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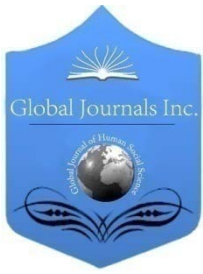
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Rape Endemic in Nigeria: Causes, Effect and Probable Way Out

By Mofoluwawo Esther Omoniyi

Emmanuel Alayande College of Education

Abstract- Nigeria faces a number of problems such as high rate of corruption, increasing unemployment, persistent poverty, lack of basic medical care amongst others. Added to the above stated developmental problems, is the problem of incessant rape permeating the Nigerian society. This paper examines the causes and effects of rape. The paper is essentially library research with internet sources using expository and phenomenological designs. Rape is shown to be a global social problem and its perpetrators cut across all age brackets. The paper recommends amongst others that; the society should exhibit zero tolerance to rape by engaging rape intolerance attitudes, an increased level of empathy; every perpetrator of rape should be exposed to take full responsibility for his or her actions and should under no circumstances be shielded or protected by parents, colleagues or churches. Nigerian government should enforce laws to protect women against rape.

Keywords : *rape, girl, sex, nigeria, control.*

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Mofoluwawo Esther Omoniyi

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Keywords: rape, girl, sex, nigeria, control.

I. INTRODUCTION

Despite decades of feminist activism, men continue to rape women and girls at appalling rates. Rape is one of the more pervasive forms of violation against women in which the assailant uses sex to inflict humiliation on the victim or exert power and control over the victim. The Declaration on the Elimination of Violence Against Women (DEVAW) adopted by the United Nations General Assembly in 1993 defines Violence Against Women (VAW) as any act of gender based violence that results in or is likely to result in physical, sexual or psychological harm or suffering to women, girls including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or private life (Onyejekwe (2008).

The United Nations Declaration specifies that rape, marital rape and sexual abuse are forms of violence against women. Article 2 makes it clear that physical, sexual and psychological acts of violence perpetrated or condoned by the state wherever it occurs also falls within the definition of violence against women and that states must refrain from engaging in violence against women (article 4 (b)) and exercise due diligence against women whether those acts are perpetrated by the state or by private persons (article 4c).

There is no doubt that rape is prevalent across all sectors of Nigerian society. The prevalence of rape committed with impunity by state actors is particularly alarming in the current situation. Testimonies of women

who have been raped and reports by Nigerian human rights organizations identify the Nigerian police force and other members of the security forces particularly the military as the principal actors.

Rape of women and girls by both the police and security forces, and within their homes and community is acknowledged to be endemic in Nigeria not only by human rights defenders but by some government officials at federal, state and local levels. Amnesty International (2007). The government however, is failing in her obligation to exercise due diligence; the perpetrators invariably escape punishment and women and girls who have been raped are denied any form of redress for the serious crimes against them. Rape at times was used strategically by police and security forces to coerce and intimidate entire communities. Amnesty International has met some women and girls who have been raped some of whom have been abducted by the security forces in areas of the country where violence is rife and have documented their harrowing experiences.

Rape like a cankerworm seems to be thriving and deepening its roots at an alarming rate today in the Nigerian society. The frightening reports of rape appear in the national dailies cutting across all age brackets in the society. Achunike and Kitause (2014). It is against this background that the paper is out to examine the concept of rape, incidences of rape in Nigeria and other countries, its effects and probable way out to the heinous crime in Nigeria.

II. CONCEPTUAL CLARIFICATION OF RAPE

Rape is defined as any form of sexual intercourse without free mutual consent between those involved. Ezere et al (2009). It is a sexual intercourse that involves force, threat, blackmail, deceit or coercion. Hornby (2006) defines rape as a crime of forcing somebody to have sex with one especially using violence. It is the crime of forcefully having sex with someone against the person's wish (Chiedu 2012). Rape is an act of sexual violence that involves intercourse without consent or against someone being willing to engage in the act. (Brigneti and Egbonimah (2002).

Rape within marriage (force or coercion) sexual intercourse between husband and wife is not recognized as a crime by Nigerian law. A husband who forces his wife to have sex may be found guilty of assault,

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wounding or grievous harm depending on the degree and effect of the force he used on his wife. In the words of Chukwuma,(2013), rape may involve unlawful behavior or action such as making a child touch, suck or caress one's private parts to derive sexual pleasure. It should be noted that once the law of love is violated in any love making, even if it is within marriage, it is equally an act tantamount to rape (Litchfield and Litchfield 2012) and Achunike and Ritause (2014). Rape endemic is a form of gender based violence against women and girls. The committee on Elimination of Discrimination Against Women stated in its General Recommendation No 19 that gender-based violence is a form of discrimination which the Convention on the Elimination of all forms of Discrimination Against Women (CEDAW) of all form requires its state parties to eliminate in all its form. Nigeria ratified the convention on June 1985.

III. RAPE, A GLOBAL PROBLEM

Rape endemic in Nigeria is alarmingly a menace that is spreading very fast. According to Chiedu (2012) rape has been in existence in the traditional society and only became public knowledge with the advent of globalization, electronic and printed media. Rape is a global problem with women and girls being mostly vulnerable (Onah, 2010)

Women and girls are still caught up in a cycle of human rights violations since the first United Nations Conference on Women in Mexico in 1975 (Ward, Horwood, McEvoy, Shipman and Rumble 2007). Estimates show that a woman born anywhere in the world has a one in three chance of being raped, beaten, coerced into sex or otherwise abused in her lifetime.

There are several sad cases of rape in Nigeria. For instance a religious leader raping a member of his flock, a landlord raping his tenant's daughter, a teacher raping a student, a man raping his sister-in-law or daughter-in-law, a boss raping his staff, master raping his house girl. A young man raping a grandmother, an 80 year old has raped an 8 year old girl, a traditional ruler raped a subject and the list is endless.(Chiedu 2012, p1)

Many of these perpetrators of rape are young men while others are adults (Obasi 2007). The Nation (2010) in its editorial lamented the growing trend of sexual abuse in different parts of Nigeria. It was observed that the cases cut across any type of boundary, even age has nothing to do with it for the perpetrators of the crime because it is the unrestrained urge. ANPPCAN (1999) in her intensive study on 100 female hawkers and 100 female non-hawkers aged 8-15 years in Ibadan metropolis reported that 50% of the hawkers had sexual intercourse while 9% of the non-hawkers had been raped while out on errands or walking to or from school. Of the 50% who have been raped, only seven reported the event to parent or

guardian. This may be due to fear of stigma or ridicule if the rape is made public.

In a survey of national dailies, Okunade (1998) identified 100 cases of rape of children whose ages ranged between 2 and 16 years. The victims were 94 girls and 6 boys while their assailants were aged 13 to 60 years. In Ilorin, Adedoyin and Adegoke (1995) reported that 50% of commercial sex workers surveyed had their first sexual experience before 18 years and there stated that childhood rape could lead to prostitution.

Out of 950 rape cases reported at the hospital in Benin city, 58% involved child rape, 40% of these victims were those attending formal school, 40% were engaged in hawking while the remaining 20% were idle. Reports show that no fewer than 1200 girls were raped in Rivers state in 2012 (Kawu 2013). Also, a man is allegedly reported to have been raped to death by six wives on Tuesday July 17, 2012 in Ogbadiso Local Government Areas of Benue State (Malcom, 2012).

Suffice it to stress that rape cases in Nigeria is not a new practice but only that it appears more endemic with children now forming the bulk of the victims (Odeh, 2013). The incidence of baby and child rape as reported by Ejim (2013) has hit a statistic of 70 percent of the total rape cases in Nigeria. Child molestation is becoming a sad reality which Nigeria must curtail before it gets out of hands. Nigerian government, parent and religious organizations should rise up and fight the menace. Record has it that in Lagos state recently, two girls, aged 2 and 3 respectively were raped by adults aged 25 and 35 years old (Rotimi, 2013) said of Sylvester Ehijere, a 48 year old man of No.8 Kolawole Sebili street, Iyana Ejigbo, Lagos who had been sexually abusing his two daughters until March 2013 when he was exposed, arrested and is currently facing trial for his alleged crime (Odeh, 2013).

In Niger state, a 6 year old girl was sexually abused by one Ibrahim, a 17 year old boy in Niger state (Alhassan, 2013). Also, Joel Lambert Ayibakuro was arrested and arraigned before the court for raping his own 7 year old daughter. A man was detained because he has carried out sexual assault with his biological daughter and granddaughter (Ejim, 2013). The researcher has seen a landlord who had always raped all his daughters and any female who came to live in his house for a while (Personal Communication, 2015). The research got to know this secret through two of the girls who lived with him and whom the man attempted to rape and the other one he had raped, luring them with gift and money.

Coupled with the above is the case of the police and government officials in Kano who reported that there is an upsurge of child rape incidences, fearing that young girls are now unsafe in Kano city (<http://www.nigeriachildrapeinkano.com/2012>). In Kano city alone, 54 cases of child rape were recorded in that

city. It was recorded in Ekiti state that a police man raped a 12 year old girl in the capital city (<http://www.grassrootsvanguard.com/2011>).

Record showed that three police officers in Enugu were charged with rape and abduction by a magistrate court in Enugu and the case was subsequently transferred to a high court. The defendant pleaded not guilty (Amnesty International 2006). An application for bail filed by the defence lawyer on 17 May 2006 was refused and the defendants remained in detention awaiting the next hearing. The NGOs reported to Amnesty International that the girls and the members of their families have been subjected to intimidation, including anonymous death threats to coerce them into withdrawing the case. A senior police officer was also reported to have approached their relatives to offer a bribe if criminal charges were dropped. The different cases of rape can go on inexhaustibly in Nigeria by relatives, in-laws, police and other security agents, religious leaders and so on.

Record also revealed that one Segun Benson, a sixty year old unmarried bricklayer of 9, Momoh Street, Agege Lagos raped a fourteen year old girl of primary six on the 19th, January 2015. The girl was tricked into the room with fifty naira (2015)

Suffice it also to stress that rape cases are not limited to Nigeria alone. Prevalence of rape cases occur in other countries of the world. In North America, approximately 15% to 25% of women and girls and 5% to 15% of men were sexually abused when they were children (Gorey and Leslie, 1997). Most rape offenders are acquainted with their victim; for instance approximately 30% are relatives of the child, most often brothers, fathers, uncles or neighbours, strangers are the offenders in approximately 10% of rape cases (Whealin, 2007). Hall and Hall, (2007) opined that most offenders who rape prepubescent children are pedophiles. Pedophiles are those who have persistent feeling of attraction towards prepubescent children, whether the attraction is acted upon or not. Matorah, Jenkes and Vindale (1997) reported that an antenatal clinic in the outskirts of CapeTown in South Africa, 32% of 119 teenage mothers whose average age was 16 years reported that their first intercourse had been forced, 75% reported having had sex against their will at some point and 12.5% said they would be beaten if they refused sex.

In Darfur, Sudan, the UN has since accused the Janjaweed-Arab Militiamen-of abducting and gang-raping thousands of women and girls (Mariner, 2004). There were reports of American troops raping fellow female troupes in Iraq (Mofeit and Herdy, 2004). It is estimated that a third of all women and girls in the Sierra-Leone conflict of 1991 and 2002 were raped (Ross,2007). In Congo also women are bearing the brunt of the horrible weapons of war; rape (Cooper, 2008). Similar experience were witnessed in the Bosnian

war(International Herald Tribune, 2007) Not long ago in Pakistan, Mukhtaran Mal, was gangraped and left naked on the order of a tribal council in 2002 as punishment for her brother's alleged affair with a woman from another tribe (Delva, 2007).

In New Delhi, India four men were sentenced to death by hanging because they gang-raped and murdered a 23 year old physiotherapy student (<http://www.hollywoodreporter.com/new/indian-gang-rape-four-accused-624965>). In Chicago, a nine year old girl was found raped, beaten and poisoned on the seventh-floor stairway of her Cabrin Green housing project on January 9, 1997 (Adeleye, 1997). In Kenya, the government survey revealed that one out of every 5 women and girls are victims of child rape cases in Kenya are from 3 years of age and above. This findings, among others point to frightening dimensions that rape may be assuming in Nigeria and the world at large. The endemic nature of rape in contemporary Nigeria are caused by many factors that would be discussed below:

IV. ENDEMIC RAPE IN NIGERIA: CAUSES

The following are considered the causes of rape in Nigeria. As good as sex is because it is a gift from God, the misuse of it is a sin of which the perpetrator would be judged if not repented.

Culture of Silence: This has aggravated this problem partly from humiliation and intimidation of the victim by the police as well as embarrassment of the public acknowledgement. Hutton, Omidian and Miller (2006) aptly describe the situation as including being ostracized by those who consider rape as bringing dishonor to a woman's family and community. This culture of silence reinforces the stigma already attached to the victim rather than to a perpetrator, as the dominant perception is that women have provoked the abuser to attack, victims in many of the incidence are unwilling to testify about their experiences.

Myths About Sex: Are another cause of rape in Nigeria. There is a common belief among many ethnic groups that without premarital sexual intercourse, boys are bound to have small testicles, suffer from pimples, have difficult erection and not been able to perform better when married. The myth about the girls is that they are bound to have small breast, experience early menopause, painful menstruation and painful nipples when breast feeding their babies. Coupled with above myth is a myth that if the HIV infected men have sex with a virgin, they can be cured of AIDS (Garland, 2003). This myth has lured many men with HIV and AIDS to rape innocent girls in the society as a solution to their problem.

Peer Group Influence: Is another factor that encourages heinous rape in the Nigerian society. The Holy Bible says show me your friend and I will tell you the type of person you are. Isangedighi,(1990) opined that most

adolescents are led into sexual promiscuity by their peers. Most adolescents in their bid to be social and gain approval of their peers engage in many social vices like rape, prostitution, cyber crimes etc. Many of them through peer influence experiment sex through raping and since they are not caught, they continue in the business of rape.

Indecent Dressing: Is also a factor that encourages rape in Nigerian society. Indecent dressing has been traced to modernity. Indecent dressing that exposes the erogenous zones of female attracts undue attention from males which do lead to sexual harassment that at times leads to rape Mofoluwawo, (2012). She opined further that is considered a healthy practice to put on clothes that adequately covered certain sensitive parts of the body. Robinson, (2001) explained that the role played by clothing in stimulating or diminishing sexual urge is symbolic of the moral standard of a given culture. Nowadays it has become a fashion for the female folk (women and girls alike) to dress half naked to the extent that some parts of their body like breast, buttock, armpit, thighs that are supposed to be hidden are exposed to the public (Eze 2007, Mofoluwawo, 2012)). Indecent dressing is the order of the day in Nigerian tertiary institutions of learning particularly among female folk. Apparently, it has become the common mode of dressing for the majority. Some parents even carelessly buy clothes for their children to wear with negative inscriptions like 'kiss me fast', 'fuck me', 'hug me tight', 'sexy babe', and the likes. Ayogu(2011), Achunike and Kitause (2014). It is a fact that action speaks louder than words; wearing of such seductive clothes attract male folk to rape such ladies.

Influence Of Modernity Or Civilization And Globalization: Has also contributed to endemic rape in Nigerian society. The discourse of modernity and civilization as propelled by globalization though the acceleration of Information Technology (ICT) have encouraged the adolescents to watch various types of pornographic movies and pictures. Many youths also read erotic novels, books, newspapers, magazines aside from being exposed to sexually overloaded advertisement on television and films. Coupled with the above is the sexually graphic music, obscene literature, movies directed at the adolescents which arouses their interest in sex. (Isangedighi, 1990 p.285). Exposure of the adolescents to sexual films and music pressurizes them to experiment what they have seen even if it means raping. This situation makes raping more endemic among Nigerian youth.

Lax Rape Laws In Nigeria: Is another factor in the Nigerian society. The laxity of law against the rapist enables the heinous crime to continue with impunity since many of them have not been caught talk less of

being punished. The laws in Nigeria lack implementation, they only appeared inside the paper. This laxity further humiliates the victims rather than vindicating them. Reports of the rape do not guarantee redress or punishment of the offenders. This is because rape perpetuates powerful mythologies which make it difficult to prosecute rapists without evidence of physical injury from the victim, corroborating eye witnesses or other difficult evidence. Ejim,(2013) reiterated further that the police after demanding to get bribe so as to investigate rape cases, accuse the victims of consenting to the sexual intercourse with the rapists. It was also reported that one rape victim was put in a cell for reporting a police rapist (<http://naijamajor.com/kenyan-girl-win-landmark-rape-case-against-police>). This may be the reason why the Abuja High Court Judge-Umoh Enah recently lampooned the Nigerian police for mishandling the prosecution of an alleged rapist ([http:// premium timesng.com/metro1133299](http://premiumtimesng.com/metro1133299)).

V. ENDEMIC RAPE IN NIGERIA: ITS EFFECTS

Ogunyemi, (2000) reported the psychological effect of rape as feelings of vulnerability, unworthiness and mistrust, shame, guilt and mental health problems. The behavioural consequences are involvement in unprotected sex, earlier sexual initiation, unwanted pregnancy and increased risk of infection with sexually transmitted diseases (including HIV/AIDS).

Kayode (2010) and Alhassan (2013) in their interaction with rape victims discovered that some of the people felt like committing suicide, 17 percent actually attempt suicide, some wanted vengeance, some suffered trauma, mental challenges and sexuality problems as married adults among other defects. Rape leaves painful memories and a lifelong effect on the victim (Obasi 2007 p.34). It leaves a permanent damage on its victims.

Succinctly, women aspirations and achievement are powerfully inhibited not just by the injuries of physical attacks but by the implicit threat to social development ((Nnaeke, 2006). Rape is a key component to social problems. By subjecting women and girls to rape without a social structure that endeavours to stop this practice, the women could be made to believe that they are inferior to their counterparts and that they deserve their abuse. This can affect their self image and perception on men in general.

Again, rape may shorten one's life as the victim tries to abort the pregnancy resulting from rape. It may lead to dropping out of school or rushing into unplanned marriage or marrying the wrong person (Finn and Finn 2012). It can as well lead to frustration, fear, anxiety, anger at self, image depression and a host of other damages to one's life (Litchfield and Litchfield, 2012).

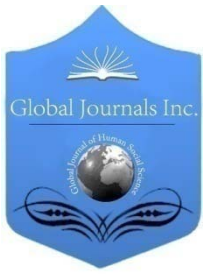
VI. PROPOSAL FOR CURBING ENDEMIC RAPE IN NIGERIA

- ❖ Having examined the concept of rape, its causes, incidences of rape in Nigeria and other countries of the world and its effects, the following measures are proposed to curb the endemic rape in Nigeria:
- ❖ Government and the society need to declare a zero-tolerance on rape in Nigeria and commit adequate resources to tracking down offenders and encouraging victims to come forward and report to the police. Nigerian populace should also increase their level of empathy towards the victims rather stigmatize them.
- ❖ Suggested solutions to the problem of rape by Estrich (1998) go along with those of Amnesty International is (2006) observation on Nigeria-that of providing support structures for girls and women victims. These include getting men involved in finding a lasting solution to this crime in such areas as the police departments, hospitals and district attorney's offices. By so doing, they can be trained and given the expertise to deal sensitively with the physical and emotional issues involved in order to win the victim's cooperation and successfully prosecute the perpetrators.
- ❖ Support should be given to developmental associations, civil society, human rights organization, national councils, ministries, youth centres, mosques and churches to confront this menace. Also accurate information and data must be available on the scope of the problem and how to confront it.
- ❖ The government should ensure that all girls and women who have been subjected to rape have access to justice and to reparations including compensation, rehabilitation, satisfaction and guarantees of non-repetition.
- ❖ Bring all perpetrators to justice in trial standards and exclude the death penalty and facilitate private criminal prosecutions by non-governmental organizations and other cases of rape.
- ❖ Government should ensure that punishment prescribed for rape are commensurate with the gravity of the crime committed.
- ❖ Ensure that women and girls are able to report to women police officers when reporting gender based violence.
- ❖ Ensure effective separation of men and women in prisons, police stations and all other places of detention and that detention facilities for women are staffed by women officers.

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Using Data Envelope Analysis to Examine US State Health Efficiencies Over 2008-2015

By Juan Jaramillo & Gavin Putzer

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Abstract- Health spending in the United States (US) has been steadily rising over the past several decades. The Affordable Care Act (ACA) became law in 2010, but was not operational until 2014. The principal intention of the legislation was to provide insurance coverage to millions of US citizens who previously did not possess health insurance to improve Americans' health. In our study, we compare the efficiency of health care resources on a state-by-state population basis in the US between the years of 2008-2015. Efficiencies are calculated using Data Envelopment Analysis (DEA). DEA can be defined as a non-parametric technique that uses linear programming (lp) to compare the relative efficiencies of homogenous Decision Making Units (DMU) in transforming inputs into outputs. In this case, the DMUs represent the states. DEA uses lp models to build an efficiency frontier. The efficiency frontier is determined by the most efficient states (i.e., DMUs). Therefore the efficiency of each state can be compared against the frontier and therefore against the most efficient ones.

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Juan Jaramillo^α & Gavin Putzer^σ

Abstract- Health spending in the United States (US) has been steadily rising over the past several decades. The Affordable Care Act (ACA) became law in 2010, but was not operational until 2014. The principal intention of the legislation was to provide insurance coverage to millions of US citizens who previously did not possess health insurance to improve Americans' health. In our study, we compare the efficiency of health care resources on a state-by-state population basis in the US between the years of 2008-2015. Efficiencies are calculated using Data Envelopment Analysis (DEA). DEA can be defined as a non-parametric technique that uses linear programming (lp) to compare the relative efficiencies of homogenous Decision Making Units (DMU) in transforming inputs into outputs. In this case, the DMUs represent the states. DEA uses lp models to build an efficiency frontier. The efficiency frontier is determined by the most efficient states (i.e., DMUs). Therefore the efficiency of each state can be compared against the frontier and therefore against the most efficient ones. In addition, DEA is used to obtain a Malmquist productivity change index, which is a flexible, mathematical programming approach for the assessment of productivity through input and output variables. We selected four input variables: insurance coverage of citizens, the number of physicians per 100,000 residents per state, the number of hospital beds per 1000 inhabitants per state, and public health funding per capita per state. We selected one output variable: years of life lost (YLL). As expected with the full implementation of the ACA, the input variable- insurance coverage- increased appreciably in 2014 and 2015. The output variable – years of life lost – reflecting disease burden was trending downward from 2008-2013 and remained at a new low in 2014-15. The Malmquist Efficiency Index (MEC) was relatively stable during the study period. By contrast, the Malmquist Technology Change Index (MTC) was variable; it increased from 2008-2011; decreased substantially in 2012; increased in 2013; and decreased modestly 2014-15. The Malmquist Productivity Index (MPI) is the product of the MEC and MTC and varied like the MTC.

I. INTRODUCTION

Health spending in the United States (US) has been steadily rising over the past several decades. According to the US Department of Labor in 2007, 5.8% of Americans' household spending was devoted to healthcare, while in 2015; the number had risen to 8%. Moreover, a recent study conducted by the Brookings Institution (2016) showed that middle-

income households currently devote the largest share of their spending to healthcare (8.9%).

As of June of 2016, health spending reached 18.2% of gross domestic product (Altarum Institute, 2016).

Despite these large health expenditure metrics, there were several years of historically low increases in health inflation after the Great Recession of 2007-09 until 2014 and the implementation of the effects of the Patient Protection and Affordable Care Act (ACA). The ACA became law in 2010; however, full implementation of many of the provisions including insurance coverage availability did not occur until January 1, 2014 (Rosenbaum, 2011). The principal intention of the legislation was to provide insurance coverage to millions of US citizens who previously did not possess health insurance to improve Americans' health. This led to the return of increased health spending and the consequent faster growth has been a result of coverage expansions under the Affordable Care Act (Martin, 2016). More specifically, this has been due to increased Medicaid coverage and private health insurance which contributed to an increase in the insured share of the population (Martin, 2016; Collins, 2017). Many studies suggest the increased coverage has improved health and diminished disability (Collins, 2017; D'Angelo, 2015; Brown, 2016).

There was a previous study conducted on the public health system efficiency of European countries (Asandului, 2010). Asandului shows that some of the developed European countries are efficient in output while using their healthcare inputs. Moreover, the study concluded that a dynamic approach using the Malmquist Index could be used to improve their study. To the best of our knowledge, few studies have examined the efficiency of resource utilization of the US health system comparing the 50 states using the Malmquist index. Thus, we published a paper (Putzer, 2016) to compare each state vis-à-vis the other states to examine the efficiency of the use of health resources. This was accomplished through the application of a non-parametric method known as Data Envelope Analysis (DEA). We employed three input variables – the number of physicians per 100,000 residents per state, the number of hospital beds per 1000 inhabitants per state and the public health funding per capita per state and one output variable- disability adjusted life years - to

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reflect burden of disease. The study considered a multi-year duration from 2008-2014.

In this study, we compare the efficiency of health care resources on a state-by-state population basis in the US between the years of 2008-2015. This includes examining the 50 states through the application of a non-parametric method known as Data Envelope Analysis (DEA). DEA allows multi-input and multi-output analysis. DEA measures productivity efficiencies of Decision Making Units (DMUs). In our paper, DMUs represent the states. DEA creates an efficiency frontier and compares all DMUs against the frontier. In addition, DEA is used to obtain a Malmquist productivity change index, which is a flexible, mathematical programming approach for the assessment of productivity through input and output variables (Roh, 2011). We selected four input variables: insurance coverage of citizens; the number of physicians per 100,000 residents per state, the number of hospital beds per 1000 inhabitants per state, and public health funding per capita per state. We selected one output variable: years of life lost (YLL) to reflect the population burden (Burnet, 2005). Years of life lost are a population-based mortality indicator of the impact of a disease on society (CDC, 1993; Murray, 1996; Murray 2002). The years of life lost metric was developed by the Global Burden of Disease Study (Murray, 1996) to identify the burden of disease and premature death. Burden of disease studies have been implemented using indicators such as the years of lost life (Fontaine, 2003; Burnet, 2005; Kenney, 2008; Putzer, 2015). We conducted analyses to evaluate the differences over 2008-2015 to compare each state vis-à-vis the other states to examine the efficiency of the use of health resources on disease burdens.

II. METHODS

This work approaches the analysis in two steps. The first step is to obtain relative efficiencies for each one of the years included the time-period studied using DEA. The second step is to calculate Malmquist productivity indexes including the Efficiency Change and the Technological Change components.

DEA (Charnes, 1978 based on Farrell, 1957) is a non-parametric methodology based on linear programming that allows a researcher to benchmark Decision Making Units (DMUs) when transforming inputs into outputs. In our work, DMUs represent US States. DEA uses a set of linear programs that generate a "best practice frontier". The "best practice frontier" is used to determine relative efficiencies for each DMU. Thus, DEA assigns efficiency values of 1 for DMUs in the frontier and lower values regarding other DMUs contingent on their distances from the frontier. In this paper, a Constant Rate of Returns to Scale (CRS) DEA model is used.

Malmquist Productivity Index (MPI) can be estimated based on distance functions (Caves, 1982). Moreover, it is possible to obtain MPI and its main components, Malmquist Efficiency Change (MEC) and Malmquist Technical Change (MTC), using DEA output oriented models (Fare, 1994). Notice that the decomposition of MPI indicates that DMU growth is due to either a better use of resources (MEC) or due to innovative production technologies (MTC). Malmquist values above 1 indicate efficiency gains while inferior values suggest efficiency losses. For a detailed explanation on the use of DEA and Malmquist Indexes in this context, please refer to Putzer (2016).

III. RESULTS

As mentioned previously, this study use four inputs: number of hospital beds per 1,000 inhabitants; number of physicians per 100,000 inhabitants; public health funding per capita (state funds directed to public health and federal funds provided to states by the Centers for Disease Control and Prevention and the Health Resources and Services Administration); and insurance coverage. The output variable is Years of Life Lost. The time-period included in this study is 2008-2015 and DMUs represent states. Data used in this work was obtained from the Kaiser Foundation and America's Health Ranking.

Figure 1 shows boxplots of the four input variables.

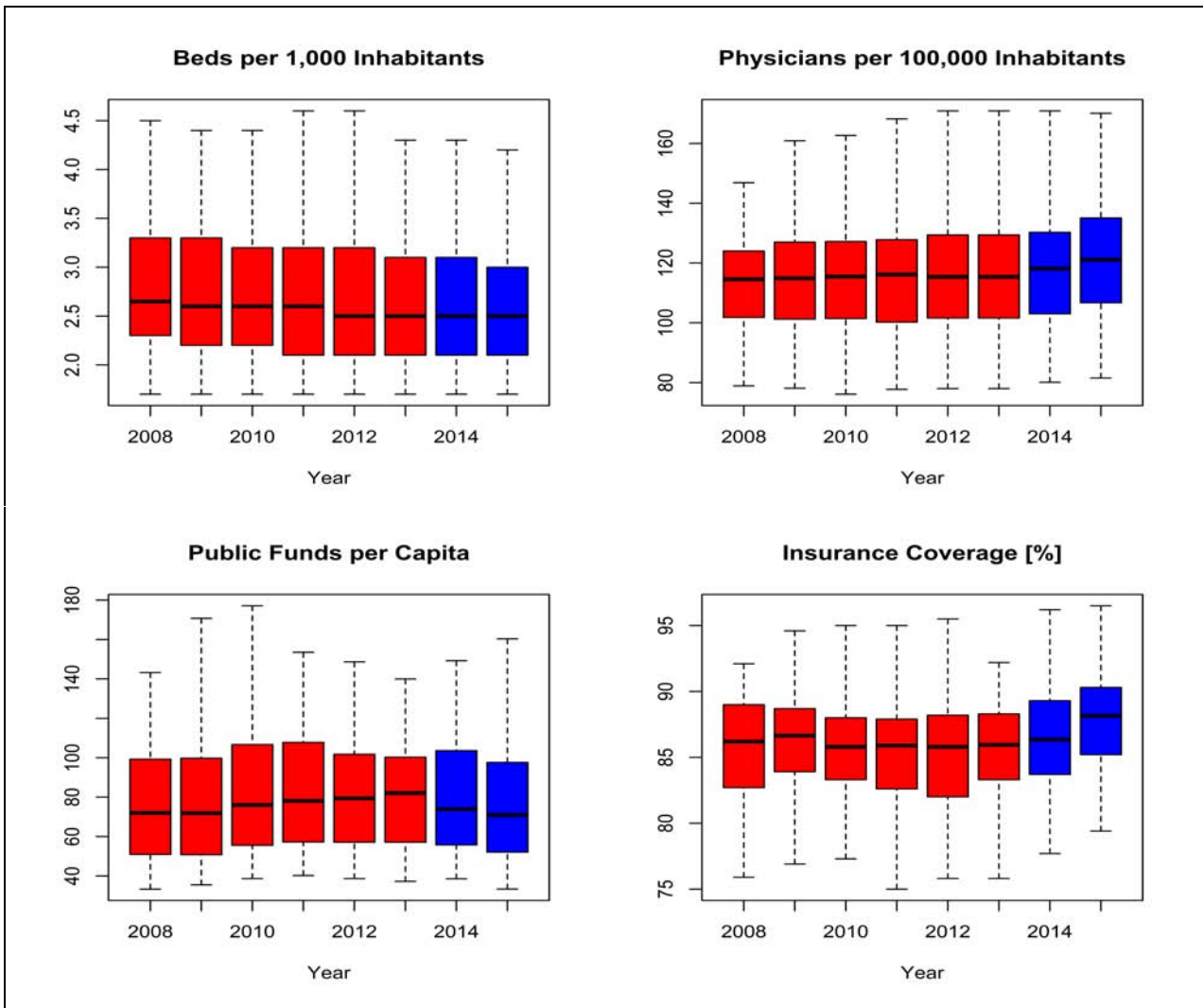


Figure 1: Input Variables

Figure 2 is a description of YLL. The left side shows boxplots for years 2008-2015 and the map represents YLL for year 2015.

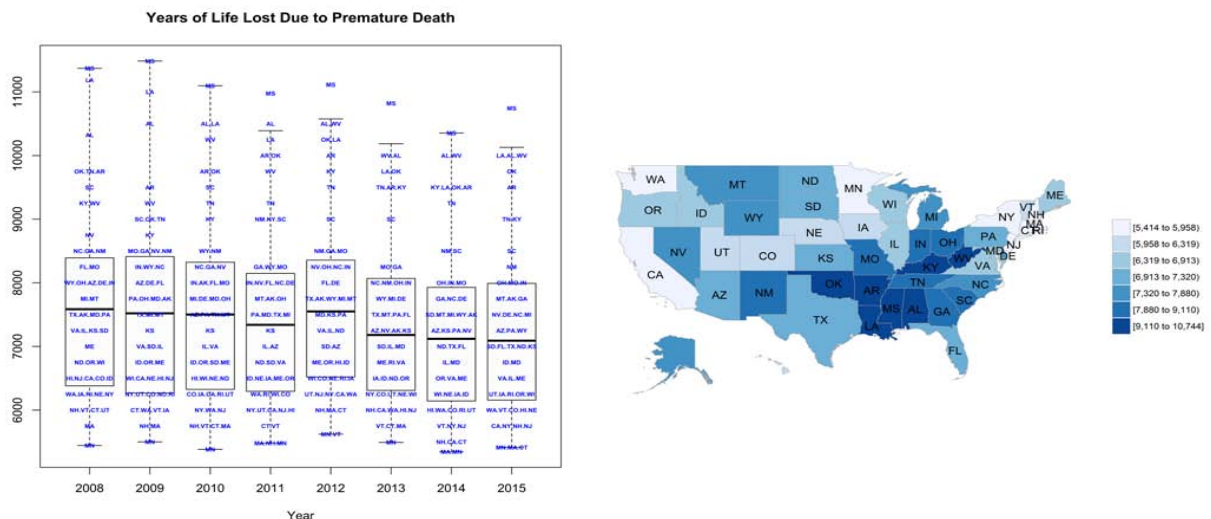


Figure 2: Output Variable

Figure 3 summarizes CRS efficiencies. States at the top of the box plot are the most efficient ones. The map illustrates CRS efficiencies for year 2015 (i.e., the darker - the better efficiency).

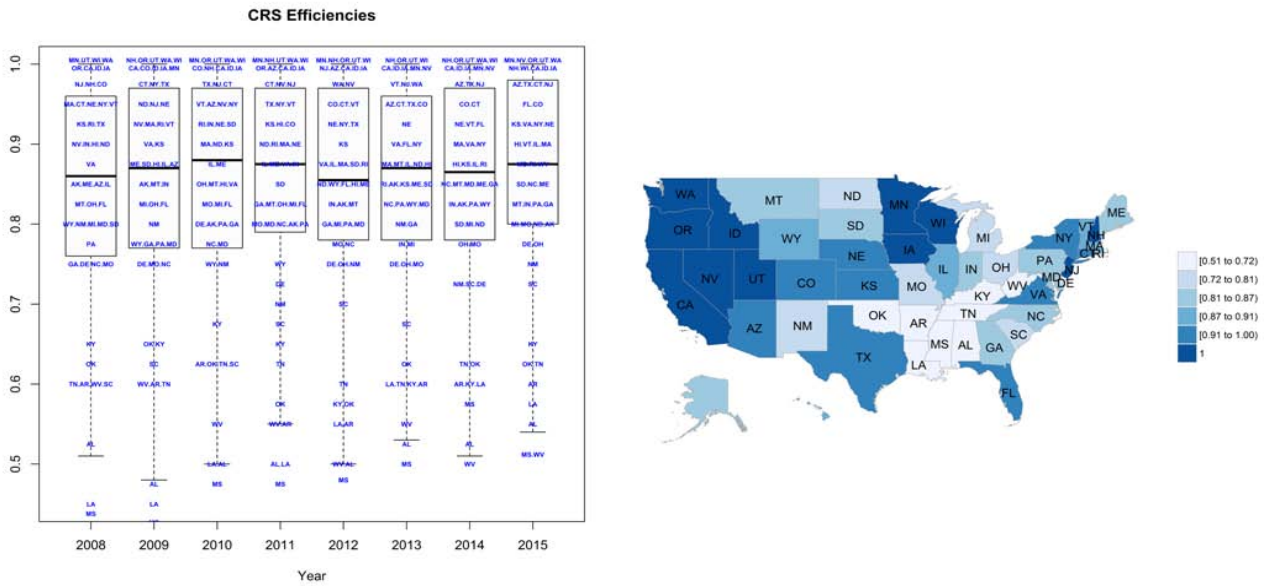


Figure 3: CRS Efficiencies

Figure 4 illustrate MPI results. The boxplots are results obtained for each pair of consecutive periods, while the map shows average MIP results for the studied time-period (i.e., the darker, the better efficiency). States with values below one have diminished efficiencies, while states with values above 1 are improving their efficiencies.

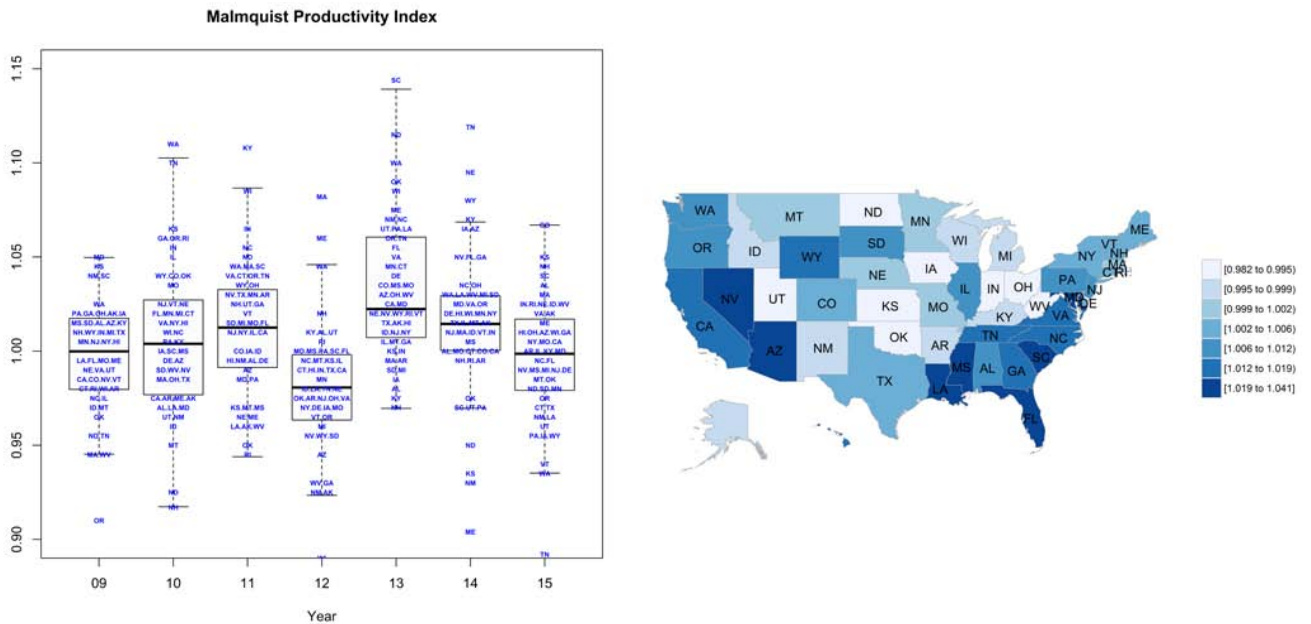


Figure 4: Malmquist Productivity Index

Figure 5 shows results for Malmquist Efficiency Change. The map shows average MEC for the study period (i.e., the darker, the better).

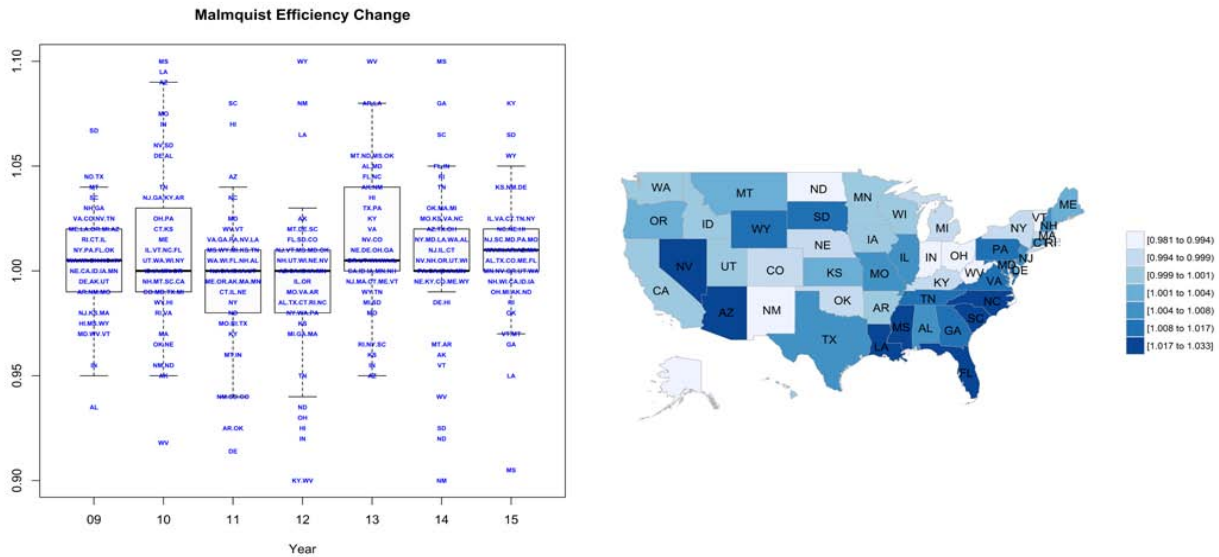


Figure 5

Figure 6 shows results for Malmquist Technological Change.

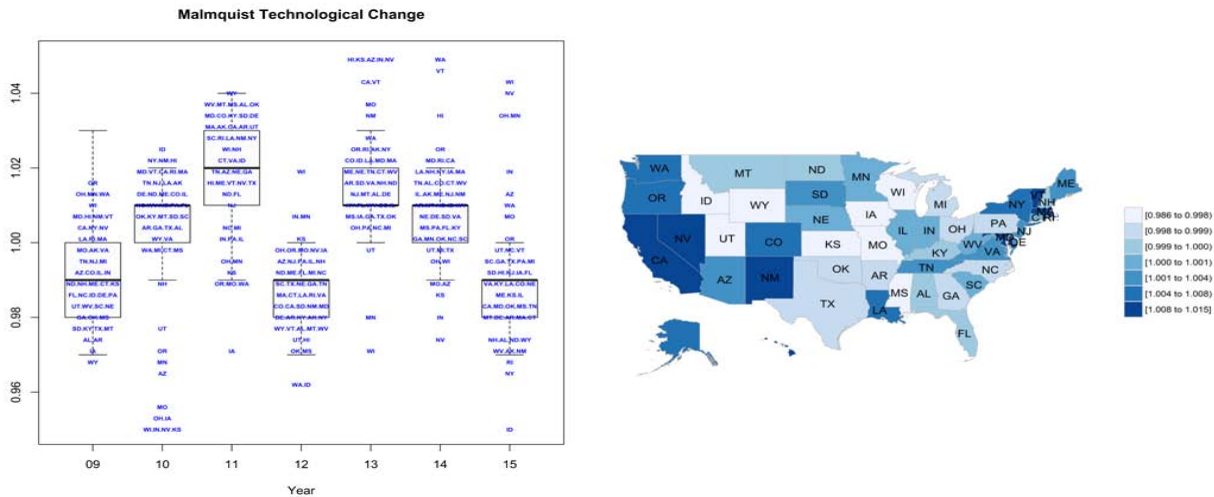


Figure 6

IV. DISCUSSION

There have been a few DEA studies to assess the different aspects of the medical field such as hospital efficiency (Tambour, 1997; Zhou 2003; Nedelea 2010; Mecineanu, 2012), public polices efficiency (Coppola 2003; Miller 1996; Sherman, 1984; Rosko, 1984), or health facilities efficiency (Hollingsworth, 2008; Ferrier 2006; Ozcan, 2008). Our recent paper showed the varying levels of efficiency in the utilization of health resources among the 50 US states in affecting the output of disease burden (Putzer, 2016). We identified the most and least efficient states and the states demonstrating the most improvement. In this paper, we introduced a fourth input variable (insurance coverage) along with the previous three input variables (number of physicians, number of hospital beds and public health expenditures) to measure the output variable of disease

burden reflected by Years of Life Lost due to Premature Mortality.

There were some notable changes among the input variables during the study years of 2008-2015. The number of hospital beds diminished during the early years of the study and then were relatively constant over the past four years. The number of physicians remained relatively stable through 2013, followed by an increase thereafter. The public health funding remained relatively constant over the study period. As expected with the full implementation of the ACA, the fourth input variable- insurance coverage- increased appreciably in 2014 and 2015. The output variable – years of life lost – reflecting disease burden was trending downward from 2008-2013 and remained at a new low in 2014-15. The Malmquist Efficiency Index (MEC) was relatively stable during the study period. By contrast, the Malmquist Technology Change Index (MTC) was variable; it increased from 2008-2011; decreased substantially in 2012; increased

in 2013; and decreased modestly 2014-15. The Malmquist Productivity Index (MPI) is the product of the MEC and MTC and varied like the MTC. One way to interpret these findings is as follows. More individuals were newly insured and consequently seeking services, but the health infrastructure (i.e., technology) may not have been adequately prepared for the vast increase in newly insured patients seeking health services. The expectation is that these newly insured US citizens would both need and receive significantly more services. Many of the newly insured plausibly accessed the health system for the first time or the first time in quite a while and may have possessed a large number of health morbidities which would impose a further burden on a system in the midst of a significant health policy change.

This study has a few limitations. First, the selection of input and output variables affects the results. Consequently, the research should be extended by incorporating different variables and altering these variables to examine different efficiency outcomes. Second, there are several inherent methodological difficulties in assessing the efficiency of health systems using YLL (Aragon, 2008). A few examples include the fact that YLL does not measure certain conditions effectively such as disabling mental conditions. YLL also does not accurately measure chronic conditions that do not result in death such as osteoporosis.

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The Place of E-Research in Biblical Scholarship in Africa

By Michael Olajide

Introduction- It has long been the custom to make use of new technological developments in reducing and easing the rigour of complex or routine tasks. This is as true for research as it is for any other aspect of human activity. Thus one finds, for example, that over the years typewriters, word processors and computers generally have come to be adopted as part of the essential hardware of research. So the *e* in e-Research stands for a high-speed, digital network that is readily available anytime/anywhere.

E-Research is the application of Information Communication Technology (ICT) in research engagement. The definite term implies all the devices that are used in transmitting information in a bid to communicate. ICT has been a major tool for learning and research. It has recorded significant impact as there are various gadgets that can enhance quality research. The world has become a global village, whereby access to different worlds is made possible through internet. "The Net changes everything" a popular quote from Oracle Corporation, critically speaking, there is a sort of exaggerations and implications in that. E-research is not only the use of internet but software applications. Provision is made for the names, activities and links to pertinent internet websites as an appendix to this paper.

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THE PLACE OF E-RESEARCH IN BIBLICAL SCHOLARSHIP IN AFRICA

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I. INTRODUCTION

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E-Research is the application of Information Communication Technology (ICT) in research engagement. The definite term implies all the devices that are used in transmitting information in a bid to communicate. ICT has been a major tool for learning and research. It has recorded significant impact as there are various gadgets that can enhance quality research. The world has become a global village, whereby access to different worlds is made possible through internet. "The Net changes everything" a popular quote from Oracle Corporation, critically speaking, there is a sort of exaggerations and implications in that. E-research is not only the use of internet but software applications. Provision is made for the names, activities and links to pertinent internet websites as an appendix to this paper.

II. THE BENEFITS OF E-RESEARCH IN BIBLICAL STUDIES

In the past Biblical studies researches were carried out using the traditional methods. Close to the end of the 20th Century, the world was blessed with new innovations and technologies and that formed the foundation for what is obtainable today. Computers provide the crucial ability to insert new data as one uncovers it and to merge together information from a variety of topics without requiring the countless hours of retyping labour that would otherwise have been required.

E-research is so dynamic that "the quantity of information produced, coupled with the speed in which it can be accessed, filtered, sorted, and combined creates endless opportunity."¹ With all these opportunities and advantages we are faced with the challenge of surplus resources that require decisive,

judicious and purposeful search. However, this affluent and assorted data forces e-researchers to be more selective and critical of the veracity of the data they gather. One way to be careful on the web is to look for institutional association or proof of academic authority. When using a website, investigate whether it is associated with a college or university, a research society, study centre or institute, a library, publishing company, scholarly journal, and so forth. One might also see if the site manager or author is an academic engaged in on-going research in the field.²

The Net breaks barriers including distance. E-research provides platform for researchers to become members of other Net communities. Examples of this are: Academia, Google scholar, WhatsApp, Facebook and others. It helps the e-researcher to interact with colleagues, scholars and friends as they bring and share their experiences and insights together. Amateurs can have a voice too, and this helps to break through the coalitions, 'established views,' and 'political correctness' that sometimes stifles scholarship even as it sets itself up as the best scholarship.

E-research is a counterpart of e-commerce and e-learning as alternative avenues to act, understand and create knowledge in a networked community. So many new innovations and inventions are coming up which require new skills and competency. There are a good number of computer programs with sophisticated search features which outdo paper concordances. Some of the most recognized programs are such as Bibleworks, Logos, and Gramcord for Windows PCs. Particularly, Bibleworks helps with excellent Hebrew and Greek fonts which cannot be found ordinarily in any computer. These programmes are able to search for particular grammatical and syntactical constructions.³We have access a good number of lexicons and Bible dictionaries. These are indispensable tools for biblical and theological exegesis.

The Net also provides us with the platform to make more money. Very few African Biblical scholars are into this. Many books are published locally and are kept away from the global community. Amazon especially has been doing well in this area by helping authors make their materials available online. The natural challenge many authors encounter is the fear of losing control over their books (or piracy). One of the ways Amazon does this is kindle. Kindle is a customised electronic device to gain access to Amazon books

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which can neither be copied nor transferred to another electronic device. IVP (Intervarsity Press) is also doing excellently well with ebook and paperback. Some books are available only in paperback while some are in both forms, that is, softcopy and hardcopy. African Biblical scholars should explore this avenue to communicate, represent and demonstrate our identity globally.

III. THE DANGERS OF E-RESEARCH IN BIBLICAL STUDIES

Because of the dangers involved and inherent in e-research many critics have been canvassing against its use.

1. Laziness

When we depend heavily on e-library, it reduces our commitment. Some people do not want to work when everything is made easy and so they are eager to see the surprises that the Net would bring to them with the massive materials. We are vulnerable to always depend on the Net before anything is done. If caution is not taken we can become passionless and redundant in carrying out quality research.

2. Poor Research

As a result of laziness, one is prone to easily come up with shoddy research. Instead of making use of e-research to enrich and supplement one's research work rather it may turn out to be a poor research. Before one can produce quality research the ideas must have been internalized and processed. One principal characteristic of a quality research is proper documentation and interaction with the works of well-known experts in that field. When a careless e-researcher cites "junks" that is both irrelevant and insignificant materials the outcome may be disastrous.

3. Plagiarism

Among other dangers in e-Research is the challenge of "plagiarism." Plagiarism is easily possible with the help of the Net. There is the "copy and paste" syndrome as some Net users try to copy some materials make it theirs. Scholars and students can easily access information without acknowledging its right ownership mistakenly or deliberately. Students can easily download another person's work and make it theirs without any notice. By reading such materials one cannot see any linkage or connectivity between the arguments. It is the responsibility of the instructors to be up to date and know what is in vogue and develop skills in detecting plagiarism. Academic honesty is greatly required and must be emphasized. Students are often caught in the habit of copying and pasting another person's work from the Net or software.

a) Qualities of an e-Researcher

1. Selectivity: It is the sole responsibility of the e-researcher to decide the type of material he would

like to read and use. One should not be mad or crazy at using the Net. Just as a mad man may pick any paper or information on the street. What is at stake is here is the quality of selectivity. As an e-researcher, one must know the difference between academic and non-academic software. For example, some Bible students use PC 5 Bible software for their academic papers which is quite not academic because there is no page number on any of the materials used. PC5 is good for pastors, evangelists and whoever may be interested, for personal reflection and not for academic purpose.

2. Carefulness: So many things are changing in our world. The trend of events is changing at a very fast rate. Instead of being very hateful and intolerable at the new innovations brought by technology one should cultivate the habit of updating and upgrading oneself. Some materials are meant just to have a taste while some are meant to be chewed and digested. Attitude towards toward e-research should be friendly with carefulness. One way to be careful on the web and software is to look for institutional association or proof of academic authority. When using a website or software investigate whether it is associated with a college or university, a research society, study centre or institute, a library, publishing company, scholarly journal, and so forth.
3. Evaluation: The number of materials that is available on the Net is massive. As Jeff Lenburg rightly observed that:

Because of today's heavy reliance on the Internet, never before has evaluating your sources been more critical. News organizations, government agencies, reference and encyclopedia publishers, and electronic publishers are generally considered more accurate and reliable since most have developed a high standard of accuracy over the years that researchers can count on. However ... not all source material is credible or accurate. Specifically, the Internet has raised serious concerns regarding the accuracy and authenticity of material. The rapid rate of growth of this medium has resulted in a huge proliferation of errors, inconsistencies, innuendoes, rumors, and misinformation reported by sites operated by individuals who are concerned less with accuracy and more with promoting a personal agenda.⁴

Biblical Studies is not a free discipline where anyone can write or say just "anything". Our writings most times project our personality and religious belief. In view of this, an e-researcher must sieve, weigh and scrutinize any material before usage. The wheat and the chaff must be properly and carefully separated.

4. Credibility: An e-researcher must always acknowledge the source of his/her information by

citing the website or the name of the software. The quality of the information one gathers is more important than the quantity. Plagiarism is a very big challenge in modern scholarship. This issue has become much more serious with the inception of the Net and software. Some scholars think it is perfectly acceptable to “cut and paste” materials, ideas, or words from work published online into their own.

5. Complementarity: An e-researcher must admit that the Net or software cannot replace library. In other words, softcopy cannot replace hardcopy. The web is a more fluid source of information than libraries. Websites change at any time. It is required of an e-researcher to cite websites in papers not only by the site address but also by the date accessed. If a webpage is no longer available at the given address, one can search for it on Google or some other search engine, or find an alternative.

Another aspect of complementarity between the libraries and the e-library is in the respect of the availability of classic books that may out of print or not available in Africa but are made available on the Net. In this wise, an e-researcher is able to gain access both to old and new books.

6. Efficacy: This has been associated with aptitude and accomplishment. “Internet efficacy means the confidence and willingness to learn to use new tools and to become competent at applying these tools to authentic problems.”⁵ There is always tension to be able to navigate between old and new skills. Attempt must be made though it may be difficult and terrifying initially but within short period of time negotiation and compromise are bound to happen.
7. Currency: This is a quality that is lacking among many Biblical scholars in Africa. Some who have had their PhDs long ago do not care about the current and prevailing issues. Many do not care to search for new development, information, and resources. Events have overtaken some of the information they think they have. Scholarship requires constant and persistent up-dating. An e-researcher has the vantage of up-dating and up-grading himself/herself anytime/anywhere. As Karl Barth remarked “Take your Bible and your newspaper, and read both. But interpret newspapers from your Bible.”

IV. THE TASK AHEAD

a) *African Initiated Bible software and Website*

A good example of this is the collection of Byang Kato's works scanned and converted into pdf and made available for us. In my opinion there is need to exert more effort to produce an African initiated Bible software. Alternatively, there can be customised

websites meant for users in Africa with *Internet Protocol* that may prevent users outside Africa from accessing it if need be. Users from Africa must pay certain fee in order to gain access to such site. Even books published by African scholars are not readily available to the Africans. For example, Prof. Samuel W. Kunhiyop's book titled *African Christian Theology* published by Hippo was not made available for the people in Nigeria.

b) *Resource Centre for Biblical Studies*

A key problem in doing critical biblical scholarship in Africa is lack of access to resources especially those from the Western world. When we finally get them they already old. Even with the aid of the Net, *Internet Protocol* is a challenge whereby they are not made available for the Africans. For example, *The Elements of New Testament Greek* by J.W. Wenham was published in 1965 and has ever been in use in most of the Seminaries and Universities till now. We got to hear about the third edition written by Jeremy Duff in 2011 whereas it was published since 2005. This is just to illustrate the gulf between the Western world and Africa (except South Africa). What practical step can we take to break this barrier?

No doubt, Prof. S. O. Abogunrin has contributed immensely to biblical studies in Africa both in writing and training, home and abroad. I remember sometime in 2007, I was going through Logos 2.1 and in the software was *Journal for the Evangelical Theological Society* and I came across an article titled “The Language and Nature of the Resurrection of Jesus Christ in the New Testament” behold it was written by our Prof. S. O. Abogunrin. In the light of this, there is urgent need to put in place a resource centre for Biblical studies in honour of Prof. Abogunrin as a way of immortalizing his personality. For now there is no stable centre or shop where one can go and purchase professional Bible software in Nigeria. ACTS sold IVP Reference software some time ago. There is serious need to expedite action by raising fund that can accomplish this noble vision.

V. CONCLUSION

An African adage states that “we don't throw away the bathing water with the baby”. We should not downplay the use of internet because of the dangers involved. Just as some people use their brains for right course and others for the wrong. This is similar to the use of internet and software. The internet is a tool not an end. An instrument and not a god. E-Research is capable of increasing and widening the worst and best of an individual. There is need to put a lot of things in place in order to spread and expand Biblical studies in Africa. Theological institutions should be more innovative and committed in providing electronic tools that can aid quality research.

*Websites for Biblical Studies*⁶

The list of websites below may be very helpful for Biblical and theological studies scholars:

Biblical Studies

<http://www.biblicalstudies.org.uk/>

The site offers scholarly articles, including ones organized canonically, study aids, and news and events. A related site is TheologicalStudies.org.uk

Tyndale

www.TyndaleHouse.com

Tyndale House is an evangelical library and residence in Cambridge for evangelical scholars. It is particularly strong in Biblical Studies, and some readers will find its website very useful:

<http://www.americanbible.org/brcpages/bibletranslation>

The UBS offers suggestions on how to choose a translation of the Bible.

Biblon 2000

This project of Tyndale House, Cambridge offers a Greek text with apparatus for the New Testament. The actual manuscripts for various readings can be viewed as well.

<http://www.tyndalehouse.com/Biblon/biblon2000.html>

International knowledge sharing platform

Research on Humanities and Social Sciences is a peer reviewed journal published by IISTE. The journal publishes original papers at the forefront of humanities and social Sciences issues. The journal is published in both printed and online versions. The online version is free access and download. We have many contributors from Nigeria.

<http://www.iiste.org/Journals/index.php/RHSS/article/view/10668/10998>

The Center for the Study of New Testament Manuscripts

At this site, digital photographs of a number of NT manuscripts can be viewed. The Center operates under the auspices of the Center for the Research of Early Christian Documents, founded by Daniel Wallace. <http://www.csntm.org>

Institute for New Testament Textual Research

This site contains helpful information on textual criticism at the University of Münster's Institute for New Testament Textual Research. <http://www.uni-muenster.de/INTF/>

New Testament Gateway

This important site for NT studies on the web also includes listings for textual criticism.

<http://www.ntgateway.com/resource/textcrit.htm>

Biblical Institute of Fribourg University

This site contains the activities of the Biblical Institute, including the new edition of *Biblica Hebraica*. It also gives information on *Orbis Biblicus et Orientalis* and *Novum Testamentum et Orbis Antiquus*,

and on the Swiss Society for Ancient Near Eastern Studies.

<http://www.unifr.ch/dbs/>

Center for Computer Analysis of Texts (CCAT)

CCAT offers a variety of texts and software at their site, such as a morphologically analyzed LXX, a parallel aligned Hebrew-Aramaic and Greek Old Testament, Augustine's Confessions, Lightfoot's translation of the Apostolic Fathers (under Church Writers), and the Quran. <http://ccat.sas.upenn.edu/gopher/>

Christian Classics Ethereal Library

This site has already been mentioned. In addition to historical resources and texts of classical literature, the Church Fathers, and later writers in English translation, it also offers some older resources for Biblical studies (such as Greek grammars). <http://www.ccel.org/>

Palestine in the Time of Jesus: Social Structures and Social Conflicts

K. C. Hanson's and Douglas Oakman's website links that go with their book by this title:

<http://www.kchanson.com/PTJ/ptj.html>

Resource Pages for Biblical Studies

Dr. Torrey Seland, of the School of Mission and Theology in Stavanger, Norway, offers numerous resources for Biblical Studies. <http://torreys.org/bible/>

Society of Biblical Literature

<http://www.sbl-site.org/>

iTanakh

A helpful site for the study of the OT and the ANE.

<http://www.itanakh.org/>

NT Gateway/ Old Testament Gateway

A gateway to NT Biblical studies managed by Dr. Mark Goodacre at Duke University.

<http://www.ntgateway.com/>

<http://www.otgateway.com/index.htm>

N. T. Wright Page

This is an unofficial website dedicated to a major New Testament scholar, Dr. N. T. Wright. Numerous articles and other information are available.

<http://www.ntwrightpage.com/>

The Paul Page

This website is dedicated to the study of the new perspective on Paul.

<http://www.thepaulpage.com>

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Family Planning Commodities Requirement in Achieving Replacement-Level Fertility in Ethiopia

By Abebaw Andarge

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Abstract- Ensuring the availability of modern contraceptive methods both by type and quantity is crucial in the provision of quality primary health care and designing appropriate intervention strategies toward reducing maternal and child mortality. This endeavor therefore, is designed to make family planning commodities requirement projection based on various assumptions with the target of achieving replacement level fertility by 2020 and also estimate costs of family planning commodities. Baseline data were obtained from 2007 census reports, 2011 EDHS and model data for Ethiopian context. The SPECTRUM by using FamPlan model was used to project these outcomes, with analysis restricted to the time period 2011–2020. Spectrum and MS Excel were used to analyze and producing report for this study. The projection result of the study showed that the 2011 CPR of 29% will therefore need to increase to 71% to attain the replacement-level fertility of 2 by 2020. In order to reduce fertility rate, users of contraceptives should also increase accordingly.

Keywords: family planning, commodities, replacement-level fertility, ethiopia.

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Keywords: family planning, commodities, replacement-level fertility, ethiopia.

I. INTRODUCTION

Ensuring the availability of modern contraceptive methods both by type and quantity is crucial in the provision of quality primary health care and designing appropriate intervention strategies toward reducing maternal and child mortality (Beta consulting and development firm and UNFPA, 2010).

The opportunity of deciding freely the number, spacing and timing of children is a basic human right with proven positive health effects, particularly for

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women and children, demographic and overall socio-economic benefits. Meeting unmet need for contraception prevents estimated 30% of maternal deaths, 20% child mortality and 36 million years of healthy life lost each year globally (Kennedy et al., 2013). Moreover, reducing unmet need for contraception prevents other adverse consequences. It is evident that access to family planning commodities contributes to universal education, women's empowerment, HIV prevention, poverty reduction and environmental sustainability; thus, it is one of the most cost-effective health and development interventions. To date, there has been little evidence exists regarding family planning commodities requirement including their potential cost (Stover et al., 2010).

Effective and efficient reproductive health programs depend on a reliable supply of essential commodities. However, lack of evidence has contributed to inadequate prioritization and funding for family planning methods and slow progress towards universal access to reproductive health interventions (Kennedy et al., 2013), particularly family planning services. Evidence-based understanding of family planning commodities requirement assists in planning services prioritization and funding.

In Ethiopia, a 50% funding gap was pointed as a predicament against the government's ambition of ensuring commodity security (London summit, 2012). Hence, projections for family planning requirements can help set realistic goals, plan for the service expansion required to meet program objectives and evaluate alternative methods of achieving goals (Stover et al., 2010). This endeavor therefore, is designed to make family planning commodities projection based on various assumptions with the target of achieving replacement-level fertility by 2020.

II. MATERIALS AND METHODS

Ideally, quantification for projection is an activity that includes constant monitoring of inventory levels, product consumption rates and other information—including programmatic and environmental factors—that may affect future demand. If the logistics management information system (LMIS) is designed well and kept up-to-date, the staff responsible for quantification and procurement will have with them all the consumption and stock level information they need. While

consumption data is considered as the gold standard for contraceptive projection, such data are not always accurate, reliable or readily available ((NIPORT, 2010).

As a result, using a FamPlan model, scenario was set to reduce totality fertility rate from 4.8 (EDHS, 2011) children per a woman reproductive age to 2.0 (Zelalem B and Gizachew A, 2014) by 2020.

Baseline data were obtained from 2007 census reports, 2011 Ethiopian Demographic and Health Survey, previous projection using the FamPlan model (Zelalem B and Gizachew A, 2014) and model data for Ethiopia context.

Primary outcomes of the projection included contraceptive prevalence rate, number of users and

acceptors per methods, commodity requirement and associated costs. The SPECTRUM was used to project these outcomes, with analysis restricted to the time period 2011–2020. Spectrum and MS Excel were used to analyze and producing report for this study.

III. RESULTS AND DISCUSSION

The total fertility rate for Ethiopian women was 4.8 in 2011 (EDHS, 2011). The total TFR is projected to attain replacement-level fertility, i.e., two children per women in 2020 (Figure 1).

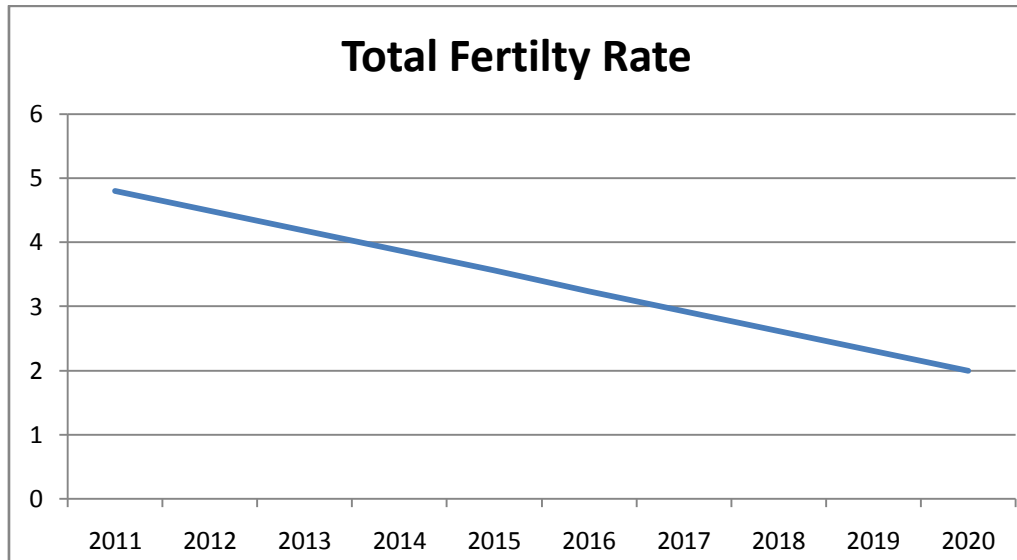


Figure 1: Projected total fertility rate, 2011-2020

a) Contraceptive prevalence rate

The turn down of fertility is accompanied by an increase in the use of family planning methods which is manifested by the contraceptive prevalence rate (CPR). While other factors like increase at the age of marriage, postpartum insusceptibility and sterility can affect fertility, it is unlikely that further reductions in fertility can be achieved unless there are also supplementary progress in Contraceptive use. Accordingly, the 2011 CPR of 29% will therefore need to increase to 71% to attain the replacement-level fertility in 2020. Figure 2 shows the projection of CPR that would be necessary to achieve a TFR of 2 by 2020.



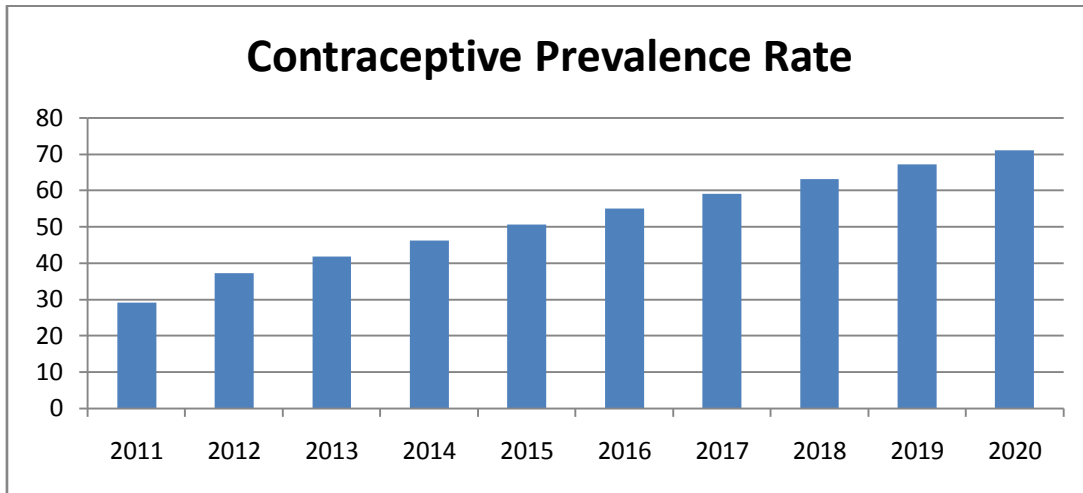


Figure 2: Trend of contraceptive prevalence rate, 2011-2020.

b) *Users of family planning commodities*

The number of women of reproductive age who seek services will affect future service delivery requirements for family planning commodities. In order to reduce fertility rate, users of contraceptives should

also increase accordingly. Based on this projection, about 11.5 million women of reproductive age group are expected to use family planning methods in 2020 (Figure 3).

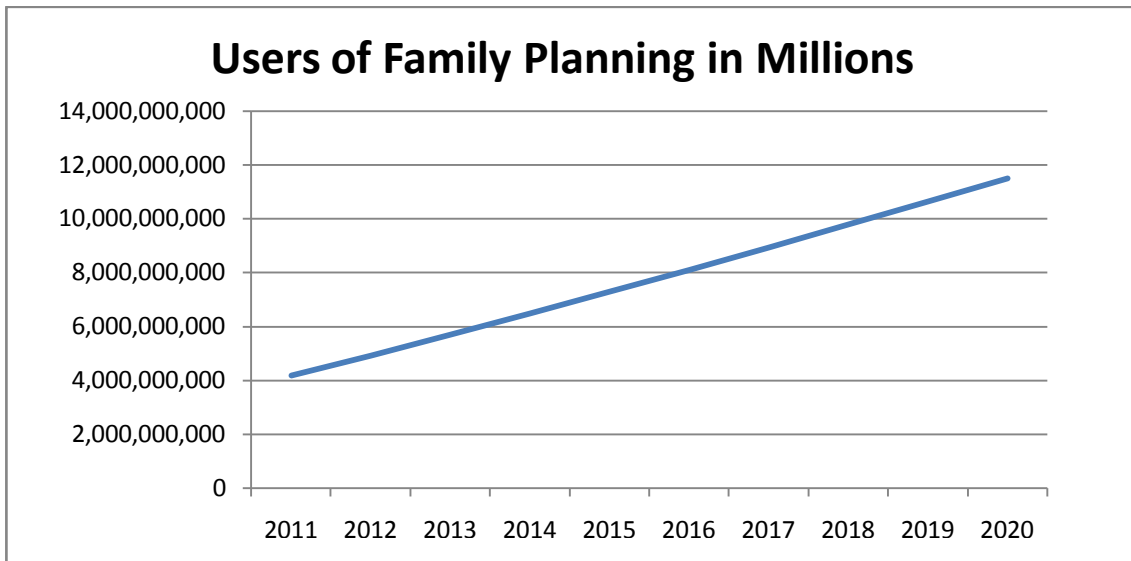


Figure 3: Users of family planning method, 2011-2020.

c) *Acceptors of family planning*

Expanding access to long-acting and permanent methods (LAPCMs) is a key to increasing women’s contraceptive choice and addressing the high unmet need, and will contribute towards achievement of the FP2020 goals (Ngo TD, et al., 2013).

Therefore, the number of reproductive age women accepting long-acting and permanent family planning methods is estimated by this projection; accordingly, about 3 million more women accept family planning methods in 2020 (Figure 4).

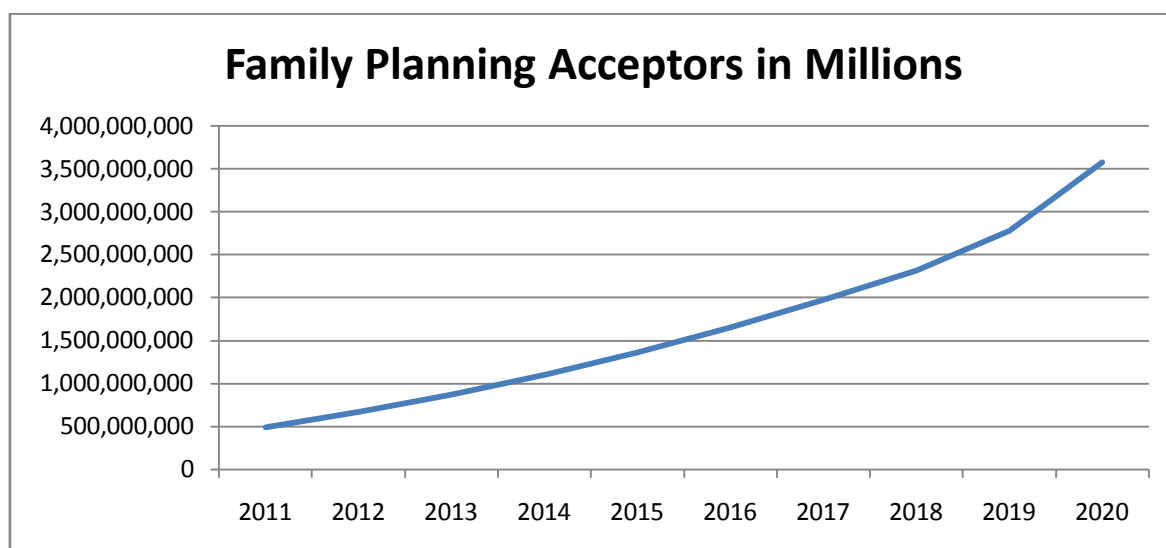


Figure 4: Family planning acceptors, 2011-2020.

d) Family planning methods requirement

To meet the growing needs of essential family planning service programs, contraceptives input is a must. This section presents the results of estimated future commodity requirements on the basis of the method-mix assumptions. Commodity requirements per user for condoms, pills, injectables, IUDs, implants, female sterilization are based on EDHS (2011)

consumption per couple year of protection (CYP) assumptions.

Table 1 shows percentage distribution of users by method maintaining the base scenario of percentage distribution. The projection depicts the shift of methods from short-acting to long-acting family planning commodities (Table 1).

Table 1: Distribution of family planning methods requirement by type, 2011-2020.

Distribution of methods by type						
Year	Condoms	Pills	Injectables	Implants	IUD	Female sterilization
2011	13.79	36.2	47.2	1.5	0.6	0.06
2012	14.2	35.7	47.4	1.8	0.79	0.06
2013	13.05	35.15	46.98	2.1	1.0	0.05
2014	15.25	34.52	46.47	2.45	1.24	0.048
2015	15.90	33.78	45.88	2.86	1.50	0.044
2016	16.67	32.93	45.20	3.33	1.81	0.041
2017	17.58	31.91	44.39	3.89	2.17	0.038
2018	18.68	30.68	43.41	4.56	2.60	0.036
2019	20.0	29.09	42.10	5.63	3.11	0.033
2020	21.46	26.83	40.07	7.60	3.98	0.034

e) Gross cost

Projection of the costs of family planning requires estimates of the costs of providing services to users including commodities costs. The model used for these projections employs a "cost per user" parameter from GAP analysis.

is also estimated to increase from the current requirement. Consequently, there will be an increasing demand for contraceptives and an increasing requirement for government and donor funds for contraceptive procurement needs an additional ETB 42.7 billion from 2011 (Figure 5).

Accordingly, to reach the current objective of achieving replacement level fertility by 2020, the financial requirement for contraceptive commodities for Ethiopia

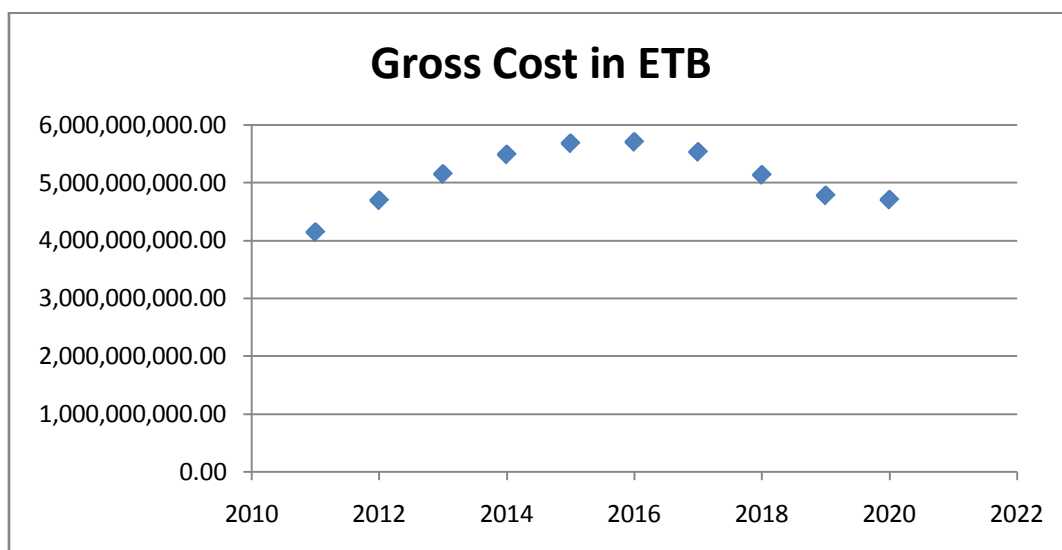


Figure 5: Gross cost of family planning commodities, 2011-2020.

IV. CONCLUSIONS AND RECOMMENDATIONS

More family planning commodities are required to increase the current contraceptive prevalence rate of 29% (EDHS, 2011) to 71% in turn to achieving a replacement level-fertility by 2020. Hence, all stakeholders should do towards increasing access of family planning commodities in terms of both method mix and quality.

V. ACKNOWLEDGEMENTS

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Annex

Demographic Data for DemProj; Demographic data-FamPlan Commodity Requirement from 2011-2020

Note:

- Almost all references mentioned under 'References' and 'Methods' sections above including census (2007) and EDHS (2011) were consulted during projection.
- Interpolation and duplication were also used depending on the nature and purpose of input data.

Projection parameters

First year: 2011

Final year: 2020

Projection period: single year

Currency name: ETB

Urban/rural projection: Do not include urban/rural projection

Scale: Thousands

First year population (2011)

Age	Male	Female
0-4	6,034,500.1	5,933,000.0
5-9	5,820,880.0	5,756,160.1
10-14	5,515,680.0	5,473,900.3
15-19	4,944,479.9	4,925,539.9
20-24	4,117,860.1	4,125,400.0
25-29	3,296,740.0	3,338,719.9
30-34	2,673,300.1	2,697,080.1
35-39	2,229,860.0	2,224,640.0
40-44	1,841,400.0	1,858,600.0
45-49	1,491,680.0	1,546,500.0
50-54	1,179,960.0	1,260,240.0
55-59	945,380.0	1,034,340.0
60-64	772,940.0	846,840.0
65-69	575,480.0	645,300.0
70-74	382,680.0	446,600.0
75-79	220,360.0	269,960.0
80+	281,660.0	385,100.0
Total	42,324,840.3	42,767,920.3

TFR inputs for Family Planning Module

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
TFR	4.80	4.49	4.18	3.87	3.56	3.24	2.93	2.62	2.31	2.00

Age distribution of Fertility (%)

Age	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
15-19	6.78	6.45	6.16	5.91	5.65	5.39	5.13	4.91	4.73	4.55
20-24	21.83	21.93	22.01	22.07	22.14	22.20	22.27	22.33	22.39	22.45
25-29	29.11	29.88	30.57	31.18	31.78	32.39	33.00	33.52	33.96	34.40
30-34	22.40	22.52	22.63	22.73	22.84	22.94	23.05	23.13	23.19	23.25
35-39	12.41	12.13	11.89	11.69	11.49	11.30	11.10	10.92	10.76	10.60
40-44	5.49	5.23	5.00	4.80	4.60	4.40	4.20	4.03	3.89	3.75
45-49	1.98	1.86	1.74	1.62	1.50	1.38	1.26	1.16	1.08	1.00
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Birth ratio (male births per 100 female birth)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Birth Ratio	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00

Life expectancy

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Male	56.5	57.0	57.6	58.1	58.7	59.2	59.8	60.3	60.9	61.4
Female	60.0	60.4	60.9	61.3	61.8	62.2	62.7	63.1	63.6	64.0

Model life table

Coale Demeny North: IMR=72.7

Total Net Migrants

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

FamPlan Input Data: Summary of inputs

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
------	------	------	------	------	------	------	------	------	------	------

Method attributes

Condoms/CYP		120	120	120	120	120	120	120	120	120	120
Female Ster. average age		35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
Injections/CYP		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
IUD duration of use (yrs)		4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Implant duration of use (yrs)		3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
Pill cycles/CYP		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0

Effectiveness

Condom	81	81	81	81	81	81	81	81	81	81
Female sterilization	100	100	100	100	100	100	100	100	100	100
Injectable	100	100	100	100	100	100	100	100	100	100
IUD	96	96	96	96	96	96	96	96	96	96
Implant	100	100	100	100	100	100	100	100	100	100
Pill	92	92	92	92	92	92	92	92	92	92
Traditional	50	50	50	50	50	50	50	50	50	50

Method Mix

Condom	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.5	0.5	0.5
Female sterilization	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.0
Injectable	72.7	67.8	62.8	57.8	52.9	47.9	42.9	37.9	33.0	28.0
IUD	1.1	3.7	6.4	9.0	11.7	14.4	17.0	19.7	22.3	25.0
Implant	11.9	15.1	18.4	21.6	24.8	28.1	31.3	34.5	37.8	41.0
Pill	7.3	6.8	6.3	5.7	5.2	4.7	4.1	3.6	3.0	2.5
Traditional	4.5	4.3	4.0	3.7	3.4	3.1	2.9	2.6	2.3	2.0

Source Mix

Condom										
Public	17.3	18.7	20.1	21.5	22.9	24.4	25.8	27.2	28.6	30.0
Private	82.7	81.3	79.9	78.5	77.1	75.6	74.2	72.8	71.4	70.0
Female sterilization										
Public	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
Private	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Injectable										
Public	85.2	84.6	84.0	83.5	82.9	82.3	81.7	81.2	80.6	80.0
Private	14.8	15.4	16.0	16.5	17.1	17.7	18.3	18.8	19.4	20.0
IUD										
Public	64.9	67.7	70.5	73.3	76.1	78.8	81.6	84.4	87.2	90.0
Private	35.1	32.3	29.5	26.7	23.9	21.2	18.4	15.6	12.8	10.0
Implant										
Public	10.0	18.9	27.8	36.7	45.6	54.4	63.3	72.2	81.1	90.0
Private	90.0	81.1	72.2	63.3	54.4	45.6	36.7	27.8	18.9	10.0
Pill										
Public	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Private	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Traditional										
Public	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Private	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Cost

Condom											
Public	20.80	19.58	18.65	17.92	17.33	16.85	16.44	16.10	15.80	15.54	
Private	89.80	84.54	80.53	77.38	74.84	72.74	70.99	69.49	68.21	67.09	
Female sterilization											
Public	5.00	4.71	4.48	4.31	4.17	4.05	3.95	3.87	3.80	3.74	
Private	596.40	561.44	534.84	513.92	497.03	483.12	471.46	461.55	453.02	445.60	
Injectable											
Public	9.00	8.47	8.07	7.76	7.50	7.29	7.11	6.96	6.84	6.72	
Private	42.60	40.10	38.20	36.71	35.50	34.51	33.68	32.97	32.36	31.83	
IUD											
Public	4.00	3.77	3.59	3.45	3.33	3.24	3.16	3.10	3.04	2.99	
Private	73.80	69.47	66.18	63.59	61.50	59.78	58.34	57.11	56.06	55.14	
Implant											
Public	5.20	4.90	4.66	4.48	4.33	4.21	4.11	4.02	3.95	3.89	
Private	73.80	69.47	66.18	63.59	61.50	59.78	58.34	57.11	56.06	55.14	
Pill											
Public	20.80	19.58	18.65	17.92	17.33	16.85	16.44	16.10	15.80	15.54	
Private	51.00	48.01	45.74	43.95	42.50	41.31	40.32	39.47	38.74	38.10	
Traditional											
Public	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Fees

Condom											
Public	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Private	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Female sterilization											
Public	20.39	20.39	20.39	20.39	20.39	20.39	20.39	20.39	20.39	20.39	20.39
Private	20.39	20.39	20.39	20.39	20.39	20.39	20.39	20.39	20.39	20.39	20.39
Injectable											
Public	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Private	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
IUD											
Public	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Private	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Implant											
Public	24.64	24.64	24.64	24.64	24.64	24.64	24.64	24.64	24.64	24.64	24.64
Private	24.64	24.64	24.64	24.64	24.64	24.64	24.64	24.64	24.64	24.64	24.64
Pill											
Public	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Private	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Traditional											
Public	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximate det.											
Percent of women 15-49 in union	62.0	61.8	61.6	61.3	61.1	60.9	60.7	60.4	60.2	60.0	
Postpartum Insusceptibility (months)	16.7	16.5	16.3	16.1	15.9	15.8	15.6	15.4	15.2	15.0	
Unintended preg. terminated/induced abortion (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Sterility (%)	2.0	1.9	1.9	1.8	1.8	1.7	1.7	1.6	1.6	1.5	
Reaching a goal for total fertility rate											
Prevalence (%)	29.0										
Total fertility rate	4.8	4.5	4.2	3.9	3.6	3.2	2.9	2.6	2.3	2.0	

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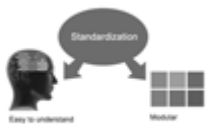
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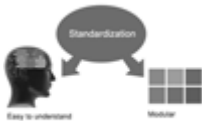


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Complete support for both authors and co-author is provided.

4. MANUSCRIPT'S CATEGORY

Based on potential and nature, the manuscript can be categorized under the following heads:

Original research paper: Such papers are reports of high-level significant original research work.

Review papers: These are concise, significant but helpful and decisive topics for young researchers.

Research articles: These are handled with small investigation and applications

Research letters: The letters are small and concise comments on previously published matters.

5. STRUCTURE AND FORMAT OF MANUSCRIPT

The recommended size of original research paper is less than seven thousand words, review papers fewer than seven thousands words also. Preparation of research paper or how to write research paper, are major hurdle, while writing manuscript. The research articles and research letters should be fewer than three thousand words, the structure original research paper; sometime review paper should be as follows:

Papers: These are reports of significant research (typically less than 7000 words equivalent, including tables, figures, references), and comprise:

- (a) Title should be relevant and commensurate with the theme of the paper.
- (b) A brief Summary, "Abstract" (less than 150 words) containing the major results and conclusions.
- (c) Up to ten keywords, that precisely identifies the paper's subject, purpose, and focus.
- (d) An Introduction, giving necessary background excluding subheadings; objectives must be clearly declared.
- (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, unless non-standard.
- (f) Results should be presented concisely, by well-designed tables and/or figures; the same data may not be used in both; suitable statistical data should be given. All data must be obtained with attention to numerical detail in the planning stage. As reproduced design has been recognized to be important to experiments for a considerable time, the Editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned un-refereed;
- (g) Discussion should cover the implications and consequences, not just recapitulating the results; conclusions should be summarizing.
- (h) Brief Acknowledgements.
- (i) References in the proper form.

Authors should very cautiously consider the preparation of papers to ensure that they communicate efficiently. Papers are much more likely to be accepted, if they are cautiously designed and laid out, contain few or no errors, are summarizing, and be conventional to the approach and instructions. They will in addition, be published with much less delays than those that require much technical and editorial correction.



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

Format

Language: The language of publication is UK English. Authors, for whom English is a second language, must have their manuscript efficiently edited by an English-speaking person before submission to make sure that, the English is of high excellence. It is preferable, that manuscripts should be professionally edited.

Standard Usage, Abbreviations, and Units: Spelling and hyphenation should be conventional to The Concise Oxford English Dictionary. Statistics and measurements should at all times be given in figures, e.g. 16 min, except for when the number begins a sentence. When the number does not refer to a unit of measurement it should be spelt in full unless, it is 160 or greater.

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Metric SI units are supposed to generally be used excluding where they conflict with current practice or are confusing. For illustration, 1.4 l rather than $1.4 \times 10^{-3} \text{ m}^3$, or 4 mm somewhat than $4 \times 10^{-3} \text{ m}$. Chemical formula and solutions must identify the form used, e.g. anhydrous or hydrated, and the concentration must be in clearly defined units. Common species names should be followed by underlines at the first mention. For following use the generic name should be constricted to a single letter, if it is clear.

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Key Words

A major linchpin in research work for the writing research paper is the keyword search, which one will employ to find both library and Internet resources.

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

Search engines for most searches, use Boolean searching, which is somewhat different from Internet searches. The Boolean search uses "operators," words (and, or, not, and near) that enable you to expand or narrow your affords. Tips for research paper while preparing research paper are very helpful guideline of research paper.

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- One should start brainstorming lists of possible keywords before even begin 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 research paper?" Then consider synonyms for the important words.
- It may take the discovery of only one relevant paper to let steer in the right keyword direction because in most databases, the keywords under which a research paper is abstracted are listed with the paper.
- One should avoid outdated words.

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Acknowledgements: Please make these as concise as possible.

References

References follow the Harvard scheme of referencing. References in the text should cite the authors' names followed by the time of their publication, unless there are three or more authors when simply the first author's name is quoted followed by et al. unpublished work has to only be cited where necessary, and only in the text. Copies of references in press in other journals have to be supplied with submitted typescripts. It is necessary that all citations and references be carefully checked before submission, as mistakes or omissions will cause delays.

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TECHNIQUES FOR WRITING A GOOD QUALITY RESEARCH PAPER:

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21. 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 to your topic. You may also maintain your arguments with records.

22. Never start in last minute: Always start at right time and give enough time to research work. Leaving everything to the last minute will degrade your paper and spoil your work.

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24. Never copy others' work: Never copy others' work and give it your name because if evaluator has seen it anywhere you will be in trouble.

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



27. Refresh your mind after intervals: Try to give rest to your mind by listening to soft music or by sleeping in intervals. This will also improve your memory.

28. Make colleagues: Always try to make colleagues. No matter how sharper or intelligent you are, if you make colleagues you can have several ideas, which will be helpful for your research.

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30. Think and then print: When you will go to print your paper, notice that tables are not be split, headings are not detached from their descriptions, and page sequence is maintained.

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34. After 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 to 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 in your research.

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Mistakes to evade

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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 approach to the problem, relevant results, and significant conclusions or new questions.

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- Explain materials individually only if the study is so complex that it saves liberty this way.
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- Describe the method entirely
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures
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The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently. You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.



Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
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- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
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- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
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Approach

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- 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 part.

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- If you put figures and tables at the end of the details, make certain that they are visibly distinguished from any attach appendix materials, such as raw facts
- Despite of position, each figure must be numbered one after the other and complete with subtitle
- In spite of position, each table must be titled, numbered one after the other and complete with heading
- All figure and table must be adequately complete that it could situate on its own, divide from text

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- Try to present substitute explanations if sensible alternatives be present.
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