ORIGINAL RESEARCH ARTICLE

Factors associated with contraceptive use among adolescents in three regions of Senegal

DOI: 10.29063/ajrh2024/v28i8s.18

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Abstract

The study aimed to evaluate the use of contraception by adolescents aged 10 to 19 years in three municipalities of Senegal, as well as the associated factors. The study was conducted in 2022 and used a cross-sectional approach. The sample size was 940 participants. Sampling was done using a multistage stratified random sampling method. The chi-square test and logistic regression using R software version 4.2.1 were used to analyze the data. Only 2.2% of adolescents had ever used a contraceptive method. Adolescents aged 15 to 19 years, those residing in Kolda, married adolescents, and those who were aware of family planning were more likely to use family planning methods. We conclude that policymakers in Senegal should implement policies and programmes for improving the reproductive health needs of adolescents in Senegal. *(Afr J Reprod Health 2024; 28 [8s]: 155-162)*

Keywords: Utilization, Family planning, Adolescent, Senegal, Cross-sectional study

Résumé

L'étude consistait à évaluer l'utilisation de la contraception par les adolescentes âgées de 10 à 19 ans dans trois communes du Sénégal, ainsi que les facteurs qui y sont associés. L'étude menée en 2022 a utilisé l'approche transversale. La taille de l'échantillon était de 940 participants. L'échantillonnage a été réalisé en utilisant une méthode de sondage aléatoire stratifié à plusieurs degrés. Le test de chi-carré et la régression logistique au moyen du logiciel R version 4.2.1 ont été utilisé pour analyser les données. Seulement 2,2% des adolescentes avaient utilisé une méthode contraceptive. Les adolescentes âgées de 15 à 19 ans, celles qui résident à Kolda, les adolescentes mariées étaient plus nombreuses et celles qui ont été sensibilisée à la planification familiale étaient plus nombreuses que les autres à utiliser les méthodes de planification familiale. Ainsi, il est nécessaire que les autorités améliorent la mise en œuvre des programmes axés sur les besoins de santé reproductive des adolescentes au Sénégal. *(Afr J Reprod Health 2024; 28 [8s]: 155-162).*

Mots-clés: Utilisation, Planification familiale, Adolescente, Sénégal, Etude transversale

Introduction

Adolescence is a pivotal period of life, during which many young people begin to be sexually active and adopt behaviours that can have a lasting impact on their health and well-being4. The World Health Organization (WHO) defines adolescents as individuals aged between 10 and 19 years[1]. Adolescents are classified into two groups: younger adolescents (10-14 years) and older adolescents (15-19 years)[2].

Sub-Saharan Africa, of which Senegal is a part, has the highest teenage pregnancy rates in the world[5]. In this region, a third of adolescent pregnancies are unplanned, of which more than a third are unwanted and end in unsafe abortion [3]. Complications related to pregnancy and childbirth are the leading causes of maternal death among adolescents in low- and middle-income countries (LMICs)[6,7]. It is crucial that health systems address these issues through the use of contraception[8] to prevent unplanned and unwanted pregnancies However, access to these services is often limited for adolescents in LMICs, making their use difficult. This leads to low contraceptive prevalence[9].

Additionally, contraceptive knowledge and practices are often influenced by sociocultural norms such as the domination of men and husbands,

opposition to contraception, and the low social status of women[10]. In this context, gender is a major challenge because most discussions regarding birth control have focused on the female body in part because the female body has traditionally been seen as the object of intervention for in relation to reproduction[11].

The Senegalese government, through the Ministry of Health and Social Action, has implemented a policy aimed at creating an emerging Senegal, where the population has access to a wide range of modern contraceptive methods and health services, which includes affordable and accessible reproductive health services. This has been made possible through a resilient and equitable health system, and through the full participation of communities for sustainable development[12].

Thus, public health facilities (hospitals, health centers and health posts), as well as private facilities (clinics) and pharmacies, offer reproductive health services, including family planning[13]. However, the prevalence of contraceptive use remains low (26%) compared to the objective set by the health authorities (45%)14,15. Many studies have examined contraceptive use among women of childbearing age (15-49 years) in Senegal[8,13,14,16,17]. However, to our knowledge, no study has examined the use of planning among adolescents. Our research focuses on the use of contraception among adolescent girls aged 10 to 19 in three regions of Senegal (Dakar, Kaolack and Kolda) and on the identification of associated factors.

Conceptual framework

Contraceptive use is closely linked to access and use of health services by sexually active adolescents. The Andersen and Newman[18] model offers an approach to better understand these aspects in this specific population, by identifying three key factors whose theoretical aspects are discussed:

- Predisposing factors: are essentially represented by demographic factors (age, sex), social structure (ethnic group, culture, level of education, profession, social interactions, etc.) and the practices, values and knowledge of individuals concerning and towards the health system.
- Resources or facilitating factors include all the logistical aspects that may be involved when using a health service
  - At the individual/family level: income, the existence of health insurance, knowledge of the means to access a healthcare system, having a regular source of healthcare, etc.
  - At the community level: the availability of healthcare services, qualified personnel and waiting time at healthcare facilities are factors that can influence the use of health services

- Need factors constitute any health problem that requires seeking care, namely here the need for contraception in sexually active women. They are divided into two:
  - Perceived factors that depend on how the individual perceives their own state of health and how they experience the symptoms and consequences of the illness
  - The factors evaluated which relate more to the judgment of a professional in relation to the state of health of the individual and the need to seek care.

Methods

Type, period and study population

This was a cross-sectional study which took place in 2022. The study targeted adolescent girls aged 10 to 19 years in the regions of Dakar (commune of Guédiawaye), Kaolack (commune of Kaolack) and in the Kolda region (Kolda commune).

Sampling

Sample sizes were determined using the Schwartz formula[8] ($N = (\mathcal{E}\alpha^2.p.q)/i^2$), taking into account the priority proportions (p) (gender-based violence which remained the central variable of the study) of women aged 15 to 49 years[14], a risk of error of 5% ($\mathcal{E}\alpha$) and a precision (i) of 5%. The results are presented in the following table with the sample sizes determined by municipality:

The sampling method consisted of carrying out a stratified random sampling at several levels. The objective was to select 20 adolescent girls from each designated neighborhood (cluster). In total, 14 clusters were formed in Guédiawaye, 15 in Kaolack and 18 in Kolda, distributed in the various districts of these localities. Within each cluster, corresponding to the neighbourhoods designated by

the municipalities, a proportional stratification according to the population of adolescent girls aged 10 to 14 and 15 to 19 was carried out.

In each cluster, the investigators chose the concessions following the itinerary method. After randomly selecting an intersection of several streets (usually a known location such as a market or mosque), the investigator used a pen to determine a random direction. All concessions on this street or alley were included until the required 20 adolescents were obtained, divided by age group.

When several people in the same household met the selection criteria and had consented to participate in the study, a draw by the head of the household was carried out to choose only one. The head of household assigned a random number to each adolescent girl beforehand. If the selected street did not reach the target number of adolescent girls, the team moved to the first lane on the right until the required quota was obtained.

Data gathering

To collect data, a pre-coded questionnaire was used to answer the research questions, based on a review of the literature on adolescent girls' access to reproductive health services[14,19].
Sections of the questionnaire addressed various areas, including household characteristics, personal traits of adolescents, access to contraception, maternal health, violence, and menstruation management. Tablets equipped with the Open Data Kit (ODK) application were used for face-to-face administration of the questionnaire by the investigators. The latter were chosen according to the specificities of the study (24 investigators, including 18 women).

To ensure data quality, interviewers were trained, tools were pre-tested, digitized and data was collected on tablets. A supervisor was responsible for monitoring real-time data collection on a daily basis. The independent variables were defined according to the Andersen and Newman18 model, including in particular:

- Predisposing factors: the sex of the head of household (CM), the age of the CM and the adolescent girls, the marital status of the CM and the adolescent girls, as well as the geographical region.
- Facilitating factors: quintile of economic well-being, educational level of the CM and adolescent girls, and employment of the CM and adolescent girls.

Need factors: having benefited from awareness raising on sexual and reproductive health (SRH) and family planning (FP), as well as having heard about family planning.

Data analysis

Data were analyzed using R software version 4.2.1. First, a descriptive analysis was performed to describe the qualitative variables in the form of frequencies. The age of the head of household (quantitative variable) was categorized into two categories (Less than 60 years vs. Greater than or equal to 60 years). Then, a bivariate analysis was performed using the Chi2 test to examine the relationship between two qualitative variables. Finally, a multivariate analysis was conducted using binary logistic regression to identify factors associated with contraceptive use among adolescents. Variables with a p value less than .25 in the comparisons were retained for the construction of the full model[20], and a stepwise top-down selection procedure was used to obtain a more parsimonious reduced model[21]. The results were expressed as Adjusted Odds Ratio (ORa) with an alpha risk set at 5%.

Ethical considerations

The study obtained approval from the National Ethics Committee for Health Research (CNERS), bearing the reference number SEN21/48. To this end, participation in this study was voluntary. Free and informed consent was obtained from all persons aged 18 and over. For adolescents under 18 years of age, the consent of their legal representatives was obtained.

Results

Descriptive analysis

In total, the survey covered 940 adolescent girls distributed proportionally according to the regions. Among the household heads included in the study, the majority were married (81%), male (64.8%), had

Table 1: Sample size of our study (Source: EDS-C 2019)

Strata	p (%)	Calculated sample size	Rounded sample size
Guédiawaye	22.7	270	280
Kaolack	25.5	292	300
Kolda	33.4	342	360
Total	-	**904**	**940**

Table 2: Results of the descriptive analysis

Features	N (%)
Region	
Dakar	280 (29.8)
Kaolack	300 (31.9)
Kolda	360 (38.3)
Gender of head of household	
Female	331 (35.2)
Male	609 (64.8)
Age of head of household	
Less than 60 years old	531 (56.5)
Above or equal to 60 years	409 (43.5)
Instruction from the head of household	
No	383 (40.7)
Yes	557 (59.3)
Marital status of head of household	
Not married	179 (19.0)
Married	761 (81.0)
Job (head of household)	
No	217 (23.1)
Yes	723 (76.9)
Economic well-being quintile	
Poorer	188 (20.0)
Poor	192 (20.4)
Average	187 (19.9)
Rich	186 (19.8)
Richer	187 (19.9)
Age of adolescent	
10 - 14 years	463 (49.3)
15 - 19 years	477 (50.7)
Instruction of the adolescent	
No	51 (5.4)
Yes	889 (94.6)
Marital situation of the adolescent	
Not married	904 (96.2)
Maried	36 (3.8)
Employment (teenager)	
No	880 (93.6)
Yes	60 (6.4)
Use of contraception	
No	919 (97.8)
Yes	21 (2.2)

Table 3: Results of the bivariate analysis

Features	Use of contraception (N=21) N (%)	p-value
Region		**<0.001**
Dakar	2 (0.7)	
Kaolack	0 (0.0)	
Kolda	19 (5.3)	
Gender of head of household		0.269
Female	5 (1.5)	
Male	16 (2.6)	
Age of head of household		0.203
Less than 60 years old	9 (1.7)	
Above or equal to 60 years	12 (2.9)	
Instruction from the head of household		0.517
No	10 (2.6)	
Yes	11 (2.0)	
Marital status of head of household		0.575
Not married	5 (2.8)	
Married	16 (2.1)	
Job (head of household)		>0.999
No	5 (2.3)	
Yes	16 (2.2)	
Economic well-being quintile		0.067
Poorer	10 (5.3)	
Poor	4 (2.1)	
Average	2 (1.1)	
Rich	2 (1.1)	
Richer	3 (1.6)	
Age of adolescent		**<0.001**
10 - 14 years	2 (0.4)	
15 - 19 years	19 (4.0)	
Instruction of the adolescent		0.623
No	0 (0.0)	
Yes	21 (2.4)	
Marital situation of the adolescent		**<0.001**
Not married	15 (1.7)	
Married	6 (16.7)	
Employment (teenager)		0.145
No	18 (2.0)	
Yes	3 (5.0)	
Raising awareness among adolescent girls about SRH		**<0.001**
No	6 (0.9)	
Yes	15 (5.2)	
Heard about FP		**<0.001**
No	0 (0.0)	
Yes	21 (5.0)	
Raising awareness among adolescents about FP		**<0.001**
No	2 (0.3)	
Yes	19 (13.0)	

Table 4: Results of multivariate analysis

Features	ORa	IC at 95	p-value
Region			
Dakar	1.00	—	
Kolda	**13.9**	**1.76 – 162**	**0.020**
Age of head of household			
Less than 60 years old	1.00	—	
Above or equal to 60 years	0.87	0.32 – 2.43	0.791
Economic well-being quintile			
Poorer	1.00	—	
Poor	0.54	0.13 – 1.89	0.352
Average	1.16	0.15 – 6.08	0.867
Rich	2.23	0.26 – 14.3	0.414
Richer	5.79	0.67 – 45.0	0.095
Age of adolescent			
10 - 14 years	1.00	—	
15 - 19 years	**5.55**	**1.27 – 41.1**	**0.044**
Marital situation of the adolescent			
Not married	1.00	—	
Married	**3.65**	**1.05 – 12.7**	**0.043**
Employment (teenager)			
No	1.00	—	
Yes	1.73	0.32 – 7.29	0.479
Raising awareness among adolescent girls about SRH			
No	1.00	—	
Yes	1.09	0.32 – 4.03	0.897
Raising awareness among adolescents about FP			
No	1.00	—	
Yes	**19.4**	**4.65 – 136**	**<0.001**

attended school (59.3%) and were aged under 60 (56.5%). Among the adolescent girls surveyed, 50.7% were between 15 and 19 years old, and only 5.1% were uneducated, while 3.8% were married. In the entire study, the proportion of adolescent girls who were aware of sexual and reproductive health and family planning and who had heard about it were 30.9%, 15.5%, and 44.7% respectively %. Finally, contraceptive use among adolescents was 2.2% (Table 2). Only 11.1% of married adolescents reported having decision-making autonomy over contraceptive use in the study. In addition, the proportion of married adolescents who did not share the same wishes for the number of children with their partners amounted to 61.1%.

Bivariate analysis

Contraceptive prevalence was 5.3% among adolescent girls in Kolda, compared to 0.7% among those living in Dakar (p<0.001). Furthermore, contraceptive prevalence was 4.0% among adolescents aged 15-19 years, while it was 0.4% among those aged 10-14 years (p<0.001) (Table 3).

Multivariate logistic analysis

Multivariate logistic analysis show that residence in Kolda (ORa = 13.9; CI 95 [1.76 – 162]), being aged between 15-19 years (ORa = 5.55; CI 95 [1.27 – 41.1]), being married (ORa = 3.65; CI at 95 [1.05 – 12.7]) and being aware of family planning (ORa = 19.4; CI at 95 [4.65 – 136]) are associated with contraceptive use.

Discussion

Contraception is today considered one of the strategies to reduce maternal morbidity and mortality. This study examined contraceptive use and its associated factors among adolescent girls in Senegal. The prevalence of contraception in our study was 2.2%. This figure is very low compared to the results of several previous studies[3,5,6,22,23].

Despite several measures taken by the Senegalese authorities, such as the adoption of Law No. 2005-18 relating to reproductive health (guaranteeing the right to control fertility) and the establishment of awareness programs intended for opinion leaders, particularly religious leaders[24], cultural values and gender norms continue to strongly influence family planning needs[10,17]. In our study, only 11.1% of married adolescents claimed to have decision-making autonomy regarding the use of family planning. These results are similar to studies carried out in other contexts, such as in Burkina Faso, where despite free contraceptive services, women did not use them due to unfavorable social and cultural norms.[25]. The empowerment of women, particularly adolescent girls, is a crucial issue in African societies[26].

Furthermore, several studies have demonstrated that marital relationships resulting from early marriage are more likely to encounter communication problems, sexual coercion, a lack of decision-making autonomy, among others[27–29]. In addition to promoting the use of family planning, empowering adolescent girls can play a crucial role in reducing maternal and neonatal mortality by preventing unplanned pregnancies and unsafe abortions[30]. It is essential to raise awareness throughout society about the persistence of adverse social norms and, by extension, the importance of adolescent girls' empowerment for sustainable development and social equity. Therefore, it is recommended that programs aimed at encouraging contraceptive use pay particular attention to gender issues, including the empowerment of adolescent girls in the decision-making process[3]. Given the selective nature of this study's participants, future research should consider exploring the perspectives of young adolescents from diverse cultural backgrounds.

Adolescent girls residing in the Kolda region had a higher probability of using contraception than those living in the Dakar region. Previous research[3,17] has found geographic differences in family planning use. Kolda, located in southern Senegal, has a higher fertility rate among adolescents than in other regions, as indicated in the results of the 2019 Demographic and Continuing Health Survey[14]. This could partially explain the results of multivariate analysis, due to the implementation of previous interventions specifically targeting this problem in this region[31,32].

Adolescent girls aged 15-19 years are more likely to use contraception than those aged 10-14 years. This finding may be explained by the fact that older adolescents generally have more advanced sexual experience than younger adolescents, potentially making them more likely to seek ways to protect themselves against unwanted pregnancy or sexually transmitted infections through the use of devices such as the use of condoms. It is important to note that young adolescents aged 10 to 14 years are among the populations often overlooked, as most policies and programmes target other age groups[2]. In addition, early onset of sexual life, before the normally established age (generally less than 15 years), is associated with risky sexual behaviours during adolescence[33].

Married adolescents were more likely to use contraception than unmarried adolescents. This result is consistent with other studies conducted in countries with similar contexts[3,4,6]. This may be because marriage may provide a more favourable environment for contraceptive use, as married adolescents may benefit from support from their partners[34]. In addition, it is important to emphasize that the provision of services for married adolescents is generally more culturally accessible.

Finally, adolescent girls made aware of family planning were more likely to use it. In public health, awareness raising is one of the best strategies to strengthen the health literacy of populations. Thus, adolescent girls, thanks to this channel, are better informed of the advantages of contraception and the risks associated with early and unwanted pregnancies, which may partly explain this result. It is crucial that awareness efforts are accessible and ongoing to reach all populations equitably.

Some limitations of our study should be noted. Firstly, the study was only carried out in three municipalities in Senegal, which limits the generalization of the results to all adolescent girls in the region. Furthermore, due to the small number of contraceptive users, the precision of the analysis of analytical aspects was limited. Finally, data on key variables were collected from self-reports, without validation by independent observation. Despite these limitations, to our knowledge, these results constitute the first report in the literature. We believe

that they will contribute to improving the implementation of programmes focused on the reproductive health needs of adolescent girls in Senegal, which, by improving their health, will strengthen their contribution to the development of the country. Regarding low use of contraception reported in this study, we believe it is essential to better understand, through qualitative studies, the perceptions of adolescent girls towards contraception to inform the development of policies and programmes to reverse this trend.

Conclusion

This study made it possible to analyze the use of contraception among adolescents as well as its determinants in three municipalities in Senegal. The results highlight a very low contraceptive prevalence in this population (2.2%). Several explanatory factors emerge, including sociodemographic (region of residence, age), individual (marital status) or linked to public health interventions (awareness of family planning). These results highlight the importance of dedicated programs for this vulnerable population, through the strengthening of appropriate awareness campaigns, better accessibility to family planning services, and actions promoting the empowerment of adolescent girls. Effective implementation of such integrated interventions will be essential to improve the sexual and reproductive health of adolescent girls in Senegal.

Acknowledgements

Our thanks go to the International Development Research Center (IDRC) which funded this project. We also express our thanks to all the investigators who collected the data, as well as all the administrative and health authorities who helped facilitate this collection.

Conflicts of interest

No potential conflict of interest should be reported.

Contribution to authors

The conceptualization of the project was carried out by Adama Faye, Oumar M Samb, Ndèye M Sougou, Sokhna Ndiaye and Serigne M Mbaye.
The methodology was developed by Adama Faye, Oumar M Samb, Ndèye M Sougou, Amadou I Diallo, Fatoumata B Diongue, Sokhna Ndiaye and Serigne M Mbaye.
The investigation was led by Amadou I Diallo and Fatoumata B Diongue.
Data cleaning was done by Amadou I Diallo. The statistical analysis was carried out by Mouhamadou F Ba.
Validation was carried out by Adama Faye.
The first version of the manuscript was written by Mouhamadou F Ba.
The manuscript was reviewed and corrected by all authors.

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