GHANAIAN COMMUNITY PHARMACISTS' KNOWLEDGE LEVELS ON ADOLESCENT- FRIENDLY SEXUAL AND REPRODUCTIVE HEALTHCARE SERVICES: A CROSS SECTIONAL STUDY ACROSS 4 REGIONS

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ABSTRACT

Community pharmacies have been globally recognized for their vital role in providing primary and reproductive healthcare services, particularly in delivering adolescent-friendly sexual and reproductive health services (AFSRHS). Positioned strategically within communities, these cadre of professionals have the potential to offer a range of essential services for adolescents. Despite this potential, limited research has been conducted to assess the knowledge levels of community pharmacists regarding AFSRHS and the readiness of community pharmacies to provide these services. This study aimed to address this gap by comprehensively assessing the knowledge levels of community pharmacists concerning AFSRHS and evaluating the readiness of community pharmacies to deliver these critical services. The findings provide valuable insights into opportunities for enhancing adolescent-friendly healthcare delivery within community pharmacy settings. In this quantitative cross-sectional study, we examined the knowledge levels of 192 community pharmacists across four diverse regions concerning AFSRHS. Utilizing a self-administered electronic questionnaire, we assessed three primary knowledge domains: understanding of basic concepts in adolescent sexual and reproductive health, awareness of barriers impeding the provision of these services, and familiarity with local policies and global guidelines governing adolescent health service policies. Additionally, we explored pharmacists' knowledge regarding the roles of healthcare providers in delivering AFSRHS. Knowledge categorization in the analysis was accomplished using a modified Bloom's classification, where a threshold of $\geq 80\%$ was applied signifying adequate knowledge. This criterion served as the benchmark to determine the adequacy of knowledge pertaining to AFSRHS. The collected data were analyzed using Stata version 16. The demographic composition of the study participants included a majority of male respondents (62.5%) and 37.5% females among the 192 participants. In terms of professional experience, 39.6% reported 1 to 5 years as community pharmacists. Majority of respondents (74.5%) practiced in the Ashanti region. In terms of overall knowledge levels, a significant proportion (71.9%) demonstrated inadequate knowledge on AFSRHS, with a Mean Knowledge Score of 76.2 ± 10.13 SD. The study's findings underscore notable knowledge gaps among community pharmacists in the examined regions concerning AFSRHS. These findings highlight the need for further investigations to gather additional insights. Such studies can contribute to a more comprehensive understanding, enabling community pharmacists to enhance their role in providing effective and informed AFSRHS.

Keywords: Sexual and reproductive healthcare, Community pharmacist; Adolescent.

INTRODUCTION

Globally, adolescents face persistent exposure to risky sexual behaviors, posing threats to their health and future well-being (Odii et al., 2020). Consequences include public health risks like unplanned pregnancies, teenage parenthood, unsafe abortion, Human Immunodeficiency Virus (HIV) and other sexually transmitted infections as well as intimate partner and sexual violence (Habtu et al., 2021). Compounding these challenges are multi-level barriers, including those at the adolescent, provider and community levels (Habtu et al., 2021; Pandey et al., 2019; Shrestha & Wærdahl, 2020). The adolescent phase, marked by rapid physical, biological, emotional and social changes, amplifies these barriers to reproductive healthcare for young people (Herd & Kim-Spoon, 2021), exacerbating existing health inequities and heightening risks due to limited access to appropriate reproductive health services (Adedze et al., 2022).

Addressing the diverse needs of adolescents is essential, as emphasized by Adedze et al., 2022. These needs encompass access to reliable information, education on contraceptive methods, treatment for sexually transmitted infections, safe abortion care, counseling and psychosocial support (Abuosi & Anaba, 2019; Obasi et al., 2019; Pandey et al., 2019). UNFPA (2017) stresses the importance of AFSRHS development and youth-friendly services, emphasizing a deep understanding of adolescent health issues and respect for their diverse experiences and rights in sexual and reproductive lives. Services must be trustworthy, sensitive and tailored to meet young people's specific requirements, as underscored by Obiezu-Umeh et al., 2021. Effective provision of AFSRHS relies on competent and compassionate health workers, requiring prioritized efforts in training and capacity-building, as outlined by the World Health Organization (2018). Such endeavors are essential for ensuring high-quality AFSRHS that are sensitive, compassionate and responsive to the needs of young people.

Community pharmacists are known globally for their important roles in providing primary and reproductive healthcare services (Alhaddad, 2019; Berenbrok et al., 2020; Martínez-Mardones et al., 2020). Positioned within communities, pharmacies are accessible to many and manned by highly trained community pharmacists who offer a range of health services, including disease literacy, pharmacotherapy, treatment monitoring, community triage and linkage to hospital services, as well as adherence counseling and psychosocial support (Dapar et al., 2019; A. F. A. Marfo & Owusu-Daaku, 2016; Okai et al., 2020). As first-line responders to the health needs of various populations, including adolescents (Okai et al., 2019), community pharmacies are strategically positioned globally as frequently visited healthcare facilities (Tait et al., 2020). This positioning makes them instrumental in providing adolescents with various reproductive health services, including education on contraception,

counseling on the dangers of unsafe abortion and linkage to family planning and reproductive units within the community (Alshahrani & Alsheikh, 2021; Dapar et al., 2019; El Bizri et al., 2021; Navarrete et al., 2021; Public Health England, 2019).

This study aimed to explore the knowledge levels of Ghanaian community pharmacists on AFSRHS. The findings are expected to inform strategies for improving the knowledge and service delivery of community pharmacists, ultimately enhancing the accessibility and quality of reproductive healthcare services for adolescents in Ghana.

METHODS

This analytical cross-sectional study aimed to evaluate the knowledge levels of community pharmacists regarding the provision of AFSRHS in the Bono, Bono East, Ahafo and Ashanti regions. Using a structured electronic questionnaire, the study assessed knowledge across several areas, including understanding basic concepts of adolescent sexual and reproductive health, recognizing barriers to AFSRHS, familiarity with local policies and global guidelines on adolescent health service policy as well as awareness of healthcare providers' roles in delivering AFSRHS. A total of 357 community pharmacists were involved in the study, representing; 295 in the Ashanti region and 62 from the Bono, Bono East and Ahafo regions. Participation was limited to licensed pharmacists practicing and providing services within community pharmacies in these regions, irrespective of their years of experience. Inclusion in the study was contingent on obtaining consent from willing professionals.

Sampling Technique

The study employed a convenience total sampling approach where each community pharmacist within the four regions on the WhatsApp platform of Community Practice Pharmacists Association (CPPA) received a structured electronic questionnaire within a 12-week period (9th January – 31st March 2023). This sampling approach was adopted because the population is a homogenous one, consisting only of community pharmacists (Jager et al., 2017). For a study conducted across four regions, convenience sampling also provided opportunity to elicit research information in the context of minimal resources and, lastly, it provided a less complex approach to elicit for response within the limited time space of 12 weeks since it is impractical to sample randomly from the population of interest (Edgar & Manz, 2017; Galloway, 2004; Reynolds et al., 2003). Ethical approval was obtained from the Committee for Human Research and Ethics (CHRE/ AP/0117 /023) at the University of Energy and Natural Resources and permission was sought from the Community Practice Pharmacists Association. Informed consent was obtained from participants, through a consent mechanism integrated into the study information sheet, which was a basic component of the electronic questionnaire.

Data processing and Analysis

The data extracted from the questionnaire underwent processing in Excel, involving cleaning, validation and subsequent analysis using the statistical software package STATA version 16. Quantitative data were subjected to examination through descriptive statistics, encompassing percentages, frequencies, means and standard deviations. In the analysis, knowledge categorization utilized a modified Bloom's classification, with a threshold set at ≥ 80% for adequate knowledge

(Ashebir et al., 2022; Feleke et al., 2021; K. Kaliyaperumal, 2008; Olum et al., 2020; Zhang et al., 2020). The knowledge section, composed of 14 questions, employed a scoring system where each correct response was assigned a score of 1 and each incorrect response received a score of 0. Consequently, the total score for this section ranged from 0 to 14, with a higher score indicating greater knowledge. The proportion of community pharmacists demonstrating good knowledge on AFSRHS was calculated based on a threshold set by a modified Bloom's classification established at ≥ 80%.

RESULTS

The study was conducted from January 9th to March 31st, 2023. Out of the 357 community pharmacists who received the questionnaires across the four regions, 192 completed and submitted them, yielding a response rate of 54%.

Regarding the socio-demographic characteristics of the respondents, the majority (44.8%) fell within the age range of 25 to 34 years. In terms of gender distribution, 62.5% were males, and 37.5% were females. Among the 192 respondents, 39.6% reported having 1 to 5 years of experience practicing as community pharmacists. Over half of the respondents (56.3%) were married.

In the regional distribution, a significant portion of community pharmacists (74.5%) practiced in the Ashanti region, followed by 14.6% in the Bono region, 8.9% in the Bono East region, and 2.1% in the Ahafo region. Additionally, nearly 39% (74) of the respondents held a Bachelor of Pharmacy degree (Table 2).

Table 2 Socio-demographic characteristics of respondents (n = 192)

Variables	Frequency	Percent (%)
Age (years)		
18-24	6	3.1
25-34	86	44.8
35-44	46	24.0
45-54	28	14.6
55-64	17	8.9
65-74	6	3.1
≥75	3	1.6
Years of Experience in Community Pharmacy Practice		
Less than 1 year/Newly qualified	7	3.7
1-5 years	76	39.6
6-10 years	43	22.4
11-15 years	28	14.6
16-20 years	16	8.3

More than 20	22	11.5
Sex		
Male	120	62.5
Female	72	37.5
Marital status		
Married	108	56.3
Single	80	41.7
Divorced	3	1.6
Widowed	1	0.5
Region		
Bono	28	14.6
Bono East	17	8.9
Ashanti	143	74.5
Ahafo	4	2.1
Educational level		
Bachelor of pharmacy	74	38.5
Doctor of pharmacy	44	22.9
Master's degree	51	26.6
Specialization with Ghana College of Pharmacy	15	7.8
PhD	5	2.6
Other higher qualifications	3	1.6

Knowledge on basic concepts of Adolescent sexual & reproductive health and the barriers to AFSRHS

Majority of the respondents 98.9% (190) indicated that "adolescent friendly sexual and reproductive health service should be equitable, ensure confidentiality, and accessible". Also, 98.9% (190) indicated that "early sexual debut while they lack adequate knowledge and skills

for protection places adolescents at a higher risk of unwanted pregnancy, unsafe abortion and sexually transmitted infections including HIV/AIDS". Ninety-two percent of the respondents (177) indicated that "Adolescents face structural, sociocultural, individual and provider level barriers when accessing sexual and reproductive health (SRH) services". Most of the respondents (117, 60.9%) indicated that "sexual and reproductive health services are provided in a way that makes adolescents feel unwelcome and embarrassed" (Table 3).

Table 3: Knowledge on basic concepts of Adolescent sexual & reproductive health and the barriers to adolescent friendly sexual and reproductive health services

Variables	True	False	Don't Know
The definition of an Adolescent refers to a person male or female aged from 10 to 22 years	99(51.6)	85(44.3)	8(4.2)
Sexual and reproductive health services are provided in a way that makes adolescents feel unwelcome and embarrassed	117(60.9)	70(36.5)	5(2.6)
Adolescents face structural, sociocultural, individual and provider level barriers when accessing sexual and reproductive health (SRH) services	177(92.2)	11(5.7)	4(2.1)
Risk to adolescents due to early sexual debut with lack of adequate knowledge on SRH	190(99.0)	1(0.5)	1(0.5)
Adolescent Friendly Sexual and reproductive health service should be equitable, ensure confidentiality, and accessible	190(99.0)	1(0.5)	1(0.5)
Adolescents have different needs for sexual and reproductive health information, education, and services; making it difficult for health workers and facilities to fulfil their needs	153(79.7)	30(15.6)	9(4.7)

Knowledge on local policies and global guidelines on Adolescent health service policy

An overwhelming majority of respondents, comprising 98.9% (190 individuals), expressed the belief that AFSRHS should be characterized by equity, confidentiality, and accessibility. Additionally, 92% of the respondents (177 individuals) noted that adolescents encounter barriers at structural, sociocultural, individual, and provider levels when seeking sexual and reproductive health (SRH) services. A notable 60.9% of respondents (117 individuals)

indicated that current practices in delivering sexual and reproductive health services contribute to adolescents feeling unwelcome and embarrassed (Table 4).

Table 4 Knowledge on local policies and global guidelines on adolescent health service policy

Variables	True	False	Don't Know
Community pharmacists must respect for rights of adolescents and knowledge on ensuring no discrimination	190(99.0)	0(0.0)	2(1.0)
Providing AFSRHS does not include implementing interventions at scale that provide accurate information and education about contraceptives, at the individual facility level and at the community level	39(20.3)	132(68.8)	21(10.9)
Access of adolescents to appropriate SRHS at the pharmacy	127(66.2)	56(29.2)	9(4.7)
Knowledge on WHO standards for good-quality health-care services for adolescents	176(91.7)	1(0.5)	15(7.8)

Knowledge on roles of healthcare providers in providing adolescent friendly sexual and reproductive health services.

All the respondents indicated that "community pharmacists should be knowledgeable, professionally trained and competent to provide AFSRHS within their facilities". Majority of the respondents 72.4% (139/192) indicated that "community pharmacists are required to provide psycho-social support, navigation and linkage of adolescents who require long-acting hormonal contraceptives to community reproductive and family planning units or specialist centers". Ninety-seven percent (186/192) of the community pharmacists indicated that they are "to ensure that all supporting staff are adequately trained on AFSRHS and adhere to the standards of national and international policies on AFSRHS provision" (Table 5).

Table 5 Knowledge on roles of healthcare providers in providing adolescent friendly sexual and reproductive health services

Variables	True	False	Don't Know
Community pharmacists should be knowledgeable, professionally trained, and competent to provide adolescent sexual and reproductive health services within their facilities	192(100.0)	0(0.0)	0(0.0)
Community pharmacists are not required to provide psycho-social support, navigation and linkage of adolescents	44(22.9)	139(72.4)	9(4.7)
Community pharmacists should ensure contraceptives and other reproductive health medicines are readily available,	189(98.4)	2(1.0)	1(0.5)
Community pharmacists should ensure that all supporting staff are adequately trained on AFSRHS and adhere to the standards / guidelines	186(96.9)	1(0.5)	5(2.6)

Overall knowledge of community pharmacists on AFSRHS

The proportion of respondents with good knowledge on AFSRHS based on the Bloom's classification was found to be 28.1% as shown in table 6 below. The proportion was obtained by calculating the percentage of respondents whose knowledge scores met or exceeded the threshold set by the modified Bloom's classification for adequate knowledge. Mean Knowledge Score was 76.2 ± 10.13 SD. (Table 6).

Table 6. Knowledge of community pharmacists on AFSRHS

	Frequency	Percent (%)
Inadequate knowledge	138	71.9
Adequate knowledge	54	28.1

DISCUSSION

The findings of this study indicate that only a minority of community pharmacists i.e. 54 out of the 192 representing 28.1%, possessed overall adequate knowledge of AFSRHS. Many pharmacists demonstrated a lack of understanding of the definition of an adolescent, and a considerable number provided uncertain or incorrect responses regarding the varying needs of adolescents and the difficulties faced by health workers in addressing such needs. These gaps underscore significant deficiencies in pharmacists' knowledge concerning adolescent needs.

While the average knowledge score across all three subscales was 76.2 ± 10.13 SD; it fell short of the Bloom's classification requirement of healthcare professionals possessing at least 80% adequate knowledge scores (Ashebir et al., 2022; Feleke et al., 2021; K. Kaliyaperumal, 2008; Olum et al., 2020; Zhang et al., 2020). Furthermore, the WHO Global Standards for Quality Health-Care Services for Adolescents stress the importance of healthcare providers and support staff possessing the technical competence necessary for delivering effective health services to adolescents. This is fundamental to ensure that adolescents receive care that upholds their rights to information, privacy, confidentiality, non-discrimination and a non-judgmental attitude, while also showing them respect (UNAIDS, 2015). These observations among community pharmacists within the four regions align with previous research (although limited) assessing the knowledge levels and training requirements of community pharmacists in areas such as family planning, emergency contraception pills (ECPs), the diagnosis and management of sexually transmitted infections (STIs) and HIV/AIDS, fertility services and other aspects of SRHS (Chin, 2011; Kappou & Drouvioti, 2022; Meredith et al., 2020).

For instance, a prior study examined the knowledge, attitudes and healthcare delivery practices of pharmacists towards adolescents, revealing that although the majority of the 948 surveyed pharmacists provided services to adolescents, a minority did not feel adequately trained or knowledgeable on specific adolescent issues. This lack of training and knowledge impacted the quality of pharmaceutical and SRHS provision to this population (Conard et al., 2003). A similar finding was reported by Corroon et al., 2016, which highlighted knowledge gaps and training deficiencies among community pharmacists in Kenya and Nigeria regarding aspects of SRHS, such as family planning. In their study, Meredith et al., 2020, emphasized the importance of providing community pharmacists with further training on SRH and youth-friendly services. Similarly, another study identified that pharmacists had knowledge gaps and were uncomfortable with prescribing contraceptives, underscoring the need for training and increased comfort levels among community pharmacists in providing SRH services (Lio

et al., 2018).

Lastly, Ediyono's 2021 study, investigating the delivery of adolescent-friendly services by service providers other than pharmacists, yielded findings comparable to the present study. These findings underscore the necessity for improved knowledge and competencies in adolescent and youth services, emphasizing the potential impact of inadequate knowledge among providers in exacerbating barriers faced by adolescents in accessing AFSRHS (Gale & Watson, 2011).

CONCLUSION

The study reveals significant knowledge gaps among community pharmacists within the studied regions regarding AFSRHS. While recognizing the importance of community pharmacists in the healthcare system, the findings underscore the urgent need for enhanced training and increased knowledge to address the identified gaps. Ensuring that community pharmacists possess the necessary competence and compassion is necessary for delivering effective AFSRHS. The study further reinforces the notion that inadequate knowledge among healthcare providers, including community pharmacists, can contribute to barriers faced by adolescents in accessing AFSRHS. This emphasizes the ongoing need for continuous professional development and training programs to strengthen their role in providing comprehensive reproductive healthcare services for adolescents.

Limitations

Despite the valuable insights gained from this study, limitations impact generalizability and interpretation. The geographical focus on four regions in Ghana may limit representation, as different regions may have unique factors influencing community pharmacists' knowledge. The study relied mainly on quantitative methods, lacking qualitative approaches like interviews, which could have provided a deeper understanding of factors influencing pharmacists' knowledge and contextual nuances in providing AFSRHS. These limitations emphasize the need for caution in generalizing findings and underscore the importance of future research that incorporate more regions and qualitative methodologies.

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REFERENCES

Abuosi, A. A., & Anaba, E. A. (2019). Barriers on access to and use of adolescent health services in Ghana. Journal of Health Research, 33(3), 197–207. https://doi.org/10.1108/JHR-10-2018-0119/FULL/PDF

Adedze, M., Osei-Yeboah, · Richard, Senanu, E., Morhe, K., Vitalis, ·, & Ngambouk, P. (2022). Exploring Sexual and Reproductive Health Needs and Associated Barriers of Homeless Young Adults in Urban Ghana: A Qualitative Study. Sexuality Research and Social Policy 2022, 1–14. https://doi.org/10.1007/S13178-022-00724-9

Alhaddad, M. S. (2019). Youth Experience With Community Pharmacy Services and Their Perceptions Toward Implementation of Medication Therapy Management Services by Community Pharmacists in the Western Region of Saudi Arabia. Therapeutic Innovation and Regulatory Science, 53(1), 95–99. https://doi.org/10.1177/2168479018769299

Alshahrani, A. M., & Alsheikh, M. Y. (2021). Community Pharmacists' Perceptions, Barriers, and Willingness for Offering Sexual and Reproductive Health Services. International Journal of Environmental Research and Public Health 2021, Vol. 18, Page 10735, 18(20), 10735. https://doi.org/10.3390/IJERPH182010735

Ashebir, W., Yimer, B., Alle, A., Teshome, M., Teka, Y., & Wolde, A. (2022). Knowledge, attitude, practice, and factors associated with prevention practice towards COVID-19 among healthcare providers in Amhara region, northern Ethiopia: A multicenter cross-sectional study. PLOS Global Public Health, 2(4), e0000171. https://doi.org/10.1371/journal.pgph.0000171

Berenbrok, L. A., Gabriel, N., Coley, K. C., & Hernandez, I. (2020). Evaluation of Frequency of Encounters With Primary Care Physicians vs Visits to Community Pharmacies Among Medicare Beneficiaries. JAMA Network Open, 3(7), e209132–e209132. https://doi.org/10.1001/JAMANETWORKOPEN.2020.9132

Brittain, A. W., Steiner, R. J., Fasula, A. M., Hatfield-Timajchy, K., Kulkarni, A., & Koumans, E. H. (2022). Improving Access to and Quality of Sexual and Reproductive Health Services for Adolescents in the United States. Https://Home.Liebertpub.Com/Jwh, 31(1), 1–7. https://doi.org/10.1089/JWH.2021.0610

Chin, K. L. (2011). Sexual/reproductive health and the pharmacist: what is known and what is needed?

Journal of Pharmaceutical Health Services Research, 2(2), 65–69. https://doi.org/10.1111/J.1759-8893.2011.00050.X

Chirewa, B., & Wakhisi, A. (2020). Emergency hormonal contraceptive service provision via community pharmacies in the UK: a systematic review of pharmacists' and young women's views, perspectives and experiences. Perspectives in Public Health, 140(2), 108–116. https://doi.org/10.1177/1757913919867356

Conard, L. A. E., Fortenberry, J. D., Blythe, M. J., & Orr, D. P. (2003). Pharmacists' attitudes toward and practices with adolescents. Archives of Pediatrics and Adolescent Medicine, 157(4), 361–365. https://doi.org/10.1001/archpedi.157.4.361

Corroon, M., Kebede, E., Spektor, G., & Speizer, I. (2016). Key role of drug shops and pharmacies for family planning in Urban Nigeria and Kenya. Global Health Science and Practice, 4(4), 594–609. https://doi.org/10.9745/GHSP-D-16-00197

Dapar, M. P., Joseph, B. N., Damun, A. P., Okunlola, R. C., Ibrahim, H. A., Mohammed, S. G., Chingle, M. P., & Wannang, N. N. (2019). Provision of Sexual and Reproductive Health Services in Community Pharmacies: A Cross-Sectional Assessment of Structures and Processes in Jos, Nigeria. Journal of Pharmaceutical Research International, 1–9. https://doi.org/10.9734/jpri/2019/v30i330272

Edgar, T. W., & Manz, D. O. (2017). Exploratory Study. Research Methods for Cyber Security, 95–130. https://doi.org/10.1016/B978-0-12-805349-2.00004-2

Ediyono, S. (2021). Experience of Health Workers in the Implementation of Adolescent Friendly Health Services (AFHS) in Magelang. https://doi.org/10.4108/eai.18-11-2020.2311698

El Bizri, L., Jarrar, L. G., Ali, W. K. A., & Omar, A. H. (2021a). The role of community pharmacists in increasing access and use of self-care interventions for sexual and reproductive health in the Eastern Mediterranean Region: examples from Egypt, Jordan, Lebanon and Somalia. Health Research Policy and Systems, 19(1), 1–11. https://doi.org/10.1186/S12961-021-00695-0/TABLES/2

Feleke, B. T., Wale, M. Z., & Yirsaw, M. T. (2021). Knowledge, attitude and preventive practice towards COVID-19 and associated factors among outpatient service visitors at Debre Markos compressive specialized hospital, north-west Ethiopia, 2020. PLOS ONE, 16(7), e0251708.

https://doi.org/10.1371/JOURNAL.PONE.0251708

Galloway, A. (2004). Non-Probability Sampling. Encyclopedia of Social Measurement, 859–864. https://doi.org/10.1016/B0-12-369398-5/00382-0

Habtu, Y., Kaba, M., & Mekonnen, H. (2021). What do service providers in Southern Ethiopia say about barriers to using youth-friendly sexual and reproductive health services for adolescents?: Qualitative study. Reproductive Health, 18(1). https://doi.org/10.1186/s12978-021-01092-0

Jager, J., Putnick, D. L., & Bornstein, M. H. (2017). More than Just Convenient: The Scientific Merits of Homogeneous Convenience Samples. Monographs of the Society for Research in Child Development, 82(2), 13. https://doi.org/10.1111/MONO.12296

K. Kaliyaperumal. (2008). Community Ophthalmology. In Guideline for Conducting a Knowledge, Attitude and Practice (KAP) Study (pp. 490–490). https://doi.org/10.5005/jp/books/10930_30

Kappou, M.-A., & Drouvioti, I. (2022). Are health services adolescent friendly in Greece and worldwide? A brief report. Developmental and Adolescent Health, 2(1), 34–40. https://doi.org/10.54088/IJH55869

Lio, I., Remines, J., Nadpara, P. A., & Goode, J. V. "Kelly" R. (2018). Pharmacists' comfort level and knowledge about prescribing hormonal contraception in a supermarket chain pharmacy. Journal of the American Pharmacists Association, 58(4), S89–S93. https://doi.org/10.1016/j.japh.2018.05.005

Marfo, A. F. A., & Owusu-Daaku, F. T. (2016). Evaluation of a pharmacist-led hypertension preventative and detection service in the Ghanaian community pharmacy: an exploratory study. International Journal of Pharmacy Practice, 24(5), 341–348. https://doi.org/10.1111/ijpp.12263

Marfo, K. A. (2016). B/A youth receive services from Adolescent Health Corners - Graphic Online. Graphic Online. https://www.graphic.com.gh/news/general-news/b-a-youth-receive-services-from-adolescent-health-corners.html

Martínez-Mardones, F., Ahumada-Canale, A., Gonzalez-Machuca, L., Plaza-Plaza, J. C., Martínez-Mardones, F., Ahumada-Canale, A., Gonzalez-Machuca, L., & Plaza-Plaza, J. C. (2020). Primary health care pharmacists and vision for community pharmacy and pharmacists in Chile. Pharmacy Practice (Granada), 18(3), 1–7. https://doi.org/10.18549/PHARMPRACT.2020.3.2142

Meredith, A. H., Vahary, E. B., Wilkinson, T. A., Meagher, C. G., Vielott, T., & Ott, M. A. (2020). Adolescents' Perceptions of Contraception Access through Pharmacies. Pharmacy 2020, Vol. 8, Page 53, 8(2), 53. https://doi.org/10.3390/PHARMACY8020053

Navarrete, J., Hughes, C. A., Yuksel, N., Schindel, T. J., Makowsky, M. J., & Yamamura, S. (2022). Community pharmacists' provision of sexual and reproductive health services: A cross-sectional study in Alberta, Canada. Journal of the American Pharmacists Association : JAPhA, 62(4), 1214–1223. https://doi.org/10.1016/j.japh.2022.01.018

Navarrete, J., Yuksel, N., Schindel, T. J., & Hughes, C. A. (2021). Sexual and reproductive health services provided by community pharmacists: a scoping review. BMJ Open, 11(7), e047034. https://doi.org/10.1136/BMJOPEN-2020-047034

Obasi, M., Manortey, S., Kyei, K. A., Addo, M. K., Talboys, S., Gay, L., & Baiden, F. (2019). Sexual and reproductive health of adolescents in schools for people with disabilities. PAMJ. 2019; 33:299, 33(299). https://doi.org/10.11604/PAMJ.2019.33.299.18546

Obiezu-Umeh, C., Nwaozuru, U., Mason, S., Gbaja-Biamila, T., Oladele, D., Ezechi, O., & Iwelunmor, J. (2021). Implementation Strategies to Enhance Youth-Friendly Sexual and Reproductive Health Services in Sub-Saharan Africa: A Systematic Review. Frontiers in Reproductive Health, 0, 47. https://doi.org/10.3389/FRPH.2021.684081

Odii, A., Atama, C. S., Igwe, I., Idemili-Aronu, N. J., & Onyeneho, N. G. (2020). Risky sexual behaviours among adolescent undergraduate students in Nigeria: Does social context of early adolescence matter? Pan African Medical Journal, 37, 1–11. https://doi.org/10.11604/pamj.2020.37.188.22968

Okai, G. A., Abekah-Nkrumah, G., & Asuming, P. O. (2019). Perceptions and trends in the use of community pharmacies in Ghana. Journal of Pharmaceutical Policy and Practice, 12(1). https://doi.org/10.1186/s40545-019-0186-x

Okai, G. A., Abekah-Nkrumah, G., & Asuming, P. O. (2020). Determinants of community pharmacy utilization in Ghana. Journal of Pharmaceutical Health Services Research, 11(2), 159–165. https://doi.org/10.1111/jphs.12338

Olum, R., Chekwech, G., Wekha, G., Nassozi, D. R., & Bongomin, F. (2020). Coronavirus Disease-2019: Knowledge, Attitude, and Practices of Health Care Workers at Makerere University Teaching Hospitals, Uganda. Frontiers in Public Health, 8. https://doi.org/10.3389/FPUBH.2020.00181

Onukwugha, F., Agaba, P., Hayter, M., & Orton, B. (2022). Unmarried Adolescents' Experiences of Using Reproductive and Maternal Health Services in Nigeria and Uganda: A Qualitative Study. Social Sciences, 11(5), 203. https://doi.org/10.3390/socsci11050203

Onukwugha, F. I., Hayter, M., & Magadi, M. A. (2019). Views of service providers and adolescents on use of sexual and reproductive health services by adolescents: A systematic review. African Journal of Reproductive Health, 23(2), 134–147. https://doi.org/10.29063/AJRH2019/V23I2.13

Pandey, P. L., Seale, H., & Razee, H. (2019). Exploring the factors impacting on access and acceptance of sexual and reproductive health services provided by adolescent-friendly health services in Nepal. PLoS ONE, 14(8). https://doi.org/10.1371/journal.pone.0220855

Public Health England. (2019). The Pharmacy Offer for Sexual Health, Reproductive Health and HIV: A resource for commissioners and providers. www.facebook.com/PublicHealthEngland

Reynolds, N. L., Simintiras, A. C., & Diamantopoulos, A. (2003). Theoretical justification of sampling choices in international marketing research: Key issues and quidelines for researchers. Journal of International Business Studies, 34(1), 80–89. https://doi.org/10.1057/palgrave.jibs.8400000

Shrestha, S. (2017). ODA Open Digital Archive: Challenges and Barriers to Adolescent Friendly Sexual and Reproductive Health Services for Girls in Kaski, Nepal. Oslo and Akershus University College of Applied Sciences. https://oda.oslomet.no/oda-xmlui/handle/10642/6317

Tait, P., Chakraborty, A., & Tieman, J. (2020). The Roles and Responsibilities of Community Pharmacists Supporting Older People with Palliative Care Needs: A Rapid Review of the Literature. Pharmacy, 8(3). https://doi.org/10.3390/pharmacy8030143

Thatte, N., Bingenheimer, J. B., Ndiaye, K., & Rimal, R. N. (2016). Unpacking the barriers to reproductive health services in Ghana: HIV/STI testing, abortion and contraception. African Journal of Reproductive Health, 20(2). https://doi.org/10.29063/ajrh2016/v20i2.6

Thongmixay, S., Essink, D. R., De Greeuw, T., Vongxay, V., Sychareun, V., & Broerse, J. E. W. (2019). Perceived barriers in accessing sexual and reproductive health services for youth in Lao People's

Democratic Republic. PLoS ONE, 14(10). https://doi.org/10.1371/JOURNAL.PONE.0218296

UNAIDS. (2015). Global standards for quality health-care services for adolescents: a guide to implement a standards-driven approach to improve the quality of health care services for adolescents. World Health Organization, 1, 1–40. http://apps.who.int/iris/bitstream/10665/183935/1/9789241549332_vol1_eng.pdf

UNFPA, I. (2017). Regional Report:United Nations Population Fund East and Southern Africa & International Planned Parenthood Federation Africa Region (2017). Assessment of Adolescents and Youth-Friendly Health Service Delivery in the East and Southern Africa Region. Johann.

UNICEF. (2021). HIV Treatment, care and SUPPORT FOR ADOLESCENTS LIVING WITH HIV IN EASTERN AND SOUTHERN AFRICA.

Vu, K., Rafie, S., Grindlay, K., Gutierrez, H., & Grossman, D. (2019). Pharmacist Intentions to Prescribe Hormonal Contraception Following New Legislative Authority in California. Journal of Pharmacy Practice, 32(1), 54–61. https://doi.org/10.1177/0897190017737897

World Health Organization. (2018). WHO recommendations on adolescent sexual and reproductive health and rights. Geneva: World Health Organization; 2018. Licence: CC BY-NC-SA 3.0 IGOle. https://creativecommons.org/licenses/by-nc-sa/3.0/igo%0Ahttps://apps.who.int/iris/bitstream/handle/10665/275374/9789241514606-eng.pdf?ua=1

Zhang, M., Zhou, M., Tang, F., Wang, Y., Nie, H., Zhang, L., & You, G. (2020). Knowledge, attitude, and practice regarding COVID-19 among healthcare workers in Henan, China. The Journal of Hospital Infection, 105(2), 183–187. https://doi.org/10.1016/J.JHIN.2020.04.012

List of Abbreviations

AFSRHS: Adolescent-friendly Sexual and Reproductive Health Services
CHRE: Committee for Human Research and Ethics
CPPA: Community Practice Pharmacists Association
ECP: Emergency Contraception Pills
SRH: Sexual and Reproductive Health
STIs: Sexually Transmitted Infections
UNAIDS: The Joint United Nations Programme on HIV/AIDS
WHO: World Health Organization

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APPENDIX

STUDY INFORMATION & CONSENT

CONSENT: This study is being conducted in partial fulfilment of the requirement for the award of Master of Public Health degree by the Principal Investigator and has been approved by the Committee for Human Research and Ethics (CHRE/ AP/0117 /023) at the University of Energy and Natural Resources and permission has been sought from the Community Practice Pharmacists Association.

The study seeks to understand the provision of adolescent friendly sexual and reproductive health service among Ghanaian pharmacists in community practice. Your response would contribute to research data that has the potential to enhance pharmaceutical service delivery within community pharmacy practice in Ghana. If there is anything you do not understand in the consent form below, please feel free to email the study PI at drbbb77@gmail.com.

STUDY TITLE: ADOLESCENT- FRIENDLY SEXUAL AND REPRODUCTIVE HEALTHCARE SERVICES: A CROSS-SECTIONAL STUDY OF THE KNOWLEDGE OF COMMUNITY PHARMACISTS IN GHANA.

PURPOSE: To assess Knowledge levels of community pharmacist towards the provision of Adolescent Friendly Sexual and Reproductive Health Services (AFSRHS) in the Bono, Bono East and Ahafo regions in Ghana.

PARTICIPANTS' STATEMENT: I acknowledge that I have read or have had the purpose and contents of the Participants' Information Sheet read and satisfactorily explained to me in a language I understand (English). I fully understand the contents and any potential implications as well as my right to change my mind (i.e. withdraw from the research) even after I have signed this form. By proceeding to complete this questionnaire, I voluntarily agree to be part of this research and for my views and data to be used for the research purposes.

QUESTIONNAIRE

TOPIC: ADOLESCENT- FRIENDLY SEXUAL AND REPRODUCTIVE HEALTHCARE SERVICES: A CROSS-SECTIONAL STUDY OF THE KNOWLEDGE, OF COMMUNITY PHARMACISTS IN 4 REGIONS OF GHANA

SECTION A: Demographics (kindly tick as applies to you)

Q1. Age	1. 18-24	2. 25-34	3. 35-44	4. 45-54	5. 55-64	6. 65-74	Age ≥75

Q2. Have you ever practiced as a Community Pharmacist?		
	1. YES	2. NO

Q3. How many years of experience in Community Pharmacy Practice do you have?						
Years of experience	1. Less than 1 year/Newly Qualified	2. 1-5	3. 6 -10	4. 11 - 15	5. 16 - 20	6. More than 20

Q.4 SEX	1. Male	2. Female

Q.5 Marital Status	1. Married	2. Single	3. Divorced	4. widowed

Q.6 Region of Practice	1. Bono	2. Bono East	3. Ashanti	4. Ahafo	5. G. Accra	6. Volta	7. Eastern	8. Savana
	9. Central	10. North East	11. Oti	12. Upper East	13. Upper West	14. Western	15. Western North	16. Volta

Q.7 Highest level of education	1. Bachelor of Pharmacy	2. Doctor of Pharmacy	3. Master's Degree	4. Specialization with Ghana College of Pharmacy	5. PhD	6 Other higher qualifications

SECTION B

Measuring provider Knowledge levels on adolescent-friendly sexual and reproductive health

services

Subscale 1: Knowledge on basic concepts of Adolescent sexual & reproductive health and the barriers to adolescent friendly sexual and reproductive health services

No.	***Subscale 1: Knowledge on basic concepts of Adolescent sexual & reproductive health and the barriers to adolescent friendly sexual and reproductive health services***	True	False	Don't Know
1.	The definition of an Adolescent refers to a person male or female aged from 10 to 22 years. [a]			
2.	Sexual and reproductive health services are provided in a way that makes adolescents feel unwelcome and embarrassed.			
3.	Adolescents face structural, sociocultural, individual and provider level barriers when accessing sexual and reproductive health (SRH) services.			
4.	Early sexual debut while they lack adequate knowledge and skills for protection places adolescents at a higher risk of unwanted pregnancy, unsafe abortion and sexually transmitted infections including HIV/AIDS.			
5.	Adolescent Friendly Sexual and reproductive health service should be equitable, ensure confidentiality, and accessible.			
6.	Adolescents have different needs for sexual and reproductive health information, education, and services; making it difficult for health workers and facilities to fulfil their needs. [a]			

Subscale 2: Knowledge on local policies and global guidelines on Adolescent health service policy / strategy and recommendations on adolescent sexual and reproductive health.

No.	***Subscale 2: Knowledge on local policies and global guidelines on Adolescent health service policy / strategy and recommendations on adolescent sexual and reproductive health.***	True	False	Don't Know
7.	mmunity pharmacists must respect the human rights and fundamental freedoms of adolescents including the right to life, human dignity, and freedom from discrimination based on race, ethnicity, gender, sex, sexual orientation, age, disability, and religious beliefs and practices.			
8.	oviding AFSRHS does not include implementing interventions at scale that provide accurate information and education about contraceptives, at the individual facility level and at the community level. [a]			
9.	Adolescents should have easy access to short-term, long acting, and permanent contraceptives, and such access must not be hampered by providers' conscientious objections unless they are not married. [a]			
10.	WHO standards for good-quality health-care services for adolescents include considerations related to adolescents' health literacy, community support, appropriate packages of services, healthcare providers' competencies, facility characteristics, equity and non-discrimination, data and quality improvement, and adolescent participation.			

Subscale 3: Knowledge on roles of healthcare providers in providing adolescent friendly sexual and reproductive health services

No.	***Subscale 3: Knowledge on roles of healthcare providers in providing adolescent friendly sexual and reproductive health services***	True	False	Don't Know
11.	Community pharmacists should be knowledgeable, professionally trained, and competent to provide adolescent sexual and reproductive health services within their facilities.			
12.	Community pharmacists are not required to provide psycho-social support, navigation and linkage of adolescents who require long-acting hormonal contraceptives to community reproductive and family planning units or specialist centers. [a]			
13.	Community pharmacists should ensure contraceptives and other reproductive health medicines are readily available, easily accessible, properly stored, maintained, and dispensed at the highest quality.			
14.	Community pharmacists should ensure that all supporting staff are adequately trained on AFSRHS and adhere to the standards of national and international policies on adolescent friendly sexual and reproductive health service provision.			

[a] Negatively worded items were reverse coded so that a higher score reflects good practices towards AFSRHS

Thank you for taking the time to complete this questionnaire.