ORIGINAL ARTICLE

Sources and Utilization of Information on Pelvic Inflammatory Disease among Nigerian University Female Students: A Study of Kogi State University, Anyigba

FIDELIS OTEBE, Ph.D[1], JAMES DADA MOHAMMED[2] & OZOVEHE EMMANUEL ZACCHAEUS[3]

Kogi State University, Anyigba fidelisotebe@gmail.com; Kogi State University, Anyigba bekkjames4christ@gmail.com; Kogi State University, Anyigba, zacchaeusemmanuel@gmail.com

Abstract

This study was carried out to assess the sources and utilization of information on Pelvic Inflammatory Disease (PID) among Nigerian university female students, with particular reference to students of Kogi State University, Anyigba. The objectives of the study were to investigate the extent to which female students of Kogi State University are exposed to information on Pelvic Inflammatory Disease, identify their source of information on the disease and to find out how female students of Kogi State University utilize the information on the disease. Survey research design was adopted while questionnaire was used as instrument of data collection. The findings showed that the respondents are exposed to information on PID, although the extent of exposure is low. Another finding showed that those exposed to such information got that from the Internet, and that the conventional mass media and health personnel have done little in giving information on the disease. It is also discovered that those who access information on PID properly utilized such information. However, the information gotten had created a negative effect in their mind. It was therefore recommended that the conventional mass media (print and broadcast) and health personnel need to intensify their efforts in health communication.

Keywords: Source, Utilization, Pelvic Inflammatory Disease.

Introduction

Pelvic Inflammatory Disease (PID) is an infection of the female reproductive organs. It usually occurs when sexually transmitted bacteria spread from female vagina to their uterus, fallopian tubes or ovaries (Mayo-Clinic, 2018).Pelvic inflammatory disease (PID) is a common disorder of the reproductive tract that is frequently misdiagnosed and inadequately treated. PID and its complications, such as infertility, ectopic pregnancy, and chronic pelvic pain, are preventable by screening asymptomatic patients for sexually transmitted infections (STIs) and promptly treating individuals with STIs and PID (Das, Ronda, & Trent, 2016).PID is an infection of the female upper reproductive tract, including the endometrium, fallopian tubes, ovaries, and pelvic peritoneum (Wiensenfeld, Sweet, Ness, Krohn, Amortegui, & Hillier, 2005, p. 400).

Simms (2003, p.1) defined Pelvic Inflammatory Disease (PID) as a clinical syndrome associated with upper genital tract infection in women. Pelvic inflammatory disease (PID) is considered to be a leading cause of morbidity in women. In England, a substantial proportion of cases are caused by *Chlamydia trachomatis,* a bacterial infection that is the commonest curable sexually transmitted infection (Buchan, Vessey, Goldacre, & Fairweather, 1993). PID is a leading cause of reproductive ill health in women; it can cause ectopic pregnancy, tubal factor infertility and chronic abdominal pain and has been associated with ovarian cancer (Risch, & Howe, 1995; Antilla, Saikku, Koskela, Lehtinen, & Paavonen, 1999).

Sexually transmitted infections (STIs), such as Chlamydia trachomatis and Neisseria gonorrhea, are commonly implicated in cases of PID, but they are not the only organisms associated with clinical disease. The diagnosis of PID is made difficult by variation in clinical manifestations: subclinical patients with PID are asymptomatic, while patients with more severe disease present with abdominal

pain requiring surgical intervention (Peipert, Ness, Blume, 2001, p. 184; Wiensenfeld, Hillier, Meyn, Amortegui, & Sweet, 2012, p. 120).

Subclinical PID is defined as inflammation of the upper reproductive tract in the absence of signs and symptoms of acute PID (Wiensenfeld, Hillier, Meyn, Amortegui, & Sweet, 2012). According to the CDC 2015 Sexually Transmitted Diseases Treatment Guidelines, any young sexually active woman or woman at risk for STIs with unexplained lower abdominal or pelvic pain and at least one of the following clinical criteria noted on pelvic examination should receive presumptive treatment for PID: cervical motion tenderness, uterine tenderness, and adnexal tenderness (CDC, 2015).

Pelvic Inflammatory disease often causes no signs or symptoms. As a result, women might not realize they have the condition and get needed treatment. The condition might be detected later if they have trouble getting pregnant or if they develop chronic pelvic pain. According to Doctor Agbana of Kogi State University Teaching Hospital, the pains and symptoms of Pelvic Inflammatory Disease might include: pain in female's lower abdomen and pelvis, heavy vagina discharge with an unpleasant odour, abnormal uterine bleeding especially during or after intercourse or between menstrual cycles, pain or bleeding during intercourse, fever sometimes with chills, painful or difficult urination (Source: Interview).

A number of factors might increase the risk of the disease and these include: being a sexually active woman younger than 25years old, having multiple sexual partners, being in a sexual relationship with a person who has more than one sex partner, having sex without a condom, douching regularly, which upsets the balance of good versus harmful bacteria in the vagina and might mask symptoms as well as having a history of pelvic inflammatory disease or a sexually transmitted infection (Mayo-Clinic, 2018).

Das, Ronda, and Trent (2016) note that the rates of adverse outcomes in women with PID are high and disproportionately affect young minority women. In the US, 800,000 women are diagnosed with pelvic inflammatory disease (PID) each year (Sutton, Sternberg, & Markowitz, 2005). The people, both young and old, are expected to be informed of all the happenings around them; they are expected to know how their body works and the measures to take in protecting themselves from all forms of diseases including pelvic inflammatory disease. This is made possible through health communication. The mass media (radio, television, all printed means of acquiring information and the Internet) have a significant role to play. The mass media serve as the mirror through which the public have a comprehensive view of health related issues.

Considering the high complications of Pelvic Inflammatory Disease on women, there is need for Nigerian female students to be informed of the disease and the media has a role to play in this regard. Whether or not the media has been performing her information-function by informing women of the implications of this infectious disease and whether this effort is being utilized effectively by Nigerian female students are still subject to investigation. It is against this backdrop that this study aims at investigating the sources and utilization of information on Pelvic Inflammatory Disease among Nigerian university female students with particular reference to Kogi State University students.

Aim and Objectives of the Study

The main aim of this study is to identify how female students get access to information on Pelvic Inflammatory Disease and how they utilize the information. The specific objectives are:

1. To investigate the extent to which female students of Kogi State University are exposed to information on Pelvic Inflammatory Disease
2. To identify their source of information on the disease
3. To investigate how female students of Kogi State University utilize the information on Pelvic Inflammatory Disease

Conceptual Clarification/Literature Review

Meaning of Pelvic Inflammatory Disease

PID is the clinical syndrome caused by micro-organisms that ascend from the cervix or vagina to the upper genital tract and includes endometritis, salpingitis, tubo-ovarian abscess and pelvic peritonitis. Salpingitis is often used synonymously with PID. The PID diagnostic criteria suggested by Jacobson and Weström and later refined by Hager *et al.* to include expert opinion were developed from data collected in the 1960s (Jacobson & Weström, 1969; Hager, Eschenbach, Spence,& Sweet, 1988). This is the standard PID case definition used in genitourinary medicine (GUM) and Obstetrics and Gynaecology (O&G).

Pelvic inflammatory disease (PID) is usually the result of infection ascending from the endocervix causing endometritis, salpingitis, parametritis, oophoritis, tuboovarian abscess and/or pelvic peritonitis. Neisseria gonorrhoeae and Chlamydia trachomatis have been identified as causative agents (Bevan, 1995). Mycoplasma genitalium is a likely cause (Lis, Rowhani-Rahbar, & Manhart, 2005) and anaerobes are also implicated. Microorganisms from the vaginal flora including streptococci, staphylococci, Escherichia coli and Haemophilus influenzae can be associated with upper genital tract inflammation. Mixed infections are common. The relative importance of different pathogens varies between different countries and regions. A number of factors are associated with PID. They include: (1) Factors related to sexual behaviour such as young age, multiple partners, recent new partner (within previous three months), past history of sexually transmitted infections (STIs) in the patient or their partner(2) instrumentation of the uterus/ interruption of the cervical barrier (3) termination of pregnancy (4) insertion of intrauterine device within the past six weeks (5) hysterosalpingography (6) hysteroscopy (7) saline infusion sonography (8) in vitro fertilisation.

Historical Perspective of PID

Simms (2003) notes that the origin of the term 'pelvic inflammatory disease' is unclear but it is thought to have been introduced by the World Health Organisation (WHO) after World War II in response to an increased awareness of the diverse presentation of salpingitis (RS Morton, personal communication). Prior to the nineteenth century, the 'venereal poison' was attributed to a wide range of conditions. However, the un-specific signs and symptoms that characterise PID, together with ineffective examination methods, the inaccessibility of the female upper genital tract and a general uninterest in women's health meant that PID was not associated with venereal disease (Simms, 2003). During the mid-nineteenth century it was suggested that gonorrhoea could ascend to the upper genital tract and cause PID, but it was not until 1876 that Noeggerath produced evidence of an association between gonorrhoea, PID and infertility (Ricord, 1848; Noeggerath, 1876).

Sulphonamides were used to treat PID in the 1930s and, during the late 1940s, the widespread use of antibiotics in the treatment of PID and other conditions reduced PID prevalence in Europe substantially (Hellerström 1943).However, estimates of disease prevalence and the impact of treatment made at that time were probably inaccurate as many cases were attributed to other diagnoses, such as appendicitis, either because of unspecific diagnostic techniques or an unwillingness to discuss sexual health with young women (Lee, 1961).

Laparoscopy, the examination of the abdominal structures within the peritoneum, was first described by Kelling in 1902 (Wittman, 1966). In the 1960s, Weström used laparoscopy to systematically explore the clinical presentation of PID and revealed the wide range of clinical presentations of PID as well as its associations with ectopic pregnancy and tubal factor infertility (Weström, 1994). This work also established laparoscopy as the diagnostic 'gold standard' and a method of taking samples from the upper genital tract. Simms (2013) notes that despite recent developments in microbiology, immunology and behavioural sciences, much remains to be learnt of

the ætiology, pathogenesis, epidemiology and public health significance of PID.

Causes of PID

Many types of bacteria can cause PID, but gonorrhea or chlamydia infections are the most common. These bacteria are usually acquired during unprotected sex (Simms, 2013).

Less commonly, bacteria can enter a female reproductive tract anytime the normal barrier created by the cervix is disturbed. This can happen after childbirth, miscarriage or abortion.

Risk Factors Associated with PID

Simms (2013) notes that a number of factors might increase a person's risk of pelvic inflammatory disease; these include:

- Being a sexually active woman younger than 25years old
- Having multiple sexual partners
- Being in a sexual relationship with a person who has more than one sex partner
- Having sex without a condom
- Douching regularly, which upsets the balance of good versus harmful bacteria in the vagina and might mask symptoms
- Having a history of pelvic inflammatory disease or a sexually transmitted infection

Complications of PID

Mayo-clinic (2018) notes that untreated pelvic inflammatory disease might cause scar tissue. The victims might also develop collections of infected fluid (abscesses) in their fallopian tubes, which could damage their reproductive organs. Other complications according to Mayo-Clinic (2018) might include:

Ectopic pregnancy: PID is a major cause of tubal (ectopic) pregnancy. In an ectopic pregnancy, the scar tissue from PID prevents the fertilized egg from making its way through the fallopian tube to implant in the uterus. Ectopic pregnancies can cause massive, life-threatening bleeding and require emergency medical attention.

Infertility: PID might damage female reproductive organs and cause infertility — the inability to become pregnant. The more times they have had PID, the greater their risk of infertility. Delaying treatment for PID also dramatically increases their risk of infertility.

Chronic pelvic pain: Pelvic inflammatory disease can cause pelvic pain that might last for months or years. Scarring in their fallopian tubes and other pelvic organs can cause pain during intercourse and ovulation.

Tubo-ovarian abscess: PID might cause an abscess — a collection of pus — to form in female uterine tube and ovaries. If left untreated, they could develop a life-threatening infection.

Empirical Studies

The study carried out by Simms in 2013 critically evaluated and analysed the available surveillance data in England. He investigated how PID is diagnosed, treated and managed in general practice and assessed the accuracy of PID diagnosis based on clinical presentation. The demographic and behavioural factors, serological parameters and causative agents associated with PID were also explored. In clinical settings, the highest burden of disease was seen in general practice where 1.7% of reproductive age women were diagnosed with PID. An analysis of the largest available evidence base showed that the most effective diagnostic criteria are the presence of lower abdominal pain and the exclusion of competing diagnoses. The simplicity of these criteria makes it attractive as a surveillance case definition but unfortunately it lacks specificity and sensitivity.

The case-control study showed that PID had the characteristics that would be expected of a STD, and that these associations were generally consistent between the two control groups used in the study. When compared against a tubal ligation control group, increased risk of PID was associated with: age group less than 25 years; age at first sexual intercourse less than 20 years; having a non-White

ethnic identity; not having had children; having a self-reported history of an STD; and having been exposed to infection with *C. trachomatis*. When compared against the general practice control group, increased risk of PID was associated with: age group less than 25 years; age at first sexual intercourse less than 15 years; having lower socio-economic status; having a marital status of cohabiting, single, and widowed/ separated/ divorced; having a self-reported risk of PID; having experienced an adverse pregnancy outcome; a history of an STD; and having been exposed to infection with *C. trachomatis*. The study noted that although increased risk of PID was associated with exposure to infection with *C. trachomatis* and a self-reported previous history of an STD, 64% of the PID cases were idiopathic. The investigation showed an association between *M. genitalium*, *C. trachomatis* and PID, and suggested that some idiopathic cases may be associated with STIs. The study concluded that diagnostic methods and knowledge of disease ætiology need to be improved if further epidemiological investigations and surveillance initiatives are undertaken. While the study recommended the improvement in the knowledge of PID, it did not find out the knowledge level and whether information on the disease has been effectively utilized by the audience, hence, the focus of this study.

Data from the National Survey of Family Growth (NSFG) from 2006 to 2010 showed that 5% of women reported being treated for PID in their lifetime. The study of PID in younger populations conducted by the same body has revealed that adolescents are at even greater risk of developing PID and associated complications. An estimated one in five cases of PID occur in women younger than 19 years, and in one study, adolescents and young women aged 17–21 years were twice as likely as other age groups to be diagnosed with PID. The high complications of PID among young women as revealed by the study may be as a result of the lack of information about the disease or as a result of the non-utilization of information available on the disease. This is why this study is necessary to investigate the sources and utilization of information on PID among young women.

Theoretical Framework: Media Dependency Theory

Media Dependency Theory, propounded by Sandra-Ball Rokeach and Melvin Defleur in 1976, explained that audiences depend on media information to meet their needs and goals and that the degree of dependence is influenced by the number of information and social stability they get using the media. The theory states that the more dependent an individual is on the media for having his/her needs fulfilled, the more important the media will be to that person (Yaroson & Asemah, 2008).

Since dependency theory holds that the audience members depend on the media of information like radio, television, newspapers, magazines and online sources to meet their needs and reach their goals, the mass media should leave no stone unturned by providing every necessary information as regards Pelvic Inflammatory Disease to all and sundry. This will increase people's trust on the mass media for information necessary for their existence, including health related information.

Methodology

The study employed the survey method to analyse the opinions of female students in Kogi State University, Anyigba. The total number of registered female undergraduate students in Kogi State University for the 2017/2018 academic session stands at 7,021 within the eight faculties of the university (Academic Planning Unit, 2018). Four faculties were selected for the study using simple random sampling. The faculties include Management Sciences, Social Sciences, Arts and Humanities and Natural Sciences. Within these four faculties, the population of female students stands at 4,984. Using Taro Yamane's formula (1967) for sample size calculation, the sample size for the study was 370. Using simple random sampling, two departments were selected from each of the four selected faculties, making a total of

eight departments and copies of questionnaire were administered to respondents randomly. With the help of trained research assistants, 370 copies of the instrument for data collection (questionnaire) was administered, out of which 358 were found valid for analysis. Descriptive data analysis was used to present and analyse the primary data while face and content validity was used to check the authenticity of the instrument and corrections were made by four senior lecturers in the department of mass communication, Kogi State University, Anyigba and Bayero University Kano.

Data Presentation and Analysis

Data gathered through questionnaire to address the research objectives were presented and analysed using frequency tables and simple percentages. Out of the 370 copies of the questionnaire that were distributed, only 358 were duly completed. 8 copies were not returned while 4 copies were not properly filled. The analysis was therefore based on the 358 copies that were completed and returned.

Table 1: Exposure to information on PID

Response	Frequency	Percentage
Yes	224	63
No	134	37
Total	358	100

Source: Field Survey, 2020

The table shows that majority of the respondents are exposed to information on Pelvic Inflammatory Disease.

Table 2: Rate of Exposure to Information on PID

Response	Frequency	Percentage
Very High	49	14
High	25	7
Low	150	42
Not at all	134	37
Total	358	100

Source: Field Survey, 2020.

The table shows that majority of the respondents have low exposure to information on PID. That is to say, even though majority are exposed to such information, they have no detailed information about the disease.

Table 3: Source of Information on PID

Response	Frequency	Percentage
Print media	30	9
Broadcast media	15	4
Friends	4	1
Medical personnel	4	1
Internet	171	48
No Source	134	37
Total	358	100

Source: Field Survey, 2020.

The table reveals that those exposed to information on Pelvic Inflammatory Disease got their information from the Internet. This is to say that the media (both print and broadcast) has done little in giving information about the disease, meaning that they have failed to perform their surveillance and information role to the public. Also, the medical personnel have also failed in educating the people on such a dangerous and infectious disease.

Table 4: Utilization of information on PID

Response	Frequency	Percentage
Yes	224	63
No	134	37
Total	358	100

Source: Field Survey, 2020.

The table shows that all the respondents who are exposed to information on PID had actually utilized the information gotten effectively to guide themselves against the disease.

Table 5: Effect of the Information on PID in the mind of the students

Response	Frequency	Percentage
Negative	180	50
Positive	44	13
No effect	134	37
Total	358	100

Source: Field Survey, 2020.

The table reveals that information dissemination about PID create negative picture in the mind of the respondents with 50% response rate. This may be due to the fear of getting infected by the disease.

Discussion of Findings

The study is aimed at assessing the source and utilization of information on Pelvic Inflammatory Disease among students of Kogi State University, Anyigba.

Findings from the above discourse indicate that a significant number of students are exposed to information on Pelvic Inflammatory Disease. However, majority of them have low exposure to information on PID. That is to say, even though majority are exposed to such information, they have no detailed information about the disease. No wonder Simms (2013) after a study on "The epidemiology of pelvic inflammatory disease in England" recommended that the knowledge of the disease needs to be improved.

It is also discovered that those exposed to information on Pelvic Inflammatory Disease got their information from the Internet. This is to say that the conventional mass media (print and broadcast) have done little in giving information about the disease; hence they have failed to perform their surveillance and information role to the public. Also, the medical personnel have also failed in educating the people on such a dangerous and infectious disease. Going by the summation of Yaroson and Asema (2008) on the assumptions of the media dependency theory when they noted that the more dependent an individual is on the media for having his/her needs fulfilled, the more important the media will be to that person, it therefore means that the female students or young women will solely depend on the Internet for health related information.

Findings also revealed that those who are exposed to information on PID had actually utilized the information gotten effectively to guide themselves against the disease. That shows how effective such pieces of information were but it was also discovered that such information had as well a negative effect on the students. This may be due to the fear of getting infected by the disease.

Conclusion

Information is essential in helping students know their health status, available diseases as well as preventive measures against such diseases, hence, the need for health communication at all times. The media is expected to be at the forefront of this development as people largely depend on them for factual information. The Internet which is considered to be the fastest medium or source of information has also helped in this regard, hence, the need to harness the opportunity provided by it to get information available at all times. However, those without access to the Internet should also be put into consideration when it has to do with information dissemination. This makes the media (print and broadcast) the most essential element in reaching the people near and wide.

Recommendations

Based on the findings of this study, the paper recommends that:

1. Information on Pelvic Inflammatory Disease needs to be improved. People, especially the female students, should be well oriented and educated about the disease as ignorance itself is a disease.
2. The conventional mass media (print and broadcast) and health personnel need to intensify their efforts in health communication as it is revealed that they have done little in giving information on Pelvic Inflammatory disease based on the findings above.

3. Youths of all ages should grab the opportunities provided by the Internet to educate themselves on health-related matters.
4. Fear appeal should be discouraged when giving health-related information in order not to create a negative effect in the mind of the audience.

References

Antilla, T., Saikku, P. Koskela, P., Lehtinen, M. & Paavonen, J. (1999). IgG antibodies to different *Chlamydia trachomatis* serotypes in patients with squamous cell cervical carcinoma. *Proceedings of the Thirteenth Meeting of the International Society for Sexually Transmitted Diseases Research*. Denver. Colorado. USA.

Bevan, C.D., et al. (1995). Clinical, laparoscopic and microbiological findings in acute salpingitis: Report on a United Kingdom cohort. *Br J Obstet Gynaecol*, 102, 407–414.

Buchan H, Vessey M, Goldacre M, Fairweather J. (1993). Morbidity following pelvic inflammatory disease: A record linkage study. *Br J Obstet Gynaecol,* (100), 558-62.

CDC. (2015). *Pelvic Inflammatory Disease (PID)*. Atlanta, GA: Department of Health and Human Services.

Das, B., Ronda J. & Trent, M. (2016). Pelvic inflammatory disease: Improving awareness, prevention, and treatment. *Publication of Dove Medical Press Limited*. www.dovepress.com/pelvic-inflammatory-disease-improving-awareness-prevention-and-treatme-peer-reviewed-fulltext-article-IDR.

Hager, W., Eschenbach, D., Spence, M. & Sweet, R. (1983). Criteria for diagnosis and grading of alpingitis. *Obstet Gynecol,* 61, 113-114.

Hellerström, S. (1943). Kemoterapins inflytande på vårdtidens längd vid gonorré. *Nord Med,* 18, 683-685.

Jacobson, L. & Weström, L. (1969). Objectivised diagnosis of acute pelvic inflammatory disease. *Am J Obstet Gynecol,* 105, 1088 – 1098.

Lee, J. (1961). 'Appendicitis' in young women. *Lancet,* 2, 815-817.

Lis, R., Rowhani-Rahbar, A. & Manhart, L.E. (2015). Mycoplasma genitalium infection and female reproductive tract disease: a meta-analysis. *Clin Infect Dis.* 61, 418–426.

Mayo-Clinic. (2018). Pelvic inflammatory disease (PID). https://www.mayoclinic.org/diseases-conditions/pelvic-inflammatory-disease/symptoms-causes/syc-20352594.

Noeggerath, E. (1876). Latent gonorrhoea, especially with regard to its influence on fertility in women. *Transm Am Gyn Soc.,* 1, 268-300.

Peipert, J.F., Ness, R.B., &Blume, J., et al. (2001). Pelvic Inflammatory Disease evaluation and clinical health study investigators: Clinical predictors of endometritis in women with symptoms and signs of pelvic inflammatory disease. *Obstet Gynecol*. 184(5), 856–863.

Ricord, M. (1848). Lectures on venereal and other diseases arising from sexual intercourse. *Lancet,* 484-485.

Risch, H. &Howe, G. (1995). Pelvic inflammatory disease and the risk of epithelial ovarian cancer. *Cancer Epidemiol Biomarkers Prev* (4), 447-451.

Simms, I. D. (2013). *The epidemiology of pelvic inflammatory disease in England*. Thesis for the Degree of Doctor of Philosophy in Sexually Transmitted Disease, University of College London Medical School.

Sutton, M.Y., Sternberg, M., Zaidi, A., St Louis, M.E. & Markowitz, L.E. (2005). Trends in pelvic inflammatory disease hospital discharges and ambulatory visits, United States, 1985–2001. *Sex Transm Dis*. 32(12), 778–784.

Weström, L. (1994). Sexually transmitted diseases and infertility. *Sex Transm Dis,* 21, 32-37.

Wiesenfeld, H.C., Hillier, S.L., Meyn, L.A., Amortegui, A.J., & Sweet, R.L. (2012). Subclinical pelvic inflammatory disease and infertility. *Obstet Gynecol*, 120(1), 37–43.

Wiesenfeld, H.C., Sweet R.L., Ness, R.B., Krohn M.A., Amortegui, A.J., & Hillier S.L. (2005). Comparison of acute and subclinical pelvic inflammatory disease. *Sex Transm Dis.* 32(7), 400–405.

Wittman, I.O. (1966). The history of peritoneoscopy. *Peritoneoscopy*. Budapest: Akadémiai Kiadó.

Yaroson, E.,& Asemah, E. (2008). *Theories and models of mass communication.* Jos: Great Future Press.