

AWARENESS OF POLYCYSTIC OVARY SYNDROME THROUGH FACEBOOK: STUDY OF ADOLESCENT SECONDARY SCHOOL GIRLS IN ANAMBRA STATE

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Abstract

This research explored the awareness of Polycystic Ovary Syndrome (PCOS) among adolescent girls in secondary schools in Anambra State, Nigeria, utilizing Facebook as an educational tool. A survey was administered to 384 girls aged 10-20, attending secondary schools in Anambra State. The study employed a cross-sectional descriptive design to assess PCOS awareness. Anambra State was selected purposively due to its high concentration of secondary schools, facilitating access to the target population. The research employed a multi-stage probability sampling method and chose 6 state schools from 3 education zones. Only 25% of the participants had prior knowledge of PCOS, primarily acquired from teachers. Although over 60% had Facebook accounts, less than 20% accessed PCOS information there, and merely 17.7% engaged with related online content. The findings highlight a lack of baseline awareness and missed opportunities for utilizing social media for educational purposes. To enhance literacy and encourage seeking care, multifaceted strategies involving schools, communities, online platforms, and policies should be implemented. Despite limitations such as sample size and geographic focus, these results provide valuable insights into an underexplored demographic issue, underscoring the necessity for tailored interventions that promote adolescent reproductive health.

Keywords: Awareness, Polycystic Ovary Syndrome (PCOS), Facebook, Adolescent, Secondary school girls,

INTRODUCTION

Polycystic ovary syndrome (PCOS) is one of the most common endocrine disorders affecting women of reproductive age. It is estimated that PCOS affects 6-10% of women worldwide (Mumusoglu & Yildiz, 2020). The hallmark features of PCOS include irregular menstrual cycles, excess androgen levels, and polycystic ovaries. In addition to the reproductive manifestations, PCOS has metabolic features including insulin resistance, obesity, dyslipidemia, and increased risk of type 2 diabetes. The etiology of PCOS appears to be multifactorial with genetic and environmental contributions. It often manifests during adolescence with irregular menses being one of the most common presenting symptoms. Increased awareness and early diagnosis of PCOS during adolescence provides an opportunity for early intervention which may prevent long-term complications. Despite its high prevalence and significant health implications, numerous studies have revealed a concerning lack of knowledge and awareness about PCOS, particularly among adolescent girls (Nidhi *et al.*, 2011; Barthelmess & Naz, 2014). This knowledge gap is particularly troubling as PCOS often manifests during adolescence, coinciding with the onset of menstruation (menarche). The failure to recognize early symptoms frequently results in delayed diagnosis, which can have profound implications for long-term reproductive, metabolic, and psychological health (Broder-Fingert *et al.*, 2009). Adolescence, as a transitional phase bridging childhood and adulthood, introduces hormonal fluctuations that can complicate

the diagnosis of PCOS in this age group. Moreover, variations in menarche timing influenced by factors like nutrition, genetics, and climate further underscore the complexities of diagnosing PCOS in adolescent girls (Diagn, 2013).

The emergence of social media platforms, such as Facebook, presents a unique opportunity to engage adolescent girls and disseminate critical information about adolescents' health issues, including PCOS, in an accessible and engaging manner (Buccafurri *et al.*, 2015; Tan *et al.*, 2021). Facebook's widespread popularity among young people, coupled with its capacity to share multimedia content and leverage social connections, positions it as a powerful tool for the rapid dissemination of health-related information and the shaping of health-related attitudes and behaviors (Shaw *et al.*, 2017; Zhao & Zhang, 2017). The use of social media platforms like Facebook provides a means to reach and educate adolescent girls about PCOS.

This research seeks to evaluate the impact of a Facebook-based awareness campaign in enhancing PCOS knowledge and promoting health-seeking behaviors among adolescent girls attending secondary schools in Anambra State, Nigeria. It endeavors to shed light on the existing levels of PCOS awareness among this specific demographic, the effectiveness of social media campaigns in delivering PCOS information and influencing knowledge and attitudes, and the potential for increased PCOS awareness to enhance diagnosis and treatment rates among affected girls.

LITERATURE REVIEW

Empirical Studies

In a study which sought to determine knowledge and perception of PCOS among first year undergraduate students between the age group of 15 to 25 years Ajike *et al.*, (2020) reported that knowledge about PCOS was generally poor with only 220 of the 387 respondents indicating having poor knowledge about it. However, this finding did not align with the recent study by Olotu and Okon (2020) who reported a higher percentage where 65% had heard about PCOS. The wider coverage of study setting might have contributed to this. From the result of the study; when asked if they had heard about PCOS, most respondents 56.8% indicated that they have not heard of PCOS, 55.6% didn't have any source of information while 16.3% heard it from the internet. Regarding what they know in detail, 67.2% indicated that polycystic ovarian syndrome is not a curable disease and 51.7% indicated that polycystic ovarian syndrome is not a major cause of infertility, 69.8% indicated that polycystic ovarian syndrome is not a chronic/life-long disease, 52.5% indicated that hormonal imbalance is not a key feature of polycystic ovarian syndrome and 76.0% were not aware polycystic ovarian syndrome is treatable. To describe perceptions towards PCOS, agree responses was aggregated from "strongly agree" and "agree" while disagree responses were an aggregate of "strongly disagree" and "disagree" and "undecided". Most respondents (54.5%) perceived that their genetic makeup increased their risk of having PCOS, other respondents (54.0%) agreed that certain environmental factors increased their risk of having PCOS while 46.0% disagreed. Most of the respondents (57.9%) disagreed that if they lose/reduced weight it would help in restoring ovulation Majority of the respondents (50.7%) agreed that miscarriage can be as a result of PCOS. Most of the respondents (48.5%) disagreed that PCOS can increase their risk of womb cancer and 57.8% perceived PCOS makes them more prone to depression and psychological disorders than other women (Ajike *et al.*, 2020).

In another study to determine the awareness of polycystic ovarian syndrome among young females in Western India, a cross sectional study was performed on 500 women of age group 18-30 years coming to Out Patient Departments of D. Y. Patil Hospital, Navi Mumbai. Chainani (2019) reported that the duration of the study was 2 months and written informed consent was obtained. A simple random sampling method was used to pick subjects for the study while pre-designed, pre-tested, semi-structured questionnaire was used for data collection before knowledge awareness intervention. From the results of the study, 523 responses to the questionnaire were registered. 37.4% women were in the age group of 18-24 years and 62.6% women in the age group of 25-30 years. Among the participants, Chainani (2019) opined that only 38% of the women were aware of the term PCOS. 26% of the subjects were aware about the organ system involved in this disease. Out of the 190 women aware of the term PCOS, the most common presentation for PCOS was asymptomatic followed by irregular menses, infertility, obesity, hirsutism followed by psychological disorders. The study participants knew about the term PCOS due to doctors' visits followed

by Media/Internet sources, Friends, Teachers and then family. Women were also asked about the time interval between their last Obstetrician Gynecologist (OBGYN) visit and the results were stacked according to their age group. Most women in the age group of 18-24 years had not visited an OBGYN at all and most women in the age group of 25- 30 years had visited an OBGYN in the last 6 months

A randomized controlled trial (RCT) was conducted by Mohammed and Amani (2018) in order to evaluate the effectiveness of the PCOS system in creating awareness about the disease management of PCOS. The RCT study was conducted over a period of 3 months in the city of Tabuk, Saudi Arabia. The participants were recruited during their hospital visits. According to Mohammed and Amani (2018), the participants during their visit were explained with the purpose of the study and an informed consent was made as a necessary step to recruit the participants. Fifty-four women participants diagnosed with PCOS, belonging to the age group 20–40 were selected for the study. Mohammed and Amani (2018) reported that participants who gave their consent to participate in the study were randomly divided in to two groups including the intervention group and the control group (Teede, 2010). The participants in both the groups were asked to take a survey (pre-study) before taking part in the study which contain multiple choice questionnaire (AlSinan and Shaman, 2017). Fifty-four participants diagnosed with polycystic ovary syndrome who fulfilled all inclusion criteria were enrolled for the study. Twenty-two (40.74%) participants were randomly assigned to the intervention group, and the remaining 32 participants were assigned to the control group. The PCOS awareness levels of the participants were tested using the online survey questionnaire available on google forms before and after the intervention study. The intervention group received the training and awareness information through a dedicated mobile application, while the control group did not receive any awareness training through mobile application. Participants' information including age, city, education levels, weight and stature was collected at the gauge. Whenever enlisted, the respondents in the two gatherings were comparable in qualities concerning the benchmark attributes. In the baseline, a pre-study online questionnaire survey was carried out to assess the initial awareness levels of the participants, which is then proceeded by 3 months of follow-up. At the end of 3-month study, the same online questionnaire survey was conducted to assess the change in the awareness levels about PCOS among the participants in the both groups. Thirty participants (55.56%) completed the study, out of which 17 (77.27%) are from the intervention group and 13 (40.63%) from the control group.

A similar study by Safa showed that 50% have knowledge about the PCOS and in contrast to present study only 6 % aware about the reasons and consequences of the condition (Safa, 2017). Another survey by Homburg, (2006) revealed that 76 % had average knowledge about PCOS but 10% actually knew about the organ systems and pathology of the disease. Abbas et al., (2014) found in the study that 45 % are aware of PCOS condition which is similar to present finding. Sunanda and Nayak (2016) found that 76% of the samples were with average knowledge and 10.7% with good knowledge regarding polycystic ovarian syndrome. Nidhi et al found that only 20 out of 177 women had any knowledge about this syndrome. Out of these 20 women, 11 were those who had degrees in Medical Sciences (Nidhi et al., 2011). Bhadouria and Deepti (2017) carried out research on adolescent girls' self-esteem in relationship with obesity. The study was conducted to examine whether obese and overweight adolescent girls differ from normal weight adolescent girls in terms of self-esteem. The sample adolescent girls were divided in three groups (i.e., obese, overweight and normal weight) and they were given measures of self-esteem. The body mass index of adolescent girls was determined on the basis of their height and weight. Findings of the present study revealed lower self-esteem among obese and overweight adolescent girls in comparison to their counterpart normal weight adolescent girls. Co relational analysis of data revealed negative relationship of body mass index (BMI) to self-esteem. Findings have suggested that there is need to improve self-esteem of adolescent girls which often decreases due to the perception of body weight by the adolescents themselves as well as due to the social and psychological factors affecting with obesity and overweight status. Information regarding the psychological impact of obesity on adolescents could lead to a better understanding of and sensitivity towards obese teenagers. This information could be used to have a positive impact on the lives of obese adolescents.

Literature Gap

While several studies have examined awareness and knowledge of PCOS in general populations, few have looked specifically at awareness level among adolescent secondary school girls or explored the potential role of social media in creating awareness. The literature reviewed did not include any studies that investigated awareness of PCOS through platforms like Facebook among this young demographic group in Anambra State. Understanding the current awareness level and sources of information for adolescent girls could help identify gaps and inform the development of social media-based awareness campaigns tailored to their needs. Since this younger population is highly engaged with platforms like Facebook, evaluating whether awareness activities on such channels can effectively reach and educate them would be valuable. Determining baseline awareness levels among secondary school girls in Anambra State and exploring Facebook as an awareness tool would fill an important gap in the literature regarding PCOS understanding in this specific population and region. It could provide insights into optimizing awareness approaches for adolescent girls through using popular social media platforms relevant to their daily online experiences and interactions.

Theoretical Framework

Media Dependency Theory

The first to present the theory of media dependence were Sandra Ball-Rokeach and Melvin DeFleur in 1976. The theoretical tradition in the field of communication grew from a strong model of media influence to a minimal model of influence in the early 1970s. Ball-Rokeach suggested a theory of media dependence, which attributes the media influences rather than their respective characteristics of the relationship between individuals, media and culture. Identifying the position and characterization of the media system as a knowledge system is the first significant suggestion that forms the basis of the theory of media dependence. The theory of media dependence focuses on an ecological approach, that is "the relationships between small, medium and large systems and their components" (De Fleur & Ball-Rokeach, 1990). The theory discusses the ways in which the different social structures (economic political, religious, and educational systems) and the social framework contribute to the social information system. In addition, describe how the mass media system has become an important knowledge system.

In modern society, people have relied on their personal connections and networks to achieve their goals of understanding what is happening in society and determining how to act and how to spend their free time (Adegbola & Gearhart, 2019). To accomplish their different goals, it has become difficult for youths to rely solely on their personal contacts. It has become difficult for people to live well in modern society with the growing speed of social change without relying on the media for knowledge (Kemper, 2014). Through this process, the new media has become an essential system in society that people need to rely on in their everyday lives to obtain knowledge.

The new media is envisaged as a system of persuasion by several theories of media influences. While the position of the media is vital as a system of persuasion, it does not place the media as an integral part of society (Choi et al., 2014) The concept of media as an information system puts the media system at the heart of society. Individuals, organizations and social systems cannot obtain important information entirely in society without relying on the mass media system (Choi et al., 2014). The second core proposition of media reliance theory is that the power of the media depends on the interdependence of individuals and the media (Ball-Rokeach, 1998). The third suggestion of the theory of media dependence is that with growing complexity or confusion in society and also in leading society to a particular problem, the role of the media system in society increases (Hirschburg et al., 1986).

Uses and Gratifications Theory (UGT)

Uses and gratifications (U and G) theory is an approach to understanding why and how people actively seek out specific media to satisfy specific needs. The Uses and gratifications theory (UGT) according to Menon, (2022) is an audience-centered approach to understanding mass communication. According to uses and gratifications theory, individuals have various personal needs, and they will use source(s) of information to gratify these needs. The theory outlines four basic categories of needs: information, entertainment, social

interaction and personal identity. The driving question of Uses and Gratifications Theory is: Why do people use media and what do they use them for? Uses and Gratifications theory discusses how users deliberately choose media that will satisfy given needs and allow one to enhance knowledge, relaxation, social interactions/companionship, diversion, or escape (Menon and Meghana, 2021).

The studies of Katz and his colleagues laid a theoretical foundation of building the uses and gratifications approach. Since then, the research on this subject has been strengthened and extended (Ruggiero, 2000). The current status of uses and gratifications is still based on Katz's first analysis, particularly as new media forms have emerged in such an electronic information age when people have more options of media use.

METHODOLOGY

For this study, the researcher used cross-sectional descriptive design. The target population consists of the female students in all the public secondary schools in all the 21 Local Government Areas of Anambra State, comprised of a total of 69280 students. A sample size of 398 respondents was determined using Slovin's formula, with a 5% margin of error. Multi stage probability sampling technique was utilized to select Six (6) zones, and three (3) zones out of them were represented; the 3 zones (Aguata, Awka, and Onitsha) were randomly selected representing 50% of the total zones. Within each selected zone, secondary schools were randomly picked. Finally, students were randomly chosen from the selected schools to participate in the study, ensuring representative samples drawn from the overall population in a randomized selection process. The Six (6) zones are: Aguata, Awka, Nnewi, Ogidi, Otuocha and Onitsha, while the three selected one includes: Aguata, Awka and Onitsha Zones. The primary data collection methods include questionnaires for the quantitative element. A pre-test was conducted on 10 secondary school girls to validate the research instruments and refine any ambiguities. A semi-structured interview guide consisting of open-ended questions was employed to glean in-depth insights. Data analysis involved descriptive technique. Quantitative data from completed questionnaires was input into SPSS software for organization and statistical analysis. Frequency tables and charts were generated to describe the sample characteristics and responses.

DATA PRESENTATION AND ANALYSIS
Sociodemographic information of the Respondents

Figure 1

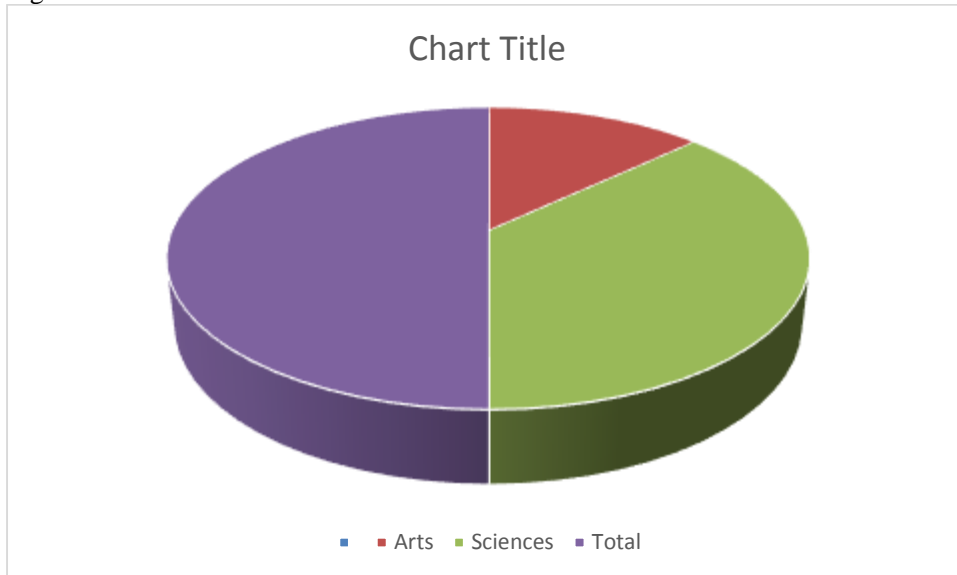


Fig.1 The age distribution of the respondents as contained in table 4.1 shows that 45.8 percent of the respondents are aged 10 to 15 years while 51 percent are aged 16 to 20 years. Those aged above 20 years account for 3.1 percent of the total respondents. This means that the research was carried out using mostly secondary school girls of 10 to 20 years of age.

Distribution of the Respondents

Figure 2

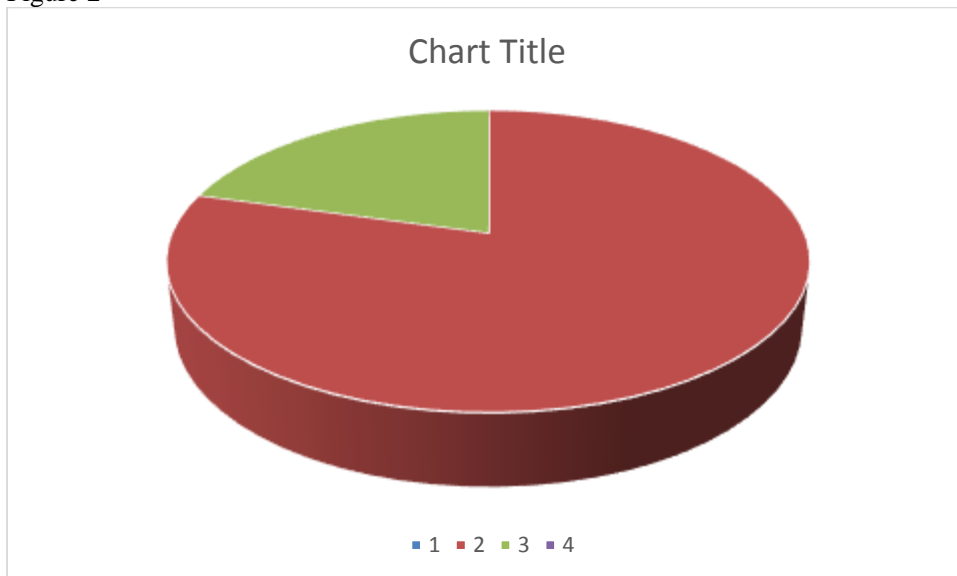


Figure 2. reveals that the majority of the respondents, accounting for 74 percent, having a background in the sciences, whereas the remaining 26 percent have opted for the Arts field. In summary, the demographic data indicates that the respondents predominantly lean towards science-related subjects and express a desire to obtain their SSCE/WAEC qualifications in the near future.

Whether respondents are aware/have heard about Polycystic Ovary Syndrome (PCOS)

Table 1

Have you heard?	Frequency	Percent
Yes	96	25.0
No	288	75.0
Total	384	100.0

Source: Researcher’s Field survey, 2023

In Table 1, a notable revelation unfolds regarding respondents' awareness of PCOS (Polycystic Ovary Syndrome). Merely 25 percent of the participants have knowledge of PCOS, underscoring a limited familiarity within the surveyed group. In stark contrast, a substantial majority, constituting 75 percent, indicated a lack of awareness or information about PCOS. This stark divide emphasizes the need for increased awareness campaigns and education on PCOS within the surveyed population, highlighting an opportunity for healthcare interventions and educational initiatives

Table 2: Distribution of those who have heard about PCOS and the means through which they heard about it

			If yes, how did you hear about it?					Total
			No, I have not	Family member	My teacher	My friend	Social media	
Have you ever heard of Polycystic Ovary Syndrome (PCOS)?	Yes	Count	12	20	40	0	24	96
		% within Have you ever heard of Polycystic Ovary Syndrome (PCOS)?	12.5%	20.8%	41.7%	0.0%	25.0%	100.0%
	No	Count	276	4	0	4	4	288
		% within Have you ever heard of Polycystic Ovary Syndrome (PCOS)?	95.8%	1.4%	0.0%	1.4%	1.4%	100.0%
Total	Count	288	24	40	4	28	384	
	% within Have you ever heard of Polycystic Ovary Syndrome (PCOS)?	75.0%	6.3%	10.4%	1.0%	7.3%	100.0%	

Source: Researcher’s Field survey, 2023

Table 2 reveals diverse sources of PCOS awareness: Notably 20.8% of the respondents learned about PCOS from family members, underscoring the influential role of familial networks in health awareness and information dissemination. Teachers emerged as a substantial source, with 41.7 percent of respondents citing educators as instrumental in imparting knowledge about PCOS. This highlights the pivotal role of educational institutions in fostering health literacy. The impact of social media is evident, with 25 percent of respondents attributing their awareness of PCOS to online platforms. This finding reflects the evolving landscape of health communication, emphasizing the importance of digital channels in reaching diverse audiences. A notable revelation is that 12.5 percent of respondents, despite initially claiming awareness of PCOS, later admitted to not having heard about it. This discrepancy underscores the potential for miscommunication or misunderstanding within the surveyed population, emphasizing the need for clarity and precision in health-related surveys.

Table 3: Whether respondents have social media accounts

Do you have?	Frequency	Percent
Yes	248	64.6
No	136	35.4
Total	384	100.0

Source: Researcher’s Field survey, 2023

Examining the data in Table 3 sheds light on the prevalence of social media usage among respondents. A notable majority, accounting for 64.6 percent, have social media accounts, showcasing a significant engagement with online platforms within the surveyed group. Conversely, 35.4 percent of respondents do

not have social media accounts. This information underscores the pervasive influence of social media in the lives of these individuals, suggesting its potential as a key communication channel for reaching and engaging with the target audience.

Table 4: Social media accounts respondents use most often

Social medium	Frequency	Percent
Facebook	196	51.0
Instagram	52	13.5
WhatsApp	136	35.4
Total	384	100.0

Source: Researcher’s Field survey, 2023

Analyzing the data from Table 4. reveals the primary social media preferences among students. Facebook takes the lead with 51 percent, indicating its dominance as the most utilized platform. WhatsApp follows closely at 35.4 percent, showcasing a substantial user base for instant messaging. Instagram holds a share of 13.5 percent, representing a presence but with a comparatively lower usage by the respondents.

Table 5: Whether respondents have Facebook accounts

Do you have?	Frequency	Percent
Yes	240	62.5
No	144	37.5
Total	384	100.0

Source: Researcher’s Field survey, 2023

Examining the data in Table 5 reveals that the majority of respondents, specifically 62.5 percent, have active Facebook accounts, indicating a prevalent presence on this social media platform. In contrast, 37.5 percent of respondents do not maintain Facebook accounts. This information underscores the significant penetration of Facebook among the surveyed population, suggesting its widespread popularity as a social networking platform.

Table 6: Whether respondents obtain information on PCOS from Facebook

View	Frequency	Percent
Yes	68	17.7
No	316	82.3
Total	384	100.0

Source: Researcher’s Field survey, 2023

It can be seen from table 6 that the majority of the respondents, approximately 82.3 percent, do not obtain information on PCOS from Facebook. In contrast, a small proportion, specifically 17.7 percent, obtain information about PCOS through this social media platform.

Discussion and Findings

The analysis of the data collected in this study reveals several key findings regarding the level of awareness of adolescent girls in secondary schools in Anambra State, Nigeria to information about polycystic ovary syndrome (PCOS) on Facebook. One of the most notable findings is that the majority of respondents (75%) indicated that they have not heard about PCOS before participating in this study (Table 1). This aligns with previous research by Nidhi *et al.* (2011) who found that awareness of PCOS among women in general is low, with many women unaware of the condition unless it is discovered incidentally due to infertility or irregular menses. Similarly, Esha (2019) reported that a very small number of young women understand PCOS and when to seek medical care. The low awareness reported in this present study among adolescent girls in Anambra State reflects a broader lack of knowledge about the condition among women and adolescents more widely.

For the minority of girls aware of PCOS, teachers were identified as the most common source of information at 41.7%. This was followed distantly by social media at 25% and family members at 20.8%. The heavy

reliance on teachers highlights their central role in providing reproductive health education to adolescents in the absence of adequate knowledge transfer from other sources. However, the low numbers overall suggest teachers themselves may have insufficient knowledge of PCOS. The minor role of family members indicates potential barriers in discussing topics like PCOS at home. While over 60% of respondents had Facebook accounts, less than 20% reported obtaining PCOS information from or sharing content about it on Facebook. This indicates Facebook is not currently a major platform for exposure to PCOS resources among adolescents, despite high usage rates. Previous studies have similarly found social media lagging as a primary source for health information compared to traditional media and interpersonal sources. The results point overwhelmingly to an urgent need for targeted efforts to improve PCOS-related education, resources and awareness building among this vulnerable demographic. This is critical for early diagnosis and intervention to mitigate short- and long-term sequelae. The findings align with previous research indicating that women globally have limited understandings of this complex women's health condition. A multifaceted strategy is required to empower adolescent girls in Nigeria with the knowledge and resources to achieve positive reproductive and overall health outcomes.

Conclusion

Based on the findings, it can be concluded that awareness and knowledge of PCOS among adolescent girls in day secondary schools in urban Anambra State is very low. Social media, especially Facebook, is currently not a major source of exposure to PCOS information, though presents opportunities to bridge knowledge gaps if leveraged effectively. There is a need for focused efforts to improve PCOS-related education, resources and awareness-building among adolescent girls in this region, including through schools, community initiatives, online platforms and partnerships. This will empower adolescents to achieve early diagnosis and management of this prevalent women's reproductive health condition.

Recommendations

Arising from the study results and conclusion, the following recommendations are proposed:

1. PCOS education should be incorporated into reproductive health curricula in secondary schools to improve knowledge and awareness among adolescent girls.
2. Training programs should be implemented to build teachers' capacity to effectively educate students about PCOS and other related health issues faced by adolescent girls.
3. Health promotion campaigns targeting adolescents and parents should be conducted through media channels to increase community awareness of PCOS.
4. Partnerships between health agencies and Facebook should be explored to increase availability of authoritative, evidence-based PCOS information on social media.
5. Public education initiatives should be implemented to direct adolescents to reliable sources of online PCOS information and build digital literacy skills.
6. Policy changes should be advocated to promote reproductive health screening and care for adolescents to enable early diagnosis and management of PCOS.

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