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Evaluating the Accessibility, Availability, and Utilization of Services in Adolescent Friendly Health Clinics: Insights from a Rural, Backward Caste-Dominated District in Eastern India

Sribas Ray, M.D.[1], Rajib Saha, M.D.[2], Aditya Prasad Sarkar, M.D.[3]

[1]Department of Community Medicine, Institute of Post Graduate Medical Education & Research, Kolkate 700020, India.

[2]Department of Community Medicine, Prafulla Chandra Sen Government Medical College, Arambagh, Hooghly, West Bengal 712601, India.

[3]Professor & Head, Department of Community Medicine, Bankura Sammilani Medical College, Bankura, West Bengal 722102, India.

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Abstract:

Objective: In India, despite the presence of Adolescent Friendly Health Clinics (Anwesha Clinics), barriers to accessing these services remain prevalent. This study explores the accessibility, availability, and utilization of services at Anwesha Clinics in Bankura Health District, a rural, backward caste-dominated district in eastern India.

Material and Methods: This study employed an analytical design with an explanatory sequential mixed-methods approach, combining quantitative and qualitative data. The research was conducted across three randomly selected Anwesha Clinics in Bankura, covering a total sample size of 212 adolescents. Data collection spanned 18 months (April 2021–September 2022) and included a pre-designed semi-structured questionnaire for quantitative data, focus group discussions (FGDs) with adolescents who never visited the clinic, and in-depth interviews with counselors for qualitative insights. Clinic infrastructure and IEC materials were assessed using a UNFPA (United Nations Population Fund) report-based checklist. Quantitative data were analyzed using SPSS for descriptive statistics, chi-square tests, and logistic regression to identify predictors of service utilization. Qualitative data were thematically analyzed, with coding to identify themes related to service access and barriers.

Results: The study found 66.51% service utilization, predominantly for counseling, menstrual issues, and anemia. Barriers included lack of awareness, distance, privacy concerns, and inadequate clinic infrastructure. Logistic regression identified

Contact: Assoc. Prof. Rajib Saha, M.D.
Department of Community Medicine, Prafulla Chandra Sen Government Medical College, Arambagh, Hooghly, West Bengal 712601, India.
E-mail: dr.rajibsaha85@gmail.com

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significant predictors of service utilization, with females, adolescents from lower socio-economic classes, and those within 3 km of a clinic being more likely to utilize services.

Conclusion: Enhancing clinic infrastructure, increasing awareness, and ensuring privacy are crucial for improving adolescent engagement with Adolescent Friendly Health Clinics.

Keywords: Adolescent Friendly Health Clinics, explanatory sequential mixed-methods approach, focus group discussions, service utilization

Introduction

Adolescence, as defined by the World Health Organization, is a crucial developmental phase spanning ages 10 to 19 years, characterized by significant biological, psychological, and social transitions that lay the foundation for lifelong health and well-being. Globally, one in five individuals falls within this age category, with India housing approximately 243 million adolescents, comprising nearly one-fourth of the nation's population[1]. The adolescent years present both opportunities for development and substantial health risks. This demographic faces a range of reproductive and sexual health challenges, including early and unplanned pregnancies and increased vulnerability to sexually transmitted infections (STIs), including HIV[2,3]. Thus, there is a need for confidential and comprehensive health services that provide prevention, counseling, and treatment. Many adolescents find mainstream primary care services inaccessible and unacceptable due to concerns over privacy and confidentiality[4].

Mental health conditions affect approximately 14% of adolescents aged 10-19 globally, with issues such as anxiety, depression, and Attention Deficit Hyperactivity Disorder (ADHD) being prevalent[5-7]. Suicide ranks as the fourth leading cause of death among older adolescents, with risk factors such as substance abuse and childhood trauma[8].

A review in India from 2001 to 2015 revealed significant knowledge gaps about sexually transmitted diseases and sexuality among adolescents, with high prevalence rates for dysmenorrhea, tobacco use, and anemia, alongside notable depressive symptoms[9]. Despite the availability of Adolescent Friendly Health Clinics (Anwesha Clinics), adolescents continue to face barriers to accessing services. This study aimed to explore the accessibility, availability, and utilization of services at Anwesha Clinics, focusing on factors influencing adolescent engagement and guiding future service improvements.

Material and Methods

This study used an analytical design with an explanatory sequential mixed-methods approach, comprising two phases: quantitative research followed by qualitative research. The study was conducted in the Anwesha Clinics of Bankura Health District, West Bengal, covering three randomly selected clinics. The district's adolescent population of 400,066 was served by 17 Anwesha Clinics. It is a rural-based, backward caste-dominated district in West Bengal State, Eastern India. Prevalence of adolescents' reproductive and sexual health problems was 54.81% in India[10]. A total sample size of 212 was determined using a formula based on adolescent health problem prevalence (54.8%) with a 95% confidence interval, 10% error margin, and 10% non-response rate, factoring in a design effect of 2.

The study population included adolescent boys and girls enrolled in the clinics, as well as counselors for service availability assessment. Adolescents unwilling to participate or with severe psychiatric or communication

issues were excluded. The study was conducted over 18 months (April 2021–September 2022). The sampling technique involved multiple steps. Three clinics were randomly selected out of the 17 functioning Anwesha Clinics using computer-generated random numbers. Adolescents were then randomly selected from the enlisted names in each community development block, using the same randomization method. For FGDs, nine adolescents from each block who had never attended the clinics were purposively selected.

The study used multiple data collection methods, including both quantitative and qualitative techniques. Quantitative data were gathered through a pre-designed, semi-structured questionnaire administered to adolescents. A checklist based on a UNFPA report evaluated clinic resources and infrastructure, while record reviews analyzed registration and service delivery. Quantitative data were collected twice weekly, with four adolescents interviewed daily in a private setting. For qualitative data, FGDs were conducted with adolescents who had never visited the clinics, and in-depth interviews were held with counselors. Clinic infrastructure and Information, Education and Communication (IEC) materials were also observed using a checklist.

Data analysis involved both quantitative and qualitative methods. Quantitative data were analyzed using Statistical Package for the Social Sciences (SPSS) version 16.0, employing descriptive statistics, bivariate analysis (chi-square test), and multivariate binary logistic regression to identify service utilization predictors[11].

Qualitative data were analyzed thematically, with coding and re-coding to identify themes related to service inaccessibility. Integration of quantitative and qualitative findings provided a comprehensive interpretation through an explanatory mixed-methods approach.

The study was approved by the West Bengal University of Health Sciences and the Institutional Ethics Committee of Bankura Sammilani Medical College & Hospital [BSMC/Aca:-153 dated 19/01/2021]. Written informed consent was obtained from guardians for participants below 16 years, and assent was obtained from adolescents. Confidentiality was maintained by coding responses and restricting access to data to the research team.

Results

The study focused on middle adolescents (14 to 16 years) (72.2%), with most participants being female (58.5%) and Hindu (92.9%). The largest group (30.2%) belonged to the Scheduled Caste, followed by the Scheduled Tribe and General Caste (25% each). About 42.9% were Below Poverty Line (BPL) cardholders. In education, 46.2% had a middle school education, and one-third had a secondary education. Most participants (94.8%) were students, while 2.4% were laborers and 1.4% private teachers. Parental education was mostly primary level (fathers 38.7%, mothers 41.5%). Over half (53.3%) came from joint families, and 55.7% were lower middle class (SES Class III), with 39.6% in the lower class (SES Class IV), as per the modified BG Prasad SES scale, updated in May 2021.

Regarding substance use, 2.4% of participants used substances, primarily smoking tobacco (60%) and chewing tobacco. The majority (97.2%) were single, with 1.4% married or in a relationship. Communication difficulties with the opposite gender were reported by 15.09%. Among females, 38.7% had menstrual abnormalities, and 52.3% of males reported wet dreams. Only 20.3% were fully aware of pubertal changes, and 6.1% had no awareness. Additionally, 9% felt shame about their body image, 8.0% felt lonely in their families, and 1.4% had difficulties communicating with peers.

Assessment of accessibility: About 22.2% of adolescents were never exposed to Anwesha clinic-related IEC activities. Most learned about the clinic through

peers (49.7%), schools (49.07%), or posters/signboards (44.7%). While 76.4% found clinic working days convenient, 98.6% were unaware of the confidentiality policy. Most participants (35.9%) travelled over 5 km, primarily by bicycle (44.7%) or walking (31.9%). A majority (66.2%) were unaware of the clinic, and 29.6% cited distance as a barrier. Lack of awareness was the most common reason for non-accessibility. A one-sample chi-square test showed that unawareness was the most common reason for inaccessibility of services compared to other reasons (p-value=0.000). Participants reported no objections from family or community regarding clinic access. IEC activities reached more female adolescents than males [χ^2=27.0182, df=1, p-value=0.0001] (Figure 1).

The thematic analysis of FGDs among adolescents revealed several key findings. Among female participants (FGD 1 and 2), menstrual abnormalities like dysmenorrhoea, polymenorrhoea, and anemia symptoms were common. Many relied on home remedies or over-the-counter medications, with only 10% seeking healthcare. Only 20% of

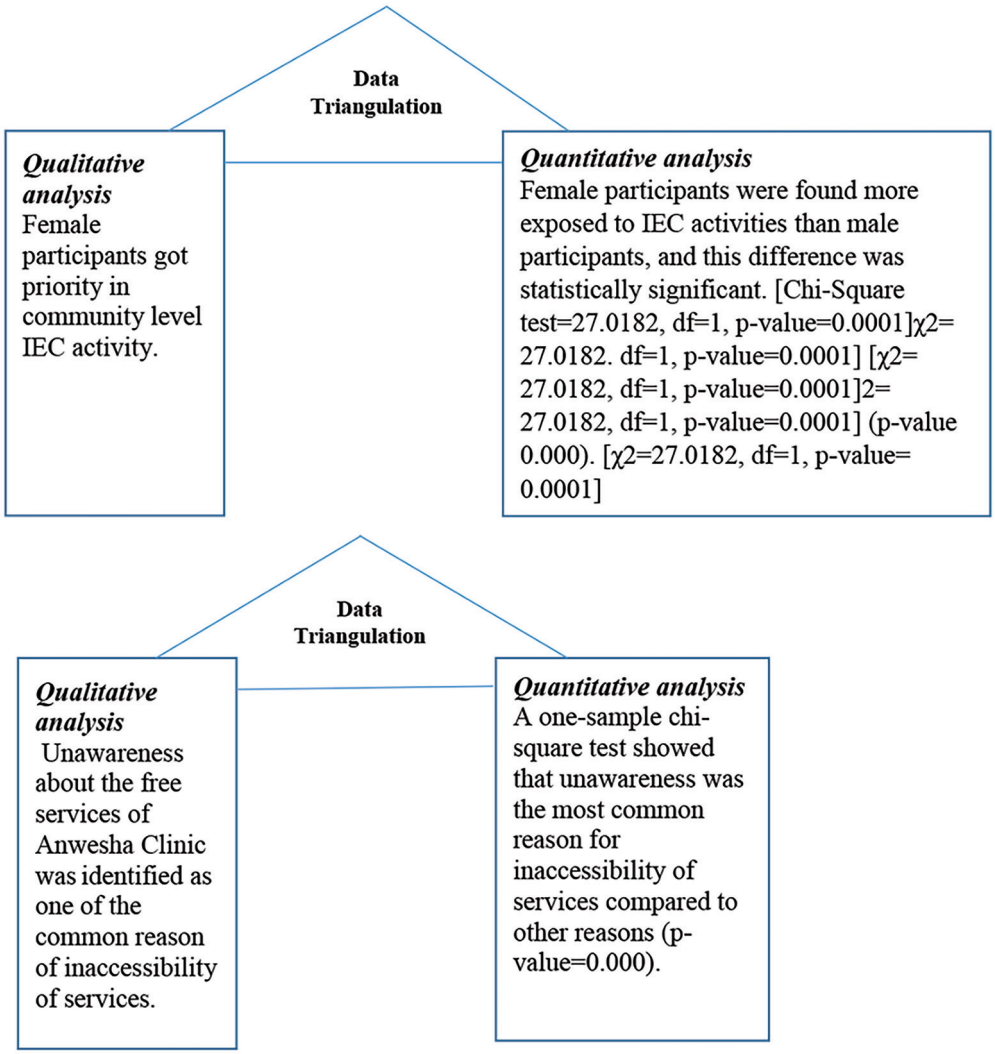

Figure 1 Triangulation between qualitative and quantitative data

females were aware of the Anwesha Clinic's services, such as free sanitary napkins and Iron Folic Acid (IFA) tablets. Additionally, only 10% noticed clinic signboards, and no IEC activities were observed outside the clinic (Table 1).

Male participants (FGD 3) reported health issues such as dizziness, weakness, and depression. However, none sought healthcare due to parental neglect, though they were willing to seek treatment in the future. Males were excluded from IEC meetings and unaware of clinic services, as they had not seen any promotional material (Table 1).

Assessment of availability: The clinic's infrastructure was inadequate, lacking essential facilities such as a consultation room, clean examination tables, and separate toilets for women. Key roles like trained medical officers and nurses were vacant, leaving only counselors available. Equipment was also deficient, with pregnancy test strips and emergency contraceptive pills unavailable, though basic items like height-measuring tools and IFA tablets were present.

Despite having designated hours and communication materials, the clinic lacked privacy, making it less effective. IEC materials displayed posters and confidentiality policies but omitted clinic timings and location. The overall status was inadequate, requiring urgent improvements to meet Adolescent Reproductive & Sexual Health (ARSH) guidelines.

Interviews with the clinic counselor revealed efficient record-keeping, outreach activities, and school integration. However, challenges included a lack of private counseling rooms, limited counseling quality, absence of trained staff, and no referral system, which hindered service delivery and contributed to low attendance and follow-up.

Assessment of utilization: Despite these challenges, 66.5% of participants utilized the clinic services, with 70.9% being female. Most (98.6%) received services, including counseling and sanitary napkins. However, 19.2% reported interruptions, and 85.8% were accompanied during visits. While most participants were satisfied with the counselor's time and attitude, the lack of privacy was a concern. Around 6.4% were referred to other departments, but most were not informed about the referral.

The annual report showed that the majority of participants were females aged 15–19, with most receiving counseling and IFA tablets. Suggestions for improvement included providing services from doctors, closer clinic locations, adequate supplies, and better privacy during counseling to enhance service utilization.

The bivariate analysis identified several factors influencing the utilization of services, including being a late adolescent, female, Muslim, General Caste, or OBC-B caste member. BPL cardholders, adolescents with higher secondary education, and laborers were also more likely to use the services. Additionally, participants whose fathers had a higher education and mothers who had completed middle school were more likely to utilize services. However, those who communicated with the opposite gender and were aware of pubertal changes used the services more. These variables were recoded for multivariable binary logistic regression, which showed significant predictors of service utilization. The logistic regression model was significant (χ^2=193.102, p-value=0.000), explaining 59.8% to 83% of the variance in service utilization. The model predicted 96.7% of perceived utilization accurately.

Results showed that female adolescents were 25.645 times more likely to utilize services than males. General and OBC adolescents used services 20.389 times more, while those whose mothers had a middle-school education were 9.454 times more likely to utilize services. Adolescents from lower socio-economic backgrounds were 7.48 times more likely to use services. Those who did not feel lonely in their families were 66.094 times more likely to utilize services, and those living ≤3 km from the clinic were 169.462 times more likely to use the services (Table 2).

Table 1 Thematic analysis

Characteristic of participants	FGD 1	FGD 2	FGD 3
Settings	Anchuri	Amarkanan	Khatra
Number of participants	9	9	9
Age	11 years to 19 years	11 years to 19 years	11 years to 19 years
Gender	Female	Female	Male
Venue	ICDS Centre	ICDS Centre	ICDS Centre
FGD guide	Yes	Yes	Yes
Time	34 min	36 min	28 min

FGD among female participants

Extract code from transcription	Code	Theme	Description	Supporting statement
A. 1. Dysmenorrhoea 2. Polymenorrhoea	Menstrual abnormality	Abnormal menstrual symptoms	Menstruation had started among all of the participants of focus group discussion. Most of the participants were experiencing abnormal menstrual symptoms.	*"I feel extreme pain in lower abdomen and back pain during 1st 2 days of period....I can't attend school during those days "* *"Feeling nausea throughout the period... but can manage day to day activity...."*
3. Low back pain 4. Vomiting	Associated annoying physical symptoms			
B. 1. Exertional dyspnoea 2. Dizziness 3. Headache	Others morbidities (Associated physical illness)	Other morbidities	These symptoms are indicating more towards Anaemia. About one third girls were complaining the anaemia like symptoms. Further clinical evaluation of them was needed.	*"I feel breathing difficulty during playing very frequently....."* *"Sometimes I feel dizziness and headache.... Symptoms increases during menstruation"*
C. 1. Didn't go to doctor 2. Didn't feel the need of doctor's care 3. Occasionally feel upset, but never received services from the clinic or doctor.	Negligence in care seeking behaviour	Care seeking behaviour	Only one tenth of the adolescent girls sought care from private practitioners (both from modern medicine and Homeopathy). Rest neglected their symptoms to access the health care. In most of the cases mothers assured them and discouraged to seeking health care. Few had received over the counter treatment.	*"Mother used to tell me that the symptoms are usual during this period.....it would be relieved by applying hot compress in lower abdomen and by taking rest....."* *"....I don't feel the need of attending doctors for this reason...if pain is unbearable I used to take medicine from local medicine shop"* *"I attend a homeopathy clinic in the last week for menstrual pain..."*
4. Mothers assured abnormal menstrual symptoms as normal. 5. Mother discourage to attain the clinic	Ignorance of mother			
6. Availed the health care services from private doctor (Allopathy) 7. Availed the health care services from private doctor (Homeopathy) 8. Over the counter treatment for the menstrual abnormality	Availed health care services			

Table 1 (continued)

Extract code from transcription	Code	Theme	Description	Supporting statement
D. 1. Knowledge of availability of sanitary napkin in Anwesha clinic 2. Knowledge of availability of IFA tablet in Anwesha clinic 3. Weight and height measurement facility at Anwesha clinic	Awareness about the services of the clinic	Services of Anwesha Clinic	Near about one fifth adolescent girls responded that they were aware about the services of Anwesha clinic like providing of sanitary napkin, IFA tablet and weight– height measurements. But they had no idea that the above services are providing in free of cost. Few girls heard from their peers that clinic had no availability of sufficient sanitary napkin for distribution. So, many of them bought sanitary napkin from market or used cloth washing with soap and drying in sun.	*"I heard from my friends that sanitary napkins are provided from the clinic but it's not available all the time.."* *"I have heard IFA tablet are also provided from the clinic… ..I also heard that there have facility of measuring weight and height, but some time it's not functioning"* *"I usually use sanitary napkin, but sometime I use pieces of old cloth…..While I use clothes, change it regularly and cleaned with soap and dried in sunlight"*
4. No awareness about the free services of the clinic 5. Buy sanitary napkin from market 6. When can't afford, used cloth washing with soap and drying in sun.	Unawareness of free services			
Sufficient availability of sanitary 7. napkin in the clinic should be present	Suggestion for the improvement of services			
E. 1. Noticed the signboard within the hospital premises mentioning the timing of the clinic 2. Did not noticed any IEC activity outside hospital premises.	IEC material availability	IEC material	One tenth participants noticed the signboard within the hospital premises. But no one had noticed any IEC activity regarding the clinic outside hospital premises.	*"When I visited the hospital OPD in the last month for fever, I noticed a signboard about Anwesha Clinic"*
FGD among male adolescents				
Extract code from transcription	**Code**	**Theme**	**Description**	**Supporting statement**
A. 1. Depressed	Mental symptoms	Common morbidity	One participant disclosed that he felt depressed most of the time. One third participants had some physical symptoms likely as anaemia, but needs clinical evaluation.	*"I feel depressed most of the time of the day and prefer to stay alone during afternoon….I interact less with my friends and family member."* *"Very often I feel dizziness and shortness of breath during outdoor playing or heavy work"*
2. Weakness 3. Dizziness 4. Shortness of breath with little exertion	Physical Symptoms			
B. 1. Never received care from doctor 2. Willing to seek care from doctor in future	Unavailed health care service	Care seeking behaviour	Nobody availed health care facility for their physical and mental illness. Their parents assured that they did not need treatment for those reasons. But they were willing to receive treatment in this regard in future.	*"I never attended doctor's clinic for these symptoms…"* *"my father told that these are not serious symptoms which needs medical care"*
3. Parents assured no need of treatment for these reasons	Negligence of parents			
C. Not invited in IEC activity which was conducted through meeting by counsellors with help of Anganwadi Worker (AWW) & Accredited Social Health Activist (ASHA) worker	Unreached IEC activity	IEC activity	No one had seen any signboard and poster regarding the clinic. But few of them heard that a meeting was conducted in their locality regarding the clinic with only adolescent girls.	*"We were not asked to join in the meeting which was held in the last month with the girls of the locality"*

FGD=Focus Group Discussion, ICDS=Integrated Child Development Services, IEC=Information Education and Communication

Table 2 Multivariable logistic regression table to predict service utilization

Variables in the equation	B	S.E.	Wald	Def	Sig.	Exp (B)	95% CI for Exp (B)	
							Lower	Upper
Gender	3.244	1.008	10.350	1	0.001	25.645	3.553	185.101
Caste	3.015	0.863	12.202	1	0.000	20.389	3.756	110.680
Education of mother	2.246	0.863	6.780	1	0.009	9.454	1.743	51.282
Occupation	−1.064	1.807	0.347	1	0.556	0.345	0.010	11.911
B G Prasad Scale (SES)	2.012	0.713	7.966	1	0.005	7.480	1.849	30.253
Communication	0.756	1.057	0.512	1	0.474	2.131	0.268	16.911
Menstrual abnormality	1.494	0.850	3.093	1	0.079	4.456	0.843	23.564
Awareness about pubertal change	2.138	2.295	0.868	1	0.352	8.481	0.094	761.780
Loneliness with in the family	4.191	1.636	6.559	1	0.010	66.094	2.674	1633.546
Signage seen	2.080	1.590	1.712	1	0.191	8.007	0.355	180.370
Distance	5.133	1.233	17.337	1	0.000	169.462	15.129	1898.119
Constant	−4.286	3.801	14.127	1	0.000	0.000		

*B=unstandardized coefficient, S.E=standard error, Exp (B)=odds ratio, Sig.=significance (p−value), CI=confidence interval, SES=Socioeconomic Status

Discussion

Accessibility: This study found that 77.8% of adolescents were exposed to the Anwesha Clinic's IEC activities, higher than the 60% awareness reported by Mahalakshmy et al. (2015) regarding AFHCs[12]. This difference may be due to more intensive outreach activities, such as school and community visits. However, unawareness of clinic services remained a significant barrier, similar to findings by Tiwari et al. (2015), who reported 82% unawareness, and Dixit et al. (2016), who identified poor knowledge as a key issue[13,14].

Misconceptions about clinic services, such as the belief that AFHC is only for girls, hindered access, aligning with Gupta et al. (2017)[15]. Additionally, 29.6% of adolescents cited distance as a barrier, consistent with Sinha et al. (2017) from Bihar[16]. Reducing distance through mobile clinics or outreach could improve access. Peer groups (49.7%) were the most common source of information, followed by schools (49%) and posters (44.7%), similar to findings in Puducherry (Ramesh et al., 2015)[17]. School−based outreach, as seen in Gujarat's ARSH study (Patel et al., 2018), also played a key role[18]. Despite convenient timing (76.4%), privacy concerns were prevalent, with many adolescents reporting a lack of privacy, similar to Patel et al. (2018)[18]. Only 1.42% of adolescents were aware of the clinic's confidentiality policy, a gap also noted by Gupta et al. (2017), where only 11.8% of adolescents in Gujarat knew about confidentiality policies[15].

Gender−related concerns were another barrier, with adolescents hesitating to consult counselors of the opposite sex. This finding is consistent with Gupta et al. (2017), who observed similar hesitations among adolescents seeking health services from opposite−gender counsellors[15].

Availability: The availability of essential services and infrastructure is vital for effective utilization of Adolescent Friendly Health Clinics (AFHCs). This study found that all Anwesha Clinics had dedicated counselors, signage, and standard reporting formats, with supportive supervision, contrasting with Chauhan et al. (2020), which reported many AFHCs lacked these elements[19]. Similarly, Bali et al. (2019) noted that 60% of service providers in Madhya Pradesh were male[20]. The Anwesha clinic, operating at the Community

Development (CD) Block level, had visible signage and IEC materials, unlike the 2019 review by Ashfaq A. Bhat, which found only 14.3% of North Indian AFHCs had IEC materials or signage[21]. Despite this, the study identified infrastructure gaps in the Anwesha Clinic, such as a lack of separate counseling rooms, examination tables, waiting areas, and women's toilets. These issues mirror findings from Gujarat's ARSH report (2018), highlighting the need for significant infrastructure improvements[22].

The SWOT analysis of the clinic reveals key strengths, including well-maintained adolescent registers, timely monthly reports, and a strong monitoring system through Management Information Evaluation System (MIES) meetings. Clinics adhered to scheduled operating and outreach days. However, weaknesses include the absence of doctors, inadequate referral systems, and low follow-up attendance. Lack of counseling privacy, poor quality sanitary napkins, and gender-biased IEC activities also pose challenges. Opportunities exist for integrating services with the school health program to enhance service quality. Threats include limited counseling quality and the cessation of peer education activities due to funding shortages, hindering effective adolescent sensitization.

Utilization: The study found that 70.9% of service users were female, higher than other studies, such as Mahalakshmy et al. and Dixit et al., where no males accessed AFHC services[23,24]. It also reported 66.5% service utilization, surpassing the 14.5% rate from Hoopes et al. (2000-2014)[25]. Common reasons for visits included counseling, sanitary napkins, menstrual issues, and anemia, consistent with other studies highlighting reproductive and nutritional concerns[23,26]. Logistic regression showed that adolescents within 3 km and those from lower socioeconomic backgrounds were more likely to use services, aligning with Khera et al.'s findings on distance barriers[27]. Major barriers included lack of awareness, parental restrictions, and poor-quality sanitary napkins, echoing Mahalakshmy et al. and Hoopes et al.[23,25]. Additionally, Prasad RR highlighted parental income and education levels as influential factors[28]. Underutilization was due to distance, gender-based hesitation, and lack of privacy, mirroring Kotecha and Patel (2008) and Kotecha et al. (2012)[29,30]. Privacy issues, absence of trained doctors, and low service quality also limited access. Studies by Mahalakshmy et al. (2019) and Prasad et al. (2020) identified similar barriers[31,32].

Conclusion

This study identifies barriers to utilizing Anwesha Clinics, including lack of awareness, parental restrictions, privacy concerns, gender preferences, and inadequate infrastructure. Issues like the unavailability of trained providers and poor-quality sanitary napkins further hinder access. The study recommends short-term solutions such as improving privacy and basic resources, medium-term solutions like provider training, and long-term strategies focusing on community sensitization and removing social stigma. Key recommendations include organizing awareness camps for male adolescents, parents, and SC/ST groups, strengthening school outreach, ensuring trained staff, and improving privacy and contraceptive availability to increase clinic utilization.

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Conflict of interest

No

References

1. World Health Organization. Adolescents: health risks and solutions. Geneva: WHO; 2020.
2. United Nations Population Fund. State of world population 2019. New York: United Nations Population Fund; 2019.
3. Jain A, Singh A. Reproductive health issues among adolescents in India: a review. Int J Community Med Public Health 2018;5: 1883–90.
4. World Health Organization. Adolescent–friendly health services: An agenda for change. Geneva: WHO; 2018.
5. Kessler RC, Berglund P, Demler O. Lifetime prevalence and age–of–onset distributions of DSM–IV disorders in the National Comorbidity Survey Replication. Arch Gen Psychiatry 2012;62:593–602.
6. Merikangas KR, He JP, Burstein M, Swanson SA, Avenevoli S, Cui L, Benjet C, Georgiades K, Swendsen J. Lifetime prevalence of mental disorders in U.S. adolescents: results from the National Comorbidity Survey Replication––Adolescent Supplement (NCS–A). J Am Acad Child Adolesc Psychiatry 2010;49:980–89.
7. Diagnostic and Statistical Manual of Mental Disorders. 5th ed. Arlington: American Psychiatric Publishing; 2013.
8. Suicide in the world: global health estimates. Geneva: WHO; 2019.
9. Bej P. A review of adolescent health in India: issues and concerns. Asian J Psychiatr 2016;23:22–31.
10. Goyal N. Morbidity pattern and its correlates among adolescent girls residing in rural and urban areas of Haldwani, India. Int J Community Med Public Health 2018;5:4889.
11. SPSS Inc. Released 2007, SPSS for Windows, Version 16.0. Chicago: SPSS Inc; 2007.
12. Mahalakshmy T, Premarajan KC, Soundappan K, Rajarethinam K, Krishnamoorthy Y, Rajalatchumi A, et al. Awareness of adolescent–friendly health services in India. J Adolesc Health 2015;56:367–73.
13. Tiwari VK, Sinha S, Sharma V, Yadav R, Singh A, Kumar P, et al. Barriers to accessing adolescent health services in rural areas. Indian J Public Health 2015;59:111–6.
14. Dixit GT, Jain S, Mansuri F, Jakasania A. Factors influencing access to adolescent health services in India. Int J Health Serv 2016;46:274–82.
15. Gupta M, Bhatnagar N, Bahugana P. Misconceptions and barriers to accessing AFHC in adolescents. BMC Health Serv Res 2017;17:234.
16. Sinha S. Barriers to accessing healthcare in rural adolescents. Indian J Rural Health 2017;15:123–9.
17. Ramesh S. Parent and peer involvement in adolescent health awareness programs. J Adolesc Health 2015;57:182–8.
18. Patel S. Impact of outreach activities on adolescent health service utilization in Gujarat. Indian J Pediatr 2018;85:385–90.
19. Chauhan SL, Joshi BN, Raina N, Kulkarni RN. Quality assessment of adolescent friendly health clinics: a study from India. J Adolesc Health 2020;67:132–8.
20. Bali S. Barriers to utilization of adolescent health services: findings from Madhya Pradesh. J Adolesc Health 2019;64:253–58.
21. Bhat AA. A review of adolescent friendly health centres in North India: gaps and recommendations. Indian J Public Health 2019;63:376–80.
22. Assessment of adolescent reproductive and sexual health centres in Gujarat. Gujarat: Government of Gujarat, Department of Health and Family Welfare; 2018.
23. Mahalakshmy T, Premarajan KC, Soundappan K, Rajarethinam K, Krishnamoorthy Y, Rajalatchumi A, et al. Utilization of adolescent health services in puducherry: a community–based study. Indian J Public Health 2019;63:53–8.
24. Dixit GT, Jain S, Mansuri F, Jakasania A. Utilization of adolescent friendly health services in India: a study in urban and rural settings. J Adolesc Health 2015;56:430–38.
25. Hoopes AJ, Agarwal P, Bull S, Chandra–Mouli V. Measuring adolescent friendly health services in India: a scoping review. BMC Health Serv Res 2019;19:524–36.
26. Giri N, Shrestha S, Uprety S, Sangroula RK. Utilization of adolescent friendly health services in nepal: a cross–sectional study. J Adolesc Health 2021;68:487–93.
27. Khera AP. Barriers to Accessing Adolescent Friendly Health Services in Gaya, India. Int J Health Serv 2019;49:239–48.
28. Prasad RR. Factors associated with utilization of adolescent

friendly health centers in Jaipur, India. Indian J Med Sci 2020; 72:129–35.

29. Kotecha, PV, Patel MB. Factors influencing utilization of adolescent friendly health services in rural India. Indian J Public Health 2008;52:13–6.
30. Kotecha PV, Soni P, Patel M. Barriers to the utilization of adolescent–friendly health services: a study from Gujarat, India. Int J Adolesc Med Health 2012;24:221–5.
31. Mahalakshmy T, Kumar P, Ravi M. An assessment of factors influencing utilization of adolescent health services in Puducherry, India. Indian J Community Health 2019;31:134–9.
32. Prasad RR, Kumar M. Factors associated with underutilization of adolescent–friendly health services in Jaipur, India. J Adolesc 2020;39:101–7.