OPEN ACCESS
Global Journal of Research in Medical Sciences
ISSN: 2583-3960 (Online)
Volume 03 | Issue 04 | July-Aug. | 2023
Journal homepage: https://gjrpublication.com/gjrms/
Original Research Article

A Rapid Evidence Assessment of the Knowledge Regarding Pelvic Inflammatory Disease among In-School Adolescent Girls in Secondary Schools, Kwara State, Nigeria

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DOI: 10.5281/zenodo.8128127 **Submission Date:** 26 Jun 2023 | **Published Date:** 10 July 2023

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Abstract

Introduction: Pelvic Inflammatory Disease (PID) is an infection of the female reproductive organs. It usually occurs when sexually transmitted bacteria spread from vagina to the uterus, fallopian tubes or ovaries.

Objective: To conduct a systematic review on knowledge regarding pelvic inflammatory disease among in-school adolescent girls in secondary schools in Kwara state, Nigeria.

Methods: Comprehensive search strategy was conducted to identify relevant studies reporting the knowledge of in-school adolescent girls regarding pelvic inflammatory disease by searching the following electronic bibliographic databases using Google scholar (2015-2020), MEDLINE(R), EMBASE and MEDLINE, CINAHL and PsycINFO all (2015-2020).

Results: Generally, awareness and knowledge varied among the adolescents depending on class (junior secondary class and senior secondary class) and demography. However, only few (0.44%) of in school-adolescent girls have knowledge on early detection of PID while 3.8% of the in school-adolescent girls have knowledge on the consequences.

Conclusion: Despite availability of various sources of information and different demographic variables, the knowledge of pelvic inflammatory disease among in-school adolescent girls fall below average in all the 12 studies included in this research study.

Recommendation: There is need for continuous public sensitization on the etiology and consequences of pelvic inflammatory disease through social media campaign among others.

Keywords: in-school adolescent girls, pelvic inflammatory disease

INTRODUCTION

The adolescent period is a crucial stage in the life of a child where personality is formed and a child's thoughts becomes abstract. It is this stage that serves as a pointer to what a child becomes in future. According to Mensch et al., (2018), what happened to an adolescent whether good or bad, shapes how girls and boys live out their lives as women and men. Many have become teenage parents at a tender age in life and as such limiting their potentials and what could have become of them in the future.

Adolescence is a transitional phase of growth and development between childhood and adulthood. The World Health Organisation (WHO) (2016) defines an adolescent as any person between 10 and 19. It is the process includes the achievement of personal independence, and maturation of cognitive reasoning skills (Stevens-Simon, 2019). The problems of adolescence stem from regarding himself or herself as grown up and an adult, whereas the individual is still developing mentally, emotionally and physically. Adolescent reproductive health problems have attracted much attention recently, both locally and internationally (Iwere, 2016).

Incidentally, many parents have shifted the role of educating their adolescents to the school and other agents of socialization like peer groups and this has exposed them to risky sexual behaviours with grave consequences on their well-being such as pelvic inflammatory diseases. According to Olubayo et al., (2016), parents are shy to educate their

adolescents on sex and sexual behaviours because of the fear that discussing sexual issues with their children might stimulate their sexual interest to practicing what they have learnt.

This has resulted to them shifting the role to other agents such as the school and peer group. Richard (2016) asserted that some parents see sex education to their children as immoral due to religious beliefs that it might encourage pre-marital sex. Studies have also shown that many adolescents initiate sexual intercourse at an early age in life and engage in high risk sexual behaviours such as unprotected sex and multiple sexual partners which expose them to sexually transmitted diseases, unwanted pregnancy and illegal abortion, pelvic inflammatory diseases among others (UNAIDS 2016).

This is similar to CDC (2018) report on a study carried out among U.S. high school students where 46.8% of those sampled have had sexual intercourse, 34.0% had had sexual intercourse during the previous 3 months, and, of these 40.9% did not use condom the last time they had sex while 15.0% had had sex with four or more people during their life time. Similarly, an estimated 8,300 young people aged13-14 years in the 40states reporting to CDC had HIV infection in 2015, nearly half of the 19 million new STDs each year are among young people aged 15-24 years while more than 400,000 teen girls aged 15-19 years also gave birth in 2015. (CDC, 2018) and (Weinstocks et al, 2017).

According to United Nations Population Fund (2016), today, there are more than one billion 10-19 years old in the world of which 70% lives in developing nations. Incidentally, many of them are sexually active and engage in risky sexual behaviour. This is in line with the study carried out by Klan et al., (2018) on adolescent high risk behaviour in sub Saharan Africa in which more than 20% of the adolescents who have had sexual intercourse had multiple sex partners.

This also corroborates the study conducted by Ali et al., (2015) and Gupta et al.,. (2016) across the African continent that reveals that the rate of sexual initiation during adolescent period is fast rising in developing countries. In a similarly study conducted by Lloyd (2015) it was also found that, an estimated 4.3% of young women and 1.5% of young men aged 15-24 in Sub-Saharan Africa are living with HIV, while 13% of young women have given birth at the age of 16.

Unfortunately in Nigeria, sex education and services still remain a controversial issue and a taboo in many cultures, more worrisome is that some educated parents still nurse the fear that discussing sexual issues with their children might stimulate their sexual interest to practicing what they have learnt (Olubayo et al, 2016). Studies have shown that there is a sharp increase in the rate of pre-marital sex and a sharp decline in age of sexual debut among adolescent contrary to our moral and cultural values (W.H.O. 2016).It is in this regard that it has become imperative for adolescents to have access to reproductive information before they become sexually active so as to reduce the risk of contracting STDs in Nigeria and the society at large by accessing their knowledge of sexually transmitted diseases especially in the urban areas which is the focus of this study.

Pelvic inflammatory disease (PID) is a clinical syndrome defined by the Centers for Disease Control and Prevention (CDC 2016) as a spectrum of upper genital tract infections that includes any combination of endometritis, salpingitis, pyosalpinx, tubo-ovarian abscess (TOA) and pelvic peritonitis. PID is a highly preventable source of significant reproductive morbidity in young women and adolescents. It is estimated that more than 250,000 adolescents experience an episode of acute pelvic inflammatory disease per year in the US, comprising 11% of African-American in-school adolescents. In the US alone, 50 in-school adolescents die from PID or its complications per year (ACDC 2018).

Acute PID infections are associated not only with psychological, economic and public health burdens, but also with long-term sequelae, including infertility, ectopic pregnancy, recurrent PID and chronic pelvic pain (Botte et al, 2016).Sexually active adolescents are at increased risk for developing PID compared to older women and have the highest age-specific rates of PID among sexually experienced females (CDC 2016). Although it is difficult to ascertain the exact prevalence and incidence of PID in adolescents, it is estimated that one in five cases of PID (20%) occurs in women under the age of 19, and that one in eight adolescent females will develop PID compared to one in 80 for women age 24 years (Shafer et al.,. 2016).

RESEARCH METHOD

Study criteria

This review sought to identify studies (observational or experimental) that presented knowledge of in-school adolescents regarding pelvic inflammatory disease. Studies, which examined only a self-report or direct measure, were not included in the review. All study designs were eligible e.g. retrospective, prospective, case control, randomized controlled trial, etc.

Only studies involving in-school adolescents with age of 10-19 years were considered. Abstracts and titles were examined for their mention of adolescent populations (using adolescents), but the search relied mostly on the subject headings for in-school adolescents age groups. This systematic review was conducted simultaneously with a systematic review of the same focus in in-school adolescent populations (age10-19 years). Although no language restrictions were

imposed in the search, only English language articles were included in the review. Abstracts were included if they provided sufficient details to meet inclusion criteria.

Search strategy

The following electronic bibliographic databases were searched using a comprehensive search strategy to identify relevant studies reporting the knowledge of the in-school adolescents regarding pelvic inflammatory disease: Google scholar (2015-2020), MEDLINE(R) (2015-2020), EMBASE and MEDLINE(2015-2020), CINAHL (2015-2020) and PsycINFO (2015-2020). The search strategy is illustrated using the Google scholar search as an example (Table 1) and was modified according to the indexing systems of the other databases. Google scholar interface was used to search MEDLINE, EMBASE, CINAHL, and PsycINFO. Grey literature (non-peer reviewed works) included published abstracts and conference proceedings, published lists of these and dissertations, and government reports.

Duplicates were manually removed and the full texts of all studies that met the inclusion criteria were then obtained and reviewed. Standardized data abstraction forms were completed reviewer and verified. Information was extracted on the type of study design, participant characteristics, sample size, and methods measuring the knowledge of in-school adolescents regarding pelvic inflammatory disease. Reviewer was not blinded to the authors or journals when extracting data.

Inclusion criteria

Studies that reported on knowledge of in-school adolescents on pelvic inflammatory disease and not among older women were selected.

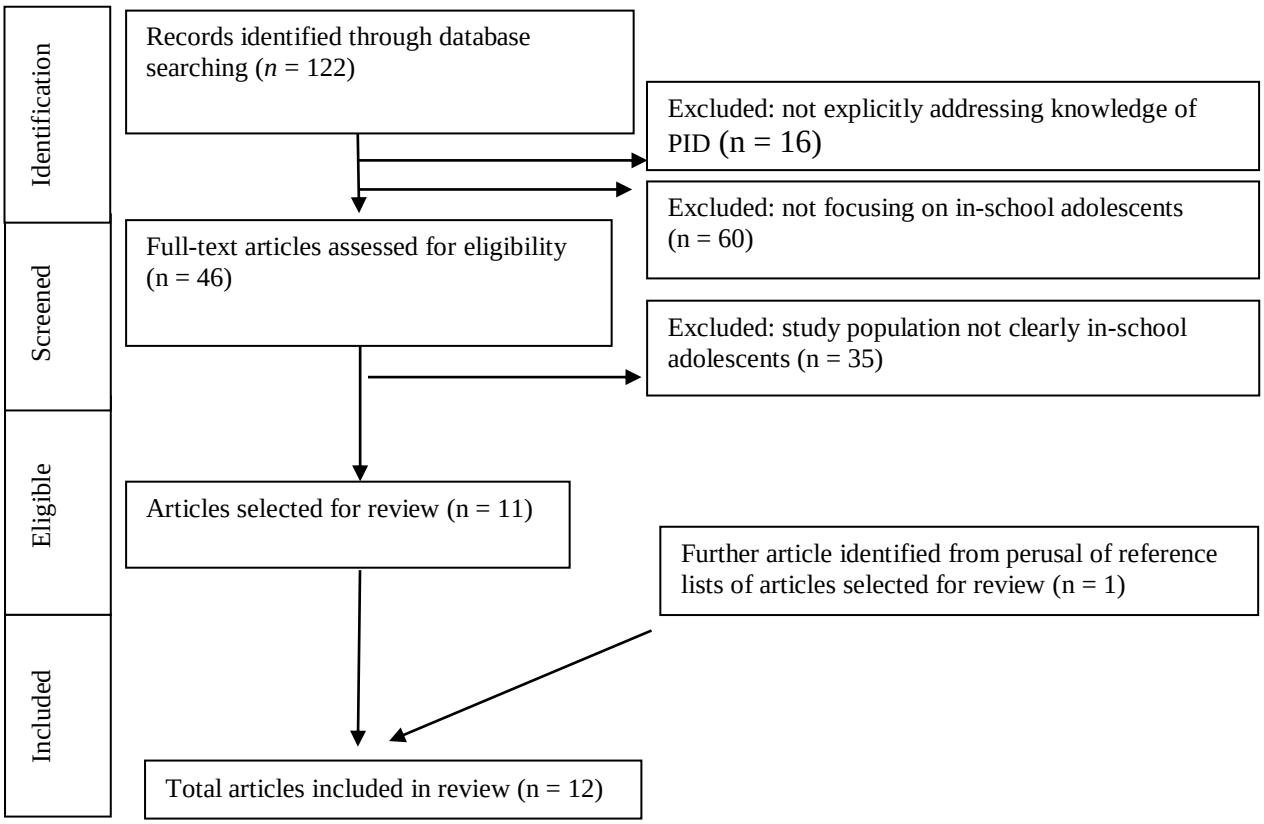
Exclusion criteria

Studies evaluating intervention programmes and studies not specifically on in-school or school attending adolescents were excluded.

Study limitations

The indirect measurement of coverage and effectiveness described in this paper is limited to only studies that were published and available on the major search engines employed for this systematic review. Although many studies have been conducted in Nigeria since 2015, attempts to get an inventory of all articles on these studies were unsuccessful. Therefore, some of these articles may not have been included in this systematic review because they were unavailable for selection or did not meet the inclusion criteria.

Table 1: Articles perusal, exclusion and inclusion process



Methodological assessment of reviewed studies

The studies were classified according to whether or not they fulfilled given criteria such as 'Were the study outcomes to be measured clearly defined?', 'Was the study sample clearly defined?', or 'Is it clear how data were collected?'. No points were allocated. Instead, the following categorisations could be selected for each assessment statement: 'Yes', 'Substandard', 'No', 'Not Clear', 'Not Reported', 'Partially Reported', 'Not Applicable', 'Not Possible to Assess', 'Partly'.

Definition of knowledge for the purpose of this review studies were said to have been assessed when questions such as on modes of transmission and protection were posed.

DATA PRESENTATIONAND INTERPRETATION

Table 2: Results of systematic assessment of studies included in the review

Criteria	Number of studies in each assessment category*								
	Y	S	N	NC	NR	PR	NA	NP	P
Did the study address a clearly focused issue?	12								
Was/were the study outcome(s) to be measured clearly described?	12								
Were the questions posed to assess outcome(s) clearly defined?	12								
Was the study sample clearly defined?	12								
We're participating schools recruited in an acceptable way?	12								
Were the pupils recruited in an acceptable way?	12								
Were characteristics of subjects at enrolment reported?	12								
Is it clear how data were collected?	12								
Did the authors mention that the instrument used for data collection was pre-tested or validated?	12								
Were the questions posed appropriate to address given outcomes?	12								
Was participation rate reported?	12								
Was participation rate sufficiently high?	12								
Was the data analysis sufficiently rigorous?	12								
Were other factors accounted for that could affect outcomes?	8				4				
Were results appropriately reported?	12								
Is there a clear statement of findings?	12								

*Y = Yes, S = Substandard, N = No, NC = Not Clear, NR = Not Reported, PR = Partially Reported, NA = Not Applicable, NP = Not Possible to Assess, P = Partly

Table 3: Level of knowledge of in school-adolescent girls on pelvic inflammatory disease and its relationship with sexually transmitted diseases

Question/Item assessed in studies on pelvic inflammatory disease.	Junior secondary school adolescents % (Reference)	Senior secondary school adolescents% (Reference)
Heard of PID (identification from list of diseases or direct question, 'Have you heard of PID?')	8.3% (Nwimo et al.,.) 12.3% (Olubayo et al.,.) 1.1% (Oladepo et al.,.) 5.4% (Cromwell et al.,.) 6.4% (Goyal et al.,.) 7.7% (Suss et al.,) 8.3% (Adegbenga et al.,) 6.5% (Joseph et al.,) 9.8% (Olayiwole et al.,.) 13.8% (Amu and Adegun) 6.8% (Awodele et al.,) 18.2% (Nworah et al.,)	15.4% (Nwimo et al.,.) 20.6% (Olubayo et al.,.) 32.3% (Oladepo et al.,.) 28.7% (Cromwell et al.,.) 28.8% (Goyal et al.,.) 34.6% (Suss et al.,) 38.9% (Adegbenga et al.,) 15.3% (Joseph et al.,) 32.1% (Olayiwole et al.,.) 14.2% (Amu and Adegun) 42.1% (Awodele et al.,) 32.6% (Nworah et al.,)
Total (100%)	8.72%	27.97%

Participants who knew that PID can arise due to sexually transmitted diseases	7.4% (Nwimo et al.,.)- 10.5% (Olubayo et al.,.) 12.3% (Oladepo et al.,.) 3.2% (Cromwell et al.,.) 4.5% (Goyal et al.,.) 6.7% (Suss et al.,) 8.1.% (Adegbenga et al.,) 2.5% (Joseph et al.,) 4.2% (Olayiwole et al.,.) 9.4% (Amu and Adegun) 6.1% (Awodele et al.,) 17.9% (Nworah et al.,)	13.3% (Nwimo et al.,.) 18.2% (Olubayo et al.,.) 29.1% (Oladepo et al.,.) 21.5% (Cromwell et al.,.) 27.6% (Goyal et al.,.) 32.5% (Suss et al.,) 36.7% (Adegbenga et al.,) 12.3% (Joseph et al.,) 32.1% (Olayiwole et al.,.) 11.3% (Amu and Adegun) 41.6% (Awodele et al.,) 30.4% (Nworah et al.,)
Total (100%)	7.73%	23.3%
Participants who knew that PID is a risk factor for infertility (closed question)	0.1% (Nwimo et al.,.) 1.4% (Olubayo et al.,.) 0.2% (Oladepo et al.,.) 0.1% (Cromwell et al.,.) 0.9% (Goyal et al.,.) 0.7% (Suss et al.,) 0.2% (Adegbenga et al.,) 0.1% (Joseph et al.,) 1.1% (Olayiwole et al.,.) 2.6% (Amu and Adegun) 1.4% (Awodele et al.,) 1.2% (Nworah et al.,)	9.4% (Nwimo et al.,.) 5.6% (Olubayo et al.,.) 9.3% (Oladepo et al.,.) 8.7% (Cromwell et al.,.) 4.8% (Goyal et al.,.) 6.6% (Suss et al.,) 4.9% (Adegbenga et al.,) 5.3% (Joseph et al.,) 8.1% (Olayiwole et al.,.) 7.2% (Amu and Adegun) 2.1% (Awodele et al.,) 2.6% (Nworah et al.,)
Total (100%)	0.83%	6.22%
Subjective rating of risk of contracting STI	54.5% (Nwimo et al.,.) 65.6% (Olubayo et al.,.) 35.8% (Oladepo et al.,.) 67.4% (Cromwell et al.,.) 45.8% (Goyal et al.,.) 78.8% (Suss et al.,) 45.9% (Adegbenga et al.,) 53.5% (Joseph et al.,) 38.2% (Olayiwole et al.,.) 43.4% (Amu and Adegun) 23.6% (Awodele et al.,) 32.2% (Nworah et al.,)	62.5% (Nwimo et al.,.) 68.6% (Olubayo et al.,.) 60.3% (Oladepo et al.,.) 78.6% (Cromwell et al.,.) 90.5% (Goyal et al.,.) 89.3% (Suss et al.,) 70.5% (Adegbenga et al.,) 98.6% (Joseph et al.,) 92.2% (Olayiwole et al.,.) 96.3% (Amu and Adegun) 94.4% (Awodele et al.,) 97.6% (Nworah et al.,)
Total (100%)	48.73%	83.28%

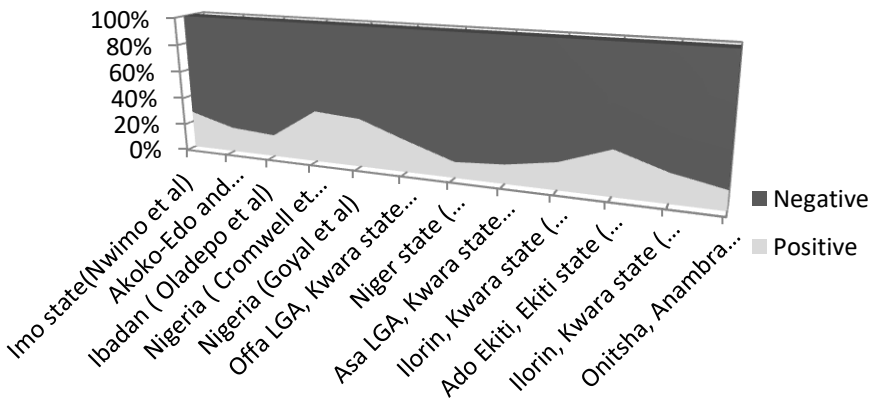


Figure 1: Impact of demographic variables on the knowledge of pelvic inflammatory disease among in school adolescent girls.

Discussion of findings

Only few in school-adolescent girls in Junior secondary school (8.72%) have heard of pelvic inflammatory before, this include identification from list of diseases or direct questions like "have you heard of PID?" while in school-adolescent girls in senior secondary school have more (27.97%) knowledge on the identification of pelvic inflammatory disease. 7.73% of in school-adolescent girls in Junior secondary school knew that PID can arise due to sexually transmitted diseases while in school-adolescent girls in senior secondary school are more (23.3%) aware that PID can arise due to sexually transmitted diseases. Only few in school-adolescent girls knew that PID is a risk factor for infertility with only 0.83% knowledge rate among in school-adolescent girls in junior secondary schools and 6.22% knowledge rate among in school-adolescent girls in junior secondary schools. Less than average (48.73%) of in school-adolescent girls in junior secondary schools knew that they can contract STI while more than average (83.28%) of in school-adolescent girls in senior secondary school knew that they can contract STI.

Considering all the questions/items assessed in the studies on knowledge of in school-adolescent girls on the relationship between sexually transmitted diseases and pelvic inflammatory disease, this shows that in school-adolescent girls in senior secondary school are more knowledgeable that in school-adolescent girls in junior secondary school on pelvic inflammatory disease and its relationship with sexually transmitted diseases.

Recommendations

There is need for the adoption of an all-inclusive approach that can cultivate improvement of awareness and knowledge among adolescent girls not only on the issue of PID but also in all other areas of female reproductive health.

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