable way. The transformations of today's society are larger than it can be predicted, deeper and faster than at any other time. Thus, the current scenario presents itself as a challenge for new analyzes studies and research (ROCHA, MARTINI, 2016).

Industrial use of the nanometer scale is advancing rapidly without any scientific certainty about the safety of nanoparticles and without the legal area having produced a specific regulatory framework. Nanotechnologies are accompanied by scientific uncertainties as to their effects and (possible?) future harm to the environment and human life. Consider the prospect of growth projected: "The global nanotechnology market is expected to reach \$90.5 billion in 2021, from \$39.2 billion in 2016 with a compound annual growth rate of 18.2%." (MCWILLIAM, 2016).

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# Nanotechnologies and the Safe by Desing: Seeking Alternatives for Risk Management

## Wilson Engelmann

Wilson Engelmann <sup>α</sup>, Raquel Von Hohendorff <sup>σ</sup> & Daniele Weber S. Leal <sup>p</sup>

### 1. INTRODUCTION

The<sup>1</sup> impacts and expansion of technological advances, the so-called Fourth Industrial Revolution (SCHWAB, 2016), is about historical changes in terms of size, speed and scope, and the unfolding of these transformations, their complexity and interdependence yet unknown. But what is known is that the parts interested in global society - government, business, universities and civil society - have the responsibility to work together in order to better understand these emerging trends as well as to deal with the risks of these innovations in a sustainable way. The transformations of today's society are larger than it can be predicted, deeper and faster than at any other time. Thus, the current scenario presents itself as a challenge for new analyzes studies and research (ROCHA, MARTINI, 2016).

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The world on the nano scale has always existed integrating nature, but only from the middle to the end of the twentieth century, the human being has been able to access this order of magnitude, visualizing the billionth part of a meter. It is observed in the quotidian human life the increasing consumption of innumerable new products with nanotechnology in the most diverse areas. Products and sectors in which it is possible to find nanoparticles are: feeding; household appliances; medicine; petroleum; printers; renewable energy; sports and fitness; textiles; agriculture; automotive; construction; cosmetics; as well as the use for environmental purposes (INTRODUCTION, 2017). Even this broad role is open due to the continuous process of development of nanotechnologies. Such products bring the promise of benefits and utilities never before thought, arousing curiosity in the consumers and society in general. Therefore, the consumption of these creations in nano scale has been increasing, with a universe of news poured into the market daily.

In spite of the significant development limits reached by nanotechnology, there is no specific regulation. According to Engelmann (2015, p.350), "... the Law should provide the basis for a normative set of accompaniment, advisement and rewards for the implementation of the most acceptable conduct in relation to nanotechnology risk management." Because nanoparticles are very small, measuring less than a hundredth of a billionth of a meter, they are governed by physical laws very different from those with which science is accustomed. Nan particles are likely to have a higher toxicity than particles in normal sizes, which may pose risks to the health and safety of researchers, workers, and consumers.

It takes a critical Law, capable of reading reality and provoking the necessary changes in this context, under penalty of remaining isolated from other areas of knowledge, which will use the empty spaces left by Law, to act, including onregulatory issues.

The development of these technologies generates important ethical, legal and social impacts, also related to the precautionary principle and information, as well as reflexes in the labor relations and in the environment. It is impossible to imagine scientific and technological advances, and also economic, based on social regression in terms of health and protection. In

<sup>1</sup> This article is part of the partial results of the Research Project "The Self-Regulation of the Final Management of Nanotechnological Wastes", Billing 02/2017, Researcher Gaúcho, FAPERGS.

order for the Law to be able to deal with the challenges brought by the advances of nanotechnologies, it must open itself to two paths: penetrate other areas of knowledge that may help it understand the complexity of the realities that nanotechnologies will enable and allow ideas to enter from these areas. This will be the condition of possibility for innovation in the *legal in the Nanotech Era*.

Thus, the advance of nanotechnologies, in a growing set of applications, begins to integrate the daily life of the Brazilian and world societies. On the other hand, the research and products that will come from this human intervention in the natural forces will require the performance of different systems, with the evaluation of the emerging social, ethical and regulatory impacts supported by a model of innovation that should be responsible and sustainable, once there is uncertainty about nanotechnological risks.

For the development of this article it will be used the systemic-constructivist method which considers reality as a construction of an observer, analyzing all the peculiarities implied in the observation. It is a method which starts from a complex second-order observation, presupposing reflections that are established from a set of theoretical categories, characteristic of the Pragmatic-Systemic Matrix, maintaining a theoretical self-referential coherence. It is an autopoietic strategy of juridical reflection on the conditions of meaning production, as well as the possibilities of understanding the multiple differentiated communicative dynamics in a complex environment, such as the one generated by nanotechnologies.

Moreover, this approach presupposes the understanding of Law as an autopoietic social system, whose operations are communicative, developed through decision-making processes elaborated within a certain legal organization.

It is from the systemic-functionalist perspective that this connection between the problem and a solution to be constructed is sought, notably by observing the normative frameworks capable of addressing the challenges brought by nanotechnologies. This method is conducive to the development of the movement that goes from the interdisciplinary to transdisciplinary attempts, since it intends to deal with the action of several levels of reality, of diverse semantics.

## II. PRESENTING THE NANO NEW WORLD

*"The changes are so profound that, from the perspective of the history of mankind, there has never been a moment so potentially promising or dangerous" (SCHWAB, 2016, p.12).*

The Fourth Industrial Revolution, which has been occurring since the turn of the century, deals with technological innovations such as artificial intelligence, robotics, the internet of things, autonomous vehicles, 3D

printing, nanotechnologies, biotechnology, energy storage and quantum computation. What distinguishes it from the three previous revolutions is speed, breadth and depth, as well as the fusion of technologies and the interaction between physical, digital and biological domains. (SCHWAB, 2016). As for velocity, it evolves at an exponential and non-linear rhythm, as a result of the multifaceted and deeply interconnected world in which we live; in terms of breadth and depth, based on the digital revolution and combining various technologies, generates unprecedented paradigm shifts not only in the economy but also in society and individuals. Also, regarding the *systemic impact*: it involves the transformations of entire systems between and within countries, organizations, industries and in all society (SCHWAB, 2016).

Nanotechnology is the set of actions of research, development and innovation, obtained due to the special properties of matter organized from structures of nanometric dimensions. The term nanotechnology derives from the Greek prefix *nános*, which means dwarf, *techne* that equates to craft, and *logos* that expresses knowledge. Currently, nano-scale carries many uncertainties, especially concerning risks that are highly harmful to health and the environment (DURÁN, Mattoso, 2006).

Nanotechnology exhibits a high degree of interdisciplinarity. Biologists, chemists, physicists, physicians and engineers contribute with their experiences and ideas to generate innovative applications and products for society. This requires intensive collaboration based on division of labor and a high level of understanding of other disciplines (GERMANY, 2016).

As it often occurs with innovations, it is difficult to know where advances in new materials could lead the world. A new material on the nanoscale, such as graphene, which is about 200 times stronger than steel, million times thinner than a human hair and an efficient conductor of heat and electricity (ISAIAH, 2015), when it becomes financially competitive (gram for gram, it is one of the most expensive materials in the world; 1 micrometer costs more than \$ 1,000), it may cause disruptions in manufacturing industries and infrastructure (LASKOW, 2014).

On the one hand, it is still unknown the ramifications of the modifications generated by these revolutions, but on the other hand, the complexity and interconnection between sectors imply that all the actors of global society - governments, organizations, academia and civil society - need to work in order to better confront reality, and thus shared knowledge becomes a *sine qua non* condition for this new future to be faced (Schwab, 2016).

The term *nanotechnology* has raised controversies about the measures that should be considered for the categorization of a product or

process being worked at the nano scale. Therefore, it is necessary to start from a standardization and thus, adopt the definition developed by the *International Organization for Standardization* (ISO) - ISO /TC 229 in which two fundamental characteristics are verified: (a) products or processes which are typically, but not exclusively, below 100 nm (one hundred nanometers); and b) on this scale, the physicochemical properties must be different from the products or processes that are on larger scales (ISO / TC 229, 2005).

To illustrate this scale, a human hair strand is between 10,000 to 100,000 nm, a single red blood cell has a diameter of about 5000 nm, the viruses usually have a maximum size of 10 nm to 100 nm and a deoxyribonucleic acid molecule (DNA) has a diameter of about 2nm. The term *nanotechnology* can be misleading since it is not a single technology or scientific discipline. Instead, it is a multidisciplinary grouping of physical, chemical, biological, engineering, and electronic processes, materials, applications and concepts in which the defining characteristic is size (ISO, 2017).

Nano is a measure, not an object, that is, it encompasses "the ability to work at the molecular level, atom by atom, creating structures with different molecular organizations and exploring the new properties exhibited at such a scale" (Engelmann, Cardoso, 2010), whose particles correspond to the order of 1-100 nanometers (equivalent to 0.000000001 meters), which cannot be seen with the naked eye.

These technologies correspond to research and technological development at the atomic, molecular or macromolecular level in a scale ranging from about one to one hundred nanometers in any dimension; the creation and use of structures, devices and systems that have new properties and functions because of their small size; and the ability to control or manipulate matter on an atomic scale (United States, 2007).

Invernizi et al. (2016) conducted researches on the contributions of Latin American investigations on nanotechnology, focusing on medicine, energy and water, and showed that the information analyzed reveals great regional disparities, with a strong concentration of activities in Brazil, and then Mexico, which are the major countries with systematic scientific trajectories. In an intermediate situation are Argentina, Chile and Colombia tending to strengthen their knowledge and several other countries with more fragmented competencies. Nevertheless, the data shows a weak regional collaboration, more bilateral than in the network. In fact, international agreements could stimulate networking projects around key issues with a general social impact for all countries in the region.

Investments in Brazil are currently increasing. In the national panorama, it is verified the study conducted in 2015 through the publishing of the Institute of Applied Economic Research (IPEA), coordinated by Marcial – in which it is discussed the *World Megatrends for 2030*,

with the current questions about what entities and personalities think about the world - a raise in investment and application in the field of nanotechnology and biotechnology has been observed (MARCIAL, 2015).

By 2030, there will be the maintenance of the technological revolution, integrating biotechnology, nanotechnology, TIC and technologies of materials in a fast speed. Advances in areas such as new materials and bioengineering are changing pharmaceutical and medical care principles when it comes to innovations in products and services for human health. In the field of medicine, especially in developed countries, there is a high probability of a strong advance in gerontology and genetic technologies, using nanochips and microsensors or technology, organ transplants, nerve cells, retina, etc., which will allow a substantial increase in the average human life (Rockefeller Foundation and GBN, 2010). Technological convergence can also be observed in the energy field [...]. However, the pace of technological change is difficult to predict and some new technologies need further study and investment strategies given their potential impact on human development. Examples of these are the use of biotechnology and nanotechnology in energy generation (European Commission, 2011). Everything indicates, for example, that solar energy will be much more efficient in the future. This efficiency will occur due to advances in materials used, including polymers and nanoparticles. (Marcial, 2015).

A team from the *University of Central Florida* (UCF) has developed a new hybrid nanomaterial that harnesses solar energy to generate hydrogen from seawater that could be used for a new source of clean-burning fuel while alleviating the demand for fossil fuels. The researchers used a photocatalyst - a material that stimulates a chemical reaction using light energy and durable enough to handle the biomass and corrosive salt of seawater. In order to achieve this new fuel, they used a catalyst that not only harvested a much wider spectrum of light than other materials, but also withstand the harsh conditions of seawater (Nanotechnology, 2017).

Producing a chemical fuel from solar energy is a better solution than producing electricity from solar panels because electricity must be used or stored in batteries that degrade, while hydrogen gas is easily stored and transported. Researchers will now focus on expanding manufacturing and improving performance (Nanotechnology, 2017).

Another example of creating new materials comes from the University of Tokyo. By combining the same Prussian blue pigment used in the works of the popular period artist (Hokusai) and cellulose nanofiber,

a paper raw material, a research team at the University of Tokyo was able to synthesize composite nanoparticles containing organic and inorganic substances. This new class of organic/inorganic composite nanoparticles is capable of selectively adsorbing, or collect on the surface, radioactive cesium. The team later developed sponges of these nanoparticles that proved to be highly effective in decontaminating water and soil in Fukushima Prefecture, exposed to radioactivity after the nuclear accident on March 2011 (VIPIN, 2016).

It can be observed that the innumerable possibilities of creation with new materials are incredible and seem to be fictional.

Two of the most common nanoparticles are titanium (TiO<sub>2</sub>) and silica (SiO<sub>2</sub>). Rashwan and Sereda (2016) report modifications of their surfaces with organic and inorganic groups that significantly improve the usefulness of these materials as ingredients in sunscreens and toothpastes. Thus, the functionalization of titanium and silica nanoparticles improve their adhesion to human dentin, with possible applications for the treatment of dental hypersensitivity by occlusion of dentinal tubules and remineralization porters and other active components. In addition, organic and inorganic modifiers may also suppress photo degradation and facilitate the use of modified silica and titanium in sunscreen formulations.

About the use of nanotechnologies in cosmetics, a theme that attracts attention when it is verified that Brazil is the third largest consumer of these products in the world, the research group JUSNANO, Unisinos, led by Professor Engelmann produced an excellent material (book and story in comics) to spread the word.<sup>2</sup>

In the area of food and agriculture the innovations are also surprising. Cheng et al. (2016) review several researches and development studies involving nanotechnology in agriculture. For example, in soil management, reported applications include nanofertilizers, soil binders, water retention aids, and nutrient monitors. In plants, nanotechnology methods provide DNA for plant cells, improve nutrient absorption, detect plant pathogens, and regulate plant hormones. In animals, the nanocapsules deliver vaccines and improve the delivery of

nutrients. Numerous post-harvest applications are reported, including the generation of nanocellulose from agricultural waste. Similarly, in the food-related area, nanotechnology is actively exploited (for example) in food packaging, nanocarrier systems for nutrients and supplements, nano-food additives for food and feed, nanofilms in food contact surfaces, nanosensors for food labeling and water decontamination.

In this panorama, several characteristics of nanotechnologies emerge, such as: the unusual properties of nanoparticles are mainly based on their size at nanoscale and their surface area. As the size of a particle decreases and approaches the nanoscale, many properties begin to change compared to the same material in its macro size. The color and melting temperature of gold, which are very different in nanoscale than in conventional gold, are given as an example. The toxic effects of materials that are shown as inert on the macro scale are also very different on the nano scale. As the surface area of particles increases a greater proportion of their atoms or molecules start to be displayed on the surface, rather than the interior of the material. There is an inverse relationship between the size of the particles and the number of molecules present on the surface of the particle. The increase in surface area determines the potential number of reactive groups on the particle. Changing the physical-chemical and structural properties of nanoparticles with a decrease in size may be responsible for a number of material interactions that may lead to toxicological effects.

The wider the use of nanoscale in industry, greater the number of products made available to the consumer. What is the cause of the concern? By means of specialized equipment, in conditions of interacting with the atomic level, products with physical-chemical characteristics different from those found in its similar in the macro scale are generated. Allied to this aspect, there is no specific regulation for nanotechnologies throughout the life cycle of a nanomaterial.

### III. NANOTECHNOLOGICAL RISKS

The risks are largely unknown and future damage uncertain, but the decision needs to be made in the present, through the use of these new tools arising from the incorporation of the idea that knowledge can no longer be trapped within the tight limits of each field of knowledge. In this way, it is at this time that juridical models permeated by both certainty and uncertainty in relation to social expectations that are continually frustrated/satisfied through the social complexity which is constantly increasing (ROCHA, Martini, 2016).

Therefore, the point is not to not decide, but rather to promote more research to create a path from risk to security, even though practice shows that the more it is known and the more complex calculations can

<sup>2</sup>In a project with support from FAPERGS, between 2013 and 2015, a book was produced containing the results of the research project. ENGELMANN, Wilson (Org.). Nanocosmetics and the right to information: building the elements and the conditions to approximate the techno-scientific development at the nano scale of the need to inform the consuming public. Erechim: Deviant, 2015. In addition to this book, a comic book story was also produced, showing, through a language accessible to the layman and in a playful way, the characteristics of nanotechnologies applied to cosmetics, their risks and regulatory possibilities. ENGELMANN, Wilson. Nanotechnologies in cosmetics. Erechim: Deviant, 2015. (Nanotechnologies in cosmetics, n.5). Comic book.



be elaborated, more aspects are known and with them more uncertainties arise and, consequently, more risks (Luhmann, 2006).

The present moment lived by the human community brings novelties and challenges, many of which are unprecedented and therefore there are incalculable consequences - positive and negative. Undoubtedly, human creative imagination permits the projection and development of artifacts that can be very useful, enabling a more comfortable life. However, the motor of the imagination - which has been called innovation - has conducted the human being to enter fields, always existing in nature, but accessible to them precisely as a result of their *disturbing human nature*.

Although the benefits of nanotechnology today dominate our thinking, the potential of this technology for undesirable results in human health and the environment should not be underestimated, hence, because of size, materials are governed by physical laws very different from those with which the science is accustomed to, opening possibilities for the nanoparticles to present a higher degree of toxicity than in larger sizes, this is the reason why there is a need to evaluate the risks that exist due to the manipulation, development and application of these new technologies, taking into account toxicity, appropriate methods for toxicity testing, as well as impacts on human and environmental health (HOHENDORFF, ENGELMANN, 2014).

An increase in publications and research on the risks of nanoparticles has been occurring (Kulinowski, 2015) and this set of publications should also be considered because they represent what is already known about the behavior of some particles when manipulated at the nanometer scale. By 2008, the US federal government was injecting nearly \$60 million a year into health research and the environmental impacts of nanotechnology. In 2016 US federal agencies proposed to invest \$105.4 million in research to understand and address potential risks to nanotechnology for the environment and health. This represents a massive 80% increase over the previous eight years, reflecting actual concerns about the potential hazards of purposely designed and engineered nanoscale materials (MAYNARD, 2016).

The current situation of nanomaterials and nanotechnology in relation to toxicology is uncertain and complex, as it demands solutions that use the current knowledge available to mitigate risks, while at the same time focusing on the learning of essential variables that affect exposure, toxicity and risk. The ecological and social impact of the technology results from the use of several products already marketed and discarded in the environment (BERTI, 2016). The effects of nanoparticles on humans and the environment are complex and vary based on the properties of the particles as well as on chemical toxicity. However, in contrast to rapid research

and development of new properties, materials and possibilities of nanotechnologies, the research to support comprehensive risk assessments is often delayed. There are concerns about the larger surface areas and different forms and interactivity that some nanomaterials possess - which can make them react differently to their *macro*, *meso* or *micro* counterparts. Because of their small size, biological barriers are not always an obstacle for nanoparticles - such as the blood-brain barrier or the placental barrier between mother and fetus. Practically speaking, measuring and quantifying nanomaterials in real situations is a challenge. In most cases, they are not directly detectable by regular analytical methods because of their very low concentration in the body and/or environment studied. And even if detected, there are difficulties in differentiating between naturally occurring nanomaterials and engineered ones. In addition, most *in vitro* and *in vivo* studies conducted so far are only short-term studies, while the impacts on human health and the environment are in many cases more likely to occur after a long exposure. Consequently, there is an urgent need for long-term exposure studies (EUROPEAN COMMISSION, 2017).

The use of an adaptive approach with interactive analysis of increasing levels of understanding, skill and quantization present an important evolution in the assessment and risk management of nanomaterials. With this, throughout the time it is possible to adapt new information and decisions about uncertainties, in order to identify and prioritize necessary actions on nanotechnological risks to health and the environment. This adaptive life-cycle assessment approach was developed for decision-making in processes that have an environmental impact, and it is inherent in its nature to establish a win-win condition for economic, environmental and social aspects, also called the sustainability tripod (BERTI, 2016). Thus, thinking about the idea of the principle of sustainable development, the economic relations of a society must necessarily attend to an ecossocial behavior, and consequently the business activities at world level need to be managed as they were in the ancient Hellenistic civilizations, not spending more of what is possessed, neither removing from nature more than can be restored (CATALAN, 2008).

#### IV. USE OF SAFE BY DESIGN FOR RISK MANAGEMENT

Risk mitigation strategies may be focused on reducing particle toxicity or reducing exposure, or preferably both. In addition, exposure can occur through different paths: direct exposure (occupational, consumer and/or environment) or indirect exposure (general exposure of the population through the environment), each with its own mitigation measures.



Thus, different mitigation measures can be applied and grouped into three different general strategies (STONE, 2017):

- Safe by design*: design and synthesis of safer materials (less hazardous, more compatible with the matrix, less persistent in the environment) without affecting its main functionalities;
- Occupational exposure control: reducing potential exposure of workers by using measures that reduce the concentration of particles in the workplace or by using personal protective equipment;
- waste management: reducing the potential for environmental exposure (and exposure through the environment) by applying new and known waste treatment processes, including proposals for the implementation of recycling strategies.

The *Safe-by-design* approaches seek the *re-design* and refinement of nanoparticle materials to mitigate their potential risk while maintaining the desired properties that make them attractive for various purposes. This involves:

- Identification of the characteristic(s) that makes nanomaterials potentially toxic;
- Evaluation of the desired properties and how they are correlated with the resources of the identified nanomaterials;
- Re-design of the synthesis strategy in terms of composition, morphology, structure and surface chemistry of nanomaterials. (STONE, 2017)

Safety by *design* strategies based on the surface engineering of nanomaterials has the real possibility of controlling the exposure and potential of risk, attenuating the occupational risk. From this point of view, SbD is more a risk management approach than a risk assessment approach, however, it can exist and be developed only if the characteristics of the nanomaterials that influence the release, exposure, destination/ kinetics, risk and bioaccumulation have been identified with as much information as possible (STONE, 2017).

One of the guidelines of the project Horizon 2020 from the European Union is the NMBP-15-2019: *safe by design* (katalagarianakis, 2017), from science to regulation: metrics and key sectors, whose specific objective is to make it clear that risk management involves risk quantification (toxicity) and exposure and take the necessary steps to reduce the risk to acceptable levels, ideally at an early stage in the development process of nanotechnology (*safe by design*) in various industrial sectors, but in particular for structural or functional materials, coatings and cosmetics and areas of pharmaceutical and health technology that are already currently looking for ways to mitigate the potential risks of nanomaterials and products containing nano. The challenge now is to refine existing methods for monitoring and modeling

physicochemical properties and assess the biological effects of nanomaterials under relevant conditions of use, including in matrices relevant to the product. Furthermore, *safe-by-design* is expected to reduce risk and exposure through the project to an acceptable level of risk without affecting material performance and guiding the development of safer products at different stages. Specific cooperation is planned in this area with the European Union and the USA through the NNI, in which the legal, policy formulation and responsible research and innovation aspects must be integrated. The expected impact is that safe by design is used from the early stages of nanomaterial development processes; that workplaces improve quality and ensure maximum economic performance in parallel with acceptable levels of risk; that occur control and mitigation of exposure to the acceptable level of risk after the release of nanomaterials from products; and that low-cost techniques for the development of an integrated, exposure-oriented risk assessment and associated post-use monitoring *design* are developed and validated.

It is the responsibility of product developers to be aware of the efficient means of controlling the quality and safety of their products and services, but also that there is a concern with market goods that meet "[...] not only requirements and desires of the consumers but also guidelines, principles and practices connected to the diminishment of the negative impacts on the quality of the environment and its components."(SANTOS, PEREIRA, 2017). And this is a way of demonstrating the task of *safe by design*: communication between Law and Science, so that nanotechnological risks are better understood and therefore better managed, aiming at the development of nanotechnologies towards sustainability.

It can be said that *safe by design* then aims at producing safer nanomaterials, applying the best available technique (as a way of applying the precautionary principle), identifying uncertainties and risk potentials in very early stages of product development, active management for the reduction/ elimination of potential nanotechnology risks, transparency regarding data and information relevant to safety, and can also be considered an excellent *marketing* tool for the safety and concern of producers in relation to consumers and the environment, seeking for sustainability.

From an organizational perspective, Figure 1 clearly demonstrates the advantages of applying the *safe by design* tool:



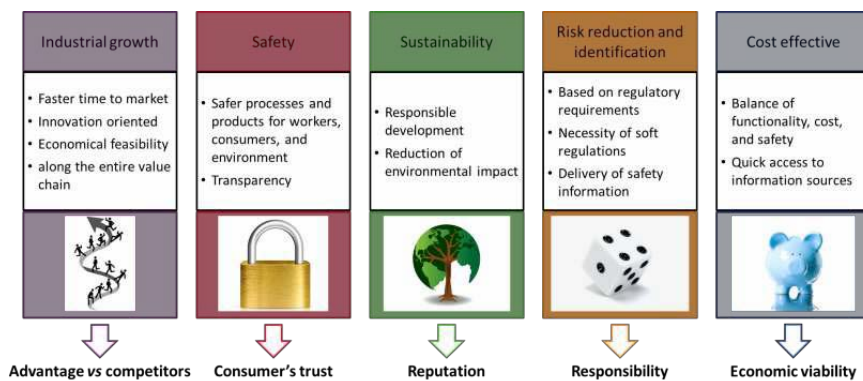
Source: Skentelbery, 2017.

Figure 1: Advantages of the application of SbD (organizational perspective)

As it is clear in the image, the main benefits for an entrepreneur who uses this tool can be characterized as such: reducing the time needed for product research and development, since it considers safety from the outset, the economic issue, the effective cost of innovation, the speed of product development to be released to the market, and throughout the development of the product the safety aspects were considered, the manufacturing of safer products and therefore more accepted by the consumer market as well as the

preparation for future regulatory challenges, since the best available technique was used. It is also necessary to consider that this image was used in a context of a webinar for entrepreneurs, promoted by the Association of Nanotechnology Industries (NIA) (SKENTELBERY, 2017).

Figure 2 demonstrates some of the advantages of the *safe by design* tool from the perspective of different observers and was also presented in the same event



Source: Suarez-Merino, Schlotter, Höhener, 2017.

Figure 2: Benefits of using safe by design

It should be noted that the advantages range from economic issues, balance between cost, functionality and security, through the issues of risk and information, the issue of transparency, aspects more oriented to the entrepreneur<sup>3</sup> who adopts this tool, until

reaching sustainability, through the development and reduction of the impact on the environment.

Consumer acceptance of different applications of nanotechnology is likely to be a determinant key

<sup>3</sup> According to Weyermüller, "one should not expect purely environmentalist attitudes from economic agents because the market is embedded in a system that proves to be incompatible with the principles governing environmental science. Attitudes based on environmental policy, when taken are certainly with the intention of

terms of carefulness with the environment is part of the same systemic logic that takes elements from the environment, transforms them and sells them with the main objective of being economically feasible and sustainable." WEYERMÜLLER, André Rafael. Water and environmental adaptation: payment for its use as an economic and legal instrument of protection. Curitiba: Juruá, 2014, p. 420-421.



which will influence its future development and implementation path. The potential economic and social benefits of nanotechnology may not be realized if the social responses to its application are not adequately addressed early in the product development process. Consumer preferences and priorities in implementing regulations to optimize consumer and environmental protection and the potential characteristics of consumer products should be duly evaluated when formulating regulations, policies and *design* issues related to nanotechnology (GUPTA, FISCHER, FREWER, 2015). Figure 2 demonstrates this consumer concern as well as how much the use of the *safe by design* tool signifies the transparency of the safety issue throughout the project.

## V. CONCLUSIONS

The emerging area of nanotechnology offers promises for the future. In order to make this kind of focus on preventive design occur, a cultural transition will be required: chemists and material developers need to be educated in health, safety, and the environment; in order to make environment, health and safety become quality concerns in the development of new materials, equal to economic and performance considerations; research on the sustainability of materials must be funded at sufficiently significant levels to identify early warnings; and that regulatory systems provide incentives for safer and more sustainable materials.

It is crucial that the communication on nanosafety encourages the translation of new safety-related findings into industrial concerns with business philosophy so that the promotion of the concept *safety design* can be easily explained and accepted by different stakeholders including the general public. This is an important area of research and innovation, but its results should not be obscured by poor communication.

The social and environmental responsibility aspects of the organization also permeate the idea of *safe* in order to place on the market a safer product. The carefulness with the environment and humans through the adoption of risk management and precautionary behavior can be seen in the way organizations behave towards their consumers and the community in which they are embedded. Successful organizations should take a comprehensive view of risk management, which may consider how to protect themselves from some risks, which risks should be explored and how to exploit them (DAMODARAN, 2009).

Organizational ethics has a direct and indirect role in building economic development and its influences cover a wide range of issues, including "[...] environmental protection and sustainability; the strengthening of human rights together with the aim of eliminating poverty ..." (SEN, 2007, p.53). Castells (2007) contributes with the debate about the organizational ethics exposing that in the organizations the application

of the ecological conscience in the business process is also discussed, going through the entire process of production. This is a problem of conscience, not of technical difficulty. And in that sense, in the final analysis, it is an ethical question. Antonik (2016, p.214) explains that social and environmental responsibility can be understood as "[...] everything that involves factors related to society and the environment. In the business area, it is the responsibility of the organization towards society and the environment, in addition to its legal (*compliance*) and economic-financial commitments." (author's emphasis).

Thus, changes emerge for the model of citizen organization, concerned with responsible research and innovation and with ethical, legal and social aspects, with a more sustainable evolution. These are structural changes that lead from hierarchy to co-responsibility; a change in organizational culture; the ethical reconfiguration of the world of work, as a requirement to deal with the uncertain and unknown risks that nanotechnologies can bring and the repositioning of the social balance, which not only represents the economic balance of the organization, but "[...] also data about the degree of satisfaction that a company is generating in the society in which it is developing its activity" (CORTINA, 2005, p.85-86).

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## AUXILIARY MEMBERSHIPS

### Institutional Fellow of Open Association of Research Society (USA) - OARS (USA)

Global Journals Incorporation (USA) is accredited by Open Association of Research Society, U.S.A (OARS) and in turn, affiliates research institutions as “Institutional Fellow of Open Association of Research Society” (IFOARS).

The “FARSC” is a dignified title which is accorded to a person’s name viz. Dr. John E. Hall, Ph.D., FARSC or William Walldroff, M.S., FARSC.



The IFOARS institution is entitled to form a Board comprised of one Chairperson and three to five board members preferably from different streams. The Board will be recognized as “Institutional Board of Open Association of Research Society”-(IBOARS).

*The Institute will be entitled to following benefits:*



The IBOARS can initially review research papers of their institute and recommend them to publish with respective journal of Global Journals. It can also review the papers of other institutions after obtaining our consent. The second review will be done by peer reviewer of Global Journals Incorporation (USA). The Board is at liberty to appoint a peer reviewer with the approval of chairperson after consulting us.

The author fees of such paper may be waived off up to 40%.

The Global Journals Incorporation (USA) at its discretion can also refer double blind peer reviewed paper at their end to the board for the verification and to get recommendation for final stage of acceptance of publication.



The IBOARS can organize symposium/seminar/conference in their country on behalf of Global Journals Incorporation (USA)-OARS (USA). The terms and conditions can be discussed separately.

The Board can also play vital role by exploring and giving valuable suggestions regarding the Standards of “Open Association of Research Society, U.S.A (OARS)” so that proper amendment can take place for the benefit of entire research community. We shall provide details of particular standard only on receipt of request from the Board.



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After nomination of your institution as “Institutional Fellow” and constantly functioning successfully for one year, we can consider giving recognition to your institute to function as Regional/Zonal office on our behalf.

The board can also take up the additional allied activities for betterment after our consultation.

### **The following entitlements are applicable to individual Fellows:**

Open Association of Research Society, U.S.A (OARS) By-laws states that an individual Fellow may use the designations as applicable, or the corresponding initials. The Credentials of individual Fellow and Associate designations signify that the individual has gained knowledge of the fundamental concepts. One is magnanimous and proficient in an expertise course covering the professional code of conduct, and follows recognized standards of practice.



Open Association of Research Society (US)/ Global Journals Incorporation (USA), as described in Corporate Statements, are educational, research publishing and professional membership organizations. Achieving our individual Fellow or Associate status is based mainly on meeting stated educational research requirements.

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We shall provide print version of 12 issues of any three journals [as per your requirement] out of our 38 journals worth \$ 2376 USD.

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**The individual Fellow and Associate designations accredited by Open Association of Research Society (US) credentials signify guarantees following achievements:**

- The professional accredited with Fellow honor, is entitled to various benefits viz. name, fame, honor, regular flow of income, secured bright future, social status etc.



- In addition to above, if one is single author, then entitled to 40% discount on publishing research paper and can get 10% discount if one is co-author or main author among group of authors.
- The Fellow can organize symposium/seminar/conference on behalf of Global Journals Incorporation (USA) and he/she can also attend the same organized by other institutes on behalf of Global Journals.
- The Fellow can become member of Editorial Board Member after completing 3yrs.
- The Fellow can earn 60% of sales proceeds from the sale of reference/review books/literature/publishing of research paper.
- Fellow can also join as paid peer reviewer and earn 15% remuneration of author charges and can also get an opportunity to join as member of the Editorial Board of Global Journals Incorporation (USA)
- • This individual has learned the basic methods of applying those concepts and techniques to common challenging situations. This individual has further demonstrated an in-depth understanding of the application of suitable techniques to a particular area of research practice.

## Note :

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- In future, if the board feels the necessity to change any board member, the same can be done with the consent of the chairperson along with anyone board member without our approval.
- In case, the chairperson needs to be replaced then consent of 2/3rd board members are required and they are also required to jointly pass the resolution copy of which should be sent to us. In such case, it will be compulsory to obtain our approval before replacement.
- In case of “Difference of Opinion [if any]” among the Board members, our decision will be final and binding to everyone.

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# PREFERRED AUTHOR GUIDELINES

**We accept the manuscript submissions in any standard (generic) format.**

We typeset manuscripts using advanced typesetting tools like Adobe In Design, CorelDraw, TeXnicCenter, and TeXStudio. We usually recommend authors submit their research using any standard format they are comfortable with, and let Global Journals do the rest.

Alternatively, you can download our basic template from <https://globaljournals.org/Template.zip>

Authors should submit their complete paper/article, including text illustrations, graphics, conclusions, artwork, and tables. Authors who are not able to submit manuscript using the form above can email the manuscript department at [submit@globaljournals.org](mailto:submit@globaljournals.org) or get in touch with [chiefeditor@globaljournals.org](mailto:chiefeditor@globaljournals.org) if they wish to send the abstract before submission.

## BEFORE AND DURING SUBMISSION

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1. Authors must go through the complete author guideline and understand and *agree to Global Journals' ethics and code of conduct*, along with author responsibilities.
2. Authors must accept the privacy policy, terms, and conditions of Global Journals.
3. Ensure corresponding author's email address and postal address are accurate and reachable.
4. Manuscript to be submitted must include keywords, an abstract, a paper title, co-author(s) names and details (email address, name, phone number, and institution), figures and illustrations in vector format including appropriate captions, tables, including titles and footnotes, a conclusion, results, acknowledgments and references.
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Authors are solely responsible for all the plagiarism that is found. The author must not fabricate, falsify or plagiarize existing research data. The following, if copied, will be considered plagiarism:

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- Writings
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3. Final approval of the version of the paper to be published.

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Unless specified in the notification, the Editorial Board's decision on publication of the paper is final and cannot be appealed before making the major change in the manuscript.

### Acknowledgments

Contributors to the research other than authors credited should be mentioned in Acknowledgments. The source of funding for the research can be included. Suppliers of resources may be mentioned along with their addresses.

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## PREPARING YOUR MANUSCRIPT

Authors can submit papers and articles in an acceptable file format: MS Word (doc, docx), LaTeX (.tex, .zip or .rar including all of your files), Adobe PDF (.pdf), rich text format (.rtf), simple text document (.txt), Open Document Text (.odt), and Apple Pages (.pages). Our professional layout editors will format the entire paper according to our official guidelines. This is one of the highlights of publishing with Global Journals—authors should not be concerned about the formatting of their paper. Global Journals accepts articles and manuscripts in every major language, be it Spanish, Chinese, Japanese, Portuguese, Russian, French, German, Dutch, Italian, Greek, or any other national language, but the title, subtitle, and abstract should be in English. This will facilitate indexing and the pre-peer review process.

The following is the official style and template developed for publication of a research paper. Authors are not required to follow this style during the submission of the paper. It is just for reference purposes.





### ***Manuscript Style Instruction (Optional)***

- Microsoft Word Document Setting Instructions.
- Font type of all text should be Swis721 Lt BT.
- Page size: 8.27" x 11", left margin: 0.65, right margin: 0.65, bottom margin: 0.75.
- Paper title should be in one column of font size 24.
- Author name in font size of 11 in one column.
- Abstract: font size 9 with the word "Abstract" in bold italics.
- Main text: font size 10 with two justified columns.
- Two columns with equal column width of 3.38 and spacing of 0.2.
- First character must be three lines drop-capped.
- The paragraph before spacing of 1 pt and after of 0 pt.
- Line spacing of 1 pt.
- Large images must be in one column.
- The names of first main headings (Heading 1) must be in Roman font, capital letters, and font size of 10.
- The names of second main headings (Heading 2) must not include numbers and must be in italics with a font size of 10.

### ***Structure and Format of Manuscript***

The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references)

A research paper must include:

- a) A title which should be relevant to the theme of the paper.
- b) A summary, known as an abstract (less than 150 words), containing the major results and conclusions.
- c) Up to 10 keywords that precisely identify the paper's subject, purpose, and focus.
- d) An introduction, giving fundamental background objectives.
- e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition, sources of information must be given, and numerical methods must be specified by reference.
- f) Results which should be presented concisely by well-designed tables and figures.
- g) Suitable statistical data should also be given.
- h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unrefereed.

- i) Discussion should cover implications and consequences and not just recapitulate the results; conclusions should also be summarized.
- j) There should be brief acknowledgments.
- k) There ought to be references in the conventional format. Global Journals recommends APA format.

Authors should carefully consider the preparation of papers to ensure that they communicate effectively. Papers are much more likely to be accepted if they are carefully designed and laid out, contain few or no errors, are summarizing, and follow instructions. They will also be published with much fewer delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and suggestions to improve brevity.



## FORMAT STRUCTURE

***It is necessary that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.***

All manuscripts submitted to Global Journals should include:

### **Title**

The title page must carry an informative title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) where the work was carried out.

### **Author details**

The full postal address of any related author(s) must be specified.

### **Abstract**

The abstract is the foundation of the research paper. It should be clear and concise and must contain the objective of the paper and inferences drawn. It is advised to not include big mathematical equations or complicated jargon.

Many researchers searching for information online will use search engines such as Google, Yahoo or others. By optimizing your paper for search engines, you will amplify the chance of someone finding it. In turn, this will make it more likely to be viewed and cited in further works. Global Journals has compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

### **Keywords**

A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy: planning of a list of possible keywords and phrases to try.

Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning searching. Think about the most important concepts related to research work. Ask, "What words would a source have to include to be truly valuable in a research paper?" Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

### **Numerical Methods**

Numerical methods used should be transparent and, where appropriate, supported by references.

### **Abbreviations**

Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

### **Formulas and equations**

Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

### **Tables, Figures, and Figure Legends**

Tables: Tables should be cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g., Table 4, a self-explanatory caption, and be on a separate sheet. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.



## Figures

Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

## PREPARATION OF ELETRONIC FIGURES FOR PUBLICATION

Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/ photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution at final image size ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs): >350 dpi; figures containing both halftone and line images: >650 dpi.

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## TIPS FOR WRITING A GOOD QUALITY SOCIAL SCIENCE RESEARCH PAPER

Techniques for writing a good quality human social science research paper:

**1. Choosing the topic:** In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

**2. Think like evaluators:** If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

**3. Ask your guides:** If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

**4. Use of computer is recommended:** As you are doing research in the field of human social science then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

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**7. Revise what you wrote:** When you write anything, always read it, summarize it, and then finalize it.

**8. Make every effort:** Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

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**10. Use proper verb tense:** Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

**11. Pick a good study spot:** Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

**12. Know what you know:** Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

**13. Use good grammar:** Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice.

Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

**14. Arrangement of information:** Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

**15. Never start at the last minute:** Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

**16. Multitasking in research is not good:** Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

**17. Never copy others' work:** Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

**18. Go to seminars:** Attend seminars if the topic is relevant to your research area. Utilize all your resources.

Refresh your mind after intervals: Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

**19. Think technically:** Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.



**20. Adding unnecessary information:** Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

**21. Report concluded results:** Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

**22. Upon conclusion:** Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium through which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

## INFORMAL GUIDELINES OF RESEARCH PAPER WRITING

### **Key points to remember:**

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

### **Final points:**

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

*The introduction:* This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

### **The discussion section:**

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

### **General style:**

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

**To make a paper clear:** Adhere to recommended page limits.





### *Mistakes to avoid:*

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.
- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

### **Title page:**

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

**Abstract:** This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

*Reason for writing the article—theory, overall issue, purpose.*

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

### **Approach:**

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

### **Introduction:**

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.



*The following approach can create a valuable beginning:*

- Explain the value (significance) of the study.
- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.

#### **Approach:**

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

#### **Procedures (methods and materials):**

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

#### **Materials:**

*Materials may be reported in part of a section or else they may be recognized along with your measures.*

#### **Methods:**

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

#### **Approach:**

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

#### **What to keep away from:**

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.



**Results:**

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.

**Content:**

- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

**What to stay away from:**

- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

**Approach:**

As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

**Figures and tables:**

If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

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Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."



Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

- You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

#### **Approach:**

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

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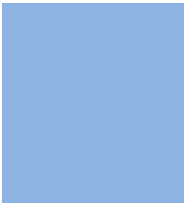
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|                               | A-B  | C-D   | E-F  |
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| <i>References</i>             | Complete and correct format, well organized  | Beside the point, Incomplete  | Wrong format and structuring                                   |







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