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Perceived quality of reproductive care for girls in a competitive voucher programme. A quasi-experimental intervention study, Managua, Nicaragua

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Abstract

Objective. To determine whether female adolescents from low-income areas in Managua were satisfied with the sexual and reproductive health (SRH) care provided through a competitive voucher programme and to analyse the determinants of their satisfaction.

Design. A community-based quasi-experimental intervention study from 2000 to 2002.

Setting. Low-income areas of Managua.

Intervention. Distribution of 28,711 vouchers giving adolescents free-access to SRH care in 19 clinics; training and support for health care providers.

Study participants. A random sample of 3009 girls from 12 to 20 years completed self-administered questionnaires: 700 respondents had used this care in the last 15 months, 221 with voucher (users-with-voucher) and 479 without voucher (users-without-voucher).

Main outcome measures. User satisfaction; Satisfaction with clinic reception; Clarity of doctors' explanations.

Results. User satisfaction was significantly higher in users-with-voucher compared with users-without-voucher [Adjusted odds-ratio (AOR) = 2.2; 95% confidence interval (95% CI) = 1.2–4.0]. Voucher use was associated with more frequent satisfaction with clinic reception, especially among sexually active girls not yet pregnant or mother (AOR = 6.9; 95% CI = 1.5–31.8). The clarity of doctors' explanations was not perceived differently (AOR = 1.4; 95% CI = 0.9–2.2). User satisfaction was highly correlated to satisfaction with clinic reception and clarity of doctors' explanations ($P < 0.001$). Longer consultation times, shorter waiting times, older age, and having a female doctor positively influenced user satisfaction.

Conclusion. Voucher use by teenage girls was associated with a better perceived SRH care. This is an important result, given the crucial role user satisfaction plays in adoption and continued use of health care and contraceptives. Though more research is needed, confidential and guaranteed access appear key factors to voucher success.

Keywords: adolescents, contraception, intervention program, Nicaragua, patient satisfaction, primary health care, quality of health care

Nicaragua has the highest adolescent fertility rates of Latin America, with 119 births annually per 1000 women aged 15–19 years. High fertility rates are associated with low economic status and low educational attainment [1]. In addition, adolescents experience high rates of unwanted pregnancy, illegal abortions, high maternal mortality rates, and carry high risk of contracting sexually transmitted infections, including HIV [2,3]. These risks are largely due to low use of contraceptive methods among sexually active adolescents: 7% use a condom and 47% another modern method [1].

Other Latin American countries face similar problems. Obstacles to accessing contraceptive services are believed to originate from different levels: adolescents and their sexual partners, health and education systems and sociocultural factors [3–6]. Health system obstacles are caused by lack of access to information about sexual and reproductive health (SRH) and to SRH care and by low quality of care. Quality is a problem because most services are not designed for adolescents, many providers lack knowledge and skills, and, when introduced, SRH programmes for adolescents often meet with resistance

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from providers as they challenge cultural ideas about sexuality, parenting, and gender [5–10].

In Nicaragua, an innovative approach was piloted, intended to increase accessibility and quality of SRH care to poor and underserved adolescents through a competitive voucher programme. (The competitive aspect of the programme, that is, competition between providers to attract voucher redeemers, was designed specifically to enhance service quality [16].) Evaluation of the impact of the intervention among female adolescents showed that voucher receipt increased use of SRH care among all groups [adjusted odds-ratio (AOR) = 3.1, 95% confidence interval (95% CI) = 2.5–3.9] and of contraceptives and condoms in specific groups [11]. Because quality affects the decision to use contraceptives, to continue using services [12–15] and to recommend the services to others, various methods were used to evaluate the impact on quality.

Poor and underserved adolescents rarely use SRH care and very little is known of their perception of these services. This intervention provided the opportunity for this group to experience SRH care services and to obtain their opinions. A better understanding of their perspectives can contribute to improve the effectiveness of public health interventions aimed at increasing use and acceptability of SRH care and contraceptives by adolescents.

This article reports on the quality of SRH care as perceived by female adolescents from low-income areas of Managua, using self-administered questionnaires. It addresses two questions: Were girls who consulted SRH care with vouchers more satisfied with the different aspects of quality of care than girls who consulted without a voucher? What were the key determinants of adolescents' satisfaction with SRH care?

Methods

The intervention

The intervention took place in Managua, the capital of Nicaragua, one of the poorest countries of Latin America. Primary health services in Managua consist of public health centres run by the Ministry of Health, municipal public health centres, private clinics, and clinics run by non-governmental organizations.

Over 2000 and 2001, 28 711 vouchers were distributed at four markets, outside 19 public schools and in 221 poor neighbourhoods to adolescents aged between 12 and 20, 16 850 to girls and 11 861 to boys. The vouchers gave free-of-charge access to SRH care in any of the four public, five private, and 10 clinics from non-governmental organizations, contracted by the Central American Health Institute. Clinic selection was based on suitability and proximity to areas where vouchers were distributed. Identified clinics were invited to participate, and the price per consultation negotiated based on their customary fees. The clinics received reimbursement for each adolescent who attended. The vouchers were valid for 3 months and were distributed in rounds. Every new distribution round new clinics could join and non-functioning clinics could be removed. The programme started with four clinics, and new clinics were added periodically.

In total, 3301 [20%] vouchers were redeemed by girls: 34% for contraceptives, 30% for sexually transmitted infections, 28% for counselling, 27% for antenatal care, 17% for pregnancy testing, and/or 15% gave other reasons (adolescents could attend for more than one reason). Voucher redeemers received a booklet on adolescent health, two condoms with supportive information, as well as access to laboratory tests, treatment specific to diagnosis, and contraceptives, as required.

The voucher programme addressed various aspects of quality of care. Doctors completed standardized clinical forms based on 'best practice' protocols that guided them during each consultation and ensured that all adolescents were asked about their sexual activity and their need for information and supply of contraceptives. Contraceptives (condoms, ovrette®, microgynon®, mesigyna® and copper-T) were made available and ensured method choice. Doctors at participating clinics were obliged to attend an introductory meeting to learn about the programme and its procedures. An information manual with background information and guidelines was also provided. All doctors were encouraged to attend a training course of three mornings on adolescent friendliness [9], counselling, adolescence and sexuality, contraceptives, and sexual abuse. The course was organized by the Department of SRH of the University of Nicaragua. Seventy percent of the doctors participated in at least one training session. Also, the receptionists received training on adolescent friendliness. Furthermore, it was assumed that the competitive nature of the voucher programme would prompt providers to improve the quality of services to attract more voucher bearers [16]. Quality was monitored by review of medical forms, focus group discussions, and interviews with doctors and simulated patients before, during, and after the programme.

Evaluation

Design and population

The impact of this community based quasi-experimental intervention on the perceived quality of care was assessed by comparing experiences with SRH care between adolescent girls who consulted a doctor with and without a voucher. Self-administered questionnaires were distributed randomly among female adolescents 3–15 months after the vouchers had been distributed in their area. The evaluation was limited to girls. To measure the impact of the intervention on male adolescents a much larger sample size would have been needed because only 6% of the male receivers used their voucher.

The sampling frame consisted of a selection of 21 of the 244 sites. Those sites were selected where the largest number of vouchers had been distributed, to increase the chance of encountering voucher receivers and voucher users. At each site, convenience samples of adolescent girls were asked to complete a questionnaire. Each girl present at the site during the visit of the survey staff (composed of female adolescents) and with the appropriate age was asked to participate. The

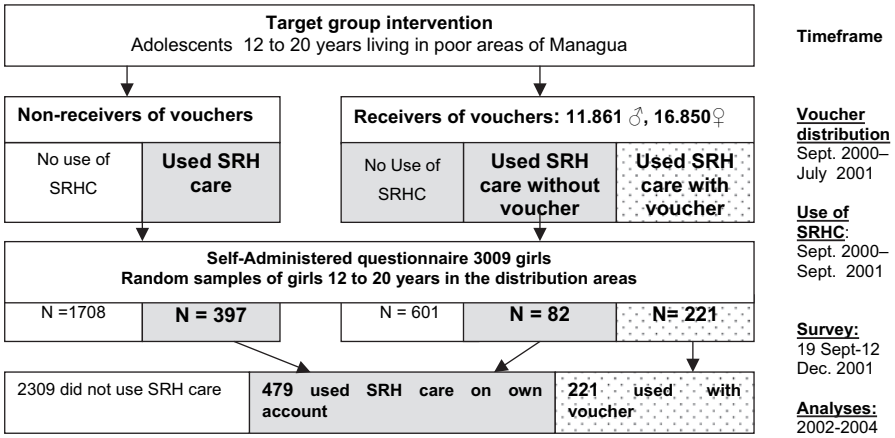

Figure 1 Flow diagram of the intervention and evaluation of the voucher programme.

survey was presented as a study seeking adolescents' opinions on health services and was not linked to the voucher programme. The objective was to obtain a random sample of girls who all had had the same chance of receiving a voucher and who would feel free to share information on their SRH care use and their perspectives on the quality of care. Within this sample, a sub-sample of 'users' was analysed: 'users-with-voucher' were compared with 'users-without-voucher' to evaluate whether vouchers made a difference to perceptions of service quality (Figure 1). The study was approved by the ethical review committees of the London School of Hygiene and Tropical Medicine and the Central American Health Institute.

Measurements

A self-administered questionnaire was chosen to maximize 'honesty' in responses given taboos about sexuality. The selection of the variables was based on literature and information derived from focus group discussions with adolescents. The wording of the questions was developed in conjunction with adolescents from participating organizations and was extensively piloted.

SRH care use was ascertained through the questions: 'Have you consulted a doctor for: information or advice, contraceptive methods, pregnancy test, control of pregnancy, a venereal disease, problems with menstruation or other reasons?' and 'How many months ago did you have this medical consultation?' Only girls who reported health care use completed questions on quality, waiting and consultation time, gender of the doctor, and type of clinic.

Answers to three questions were used to assess quality:

1. 'Would you like to consult the same doctor again?' (yes or no), was used as summary indicator of the quality of the entire consultation, because a discontent person would be unlikely to want to return [17].
2. 'How was the attention in the clinic before you were attended to?' indicated how the girls perceived the way they were received before the consultation. The pre-coded answers 'bad' and 'regular' were classified as poor (in Nicaragua the term 'regular' means that something is not quite right), and 'good' and 'excellent' were classified as good.
3. The clarity of the explanations provided was assessed by asking: 'How was the explanation of the doctor?' The pre-coded answers 'did not understand' and 'did not understand well' were classified as poor; 'did understand' and 'did understand very well' were classified as clear.

Information was collected on the characteristics of the adolescents (age; years of schooling; currently attending school; socioeconomic indicators; and childbearing experience); on the survey site (market, neighbourhood, school); and on whether the questionnaire was self-administered or completed by an interviewer.

Because pregnancy and motherhood strongly influence the social position of girls and the social acceptability of seeking SRH care, childbearing experience was classified into three groups: girls who had not started sexual relations; girls who had started but had never been pregnant; and pregnant girls/mothers. The socioeconomic indicators to assess relative poverty were presence of a refrigerator in the house, number of people per bedroom, and socioeconomic classification of the survey site[1].

Data collection and analysis

Although the questionnaire was being completed, survey staff (female adolescents) stayed nearby to answer questions and to safeguard privacy. Survey staff completed 18% of the questionnaires on behalf of girls who had difficulties reading or writing.

[1]The socioeconomic classification of neighbourhoods was based on an updated list from the municipality indicating nature of housing, level of services (sewerage, electricity, drinking water), and quality of roads. Markets were classified on the relative price levels of goods sold. Schools were classified on the level of parental financial contributions and the socioeconomic classification of the neighbourhood. The very poor sites scored 2 points, poor sites 1 point, and lower class/lower middle class sites 0 points.

An estimated 3% of girls refused to participate: reasons included 'in a hurry', 'no permission from my boss' (at markets), whereas others believed the questionnaire was related to a political activity. Of the 3130 questionnaires completed, 3009 [96%] contained sufficient data for analysis. Data were entered twice in Epi-info by two different data processors. STATA 7.0 software was used for further analysis.

Main characteristics describing study participants were calculated and tabulated (Table 1). The chi-square test was used to compare the characteristics of the users-with-voucher with the users-without-voucher.

For analysis of the influence of voucher use on the quality indicators, voucher use was the main exposure in multiple logistic regression analysis. Adolescent and survey characteristics were considered potential confounders that might be associated with voucher use and could independently influence perceptions of quality, or effect modifiers that might influence the effect of voucher use on the perceived quality. The likelihood ratio test (LRT) was used to determine whether variables were significantly associated with the outcome ($P < 0.05$). For each variable, it was assessed whether there was interaction with the exposure using the LRT. All ordinal variables were tested for departure from the linear trend (Table 2). Only records with complete data were used in the multivariate analysis.

To analyse the determinants of user satisfaction, logistic regression models were constructed that included variables related to the SRH care and adolescent and survey site characteristics. Because many girls could not remember the name of the clinic they had visited, it was impossible to include clinic

Table 1 Girls' characteristics: all respondents and female users of sexual and reproductive health (SRH) care: users-with-voucher versus users-without-voucher

Baseline characteristics	All respondents [*N* = 3009 (%)]	Users-without-voucher [*N* = 479 (%)]	Users-with-voucher [*N* = 221 (%)]	*P*[1]
Mean age	16.7	17.9	17.2	
Age group				
12–15 years	951 (31.6)	60 (12.5)	47 (21.3)	
16–17 years	844 (28.1)	115 (24.0)	66 (29.9)	
18–21 years	1214 (40.4)	304 (63.5)	108 (48.9)	0.001
Mean years of schooling	8.5	8.4	8.1	
Educational level				
0–6 years	512 (17.0)	116 (24.2)	53 (24.1)	
7–9 years	1368 (45.5)	205 (42.8)	89 (40.5)	
10–11 years	735 (24.5)	109 (22.8)	49 (22.3)	
12–16 years	389 (13.0)	49 (10.2)	29 (13.2)	0.71
School going				
Actually studying	2129 (70.9)	200 (41.8)	123 (55.9)	<0.001
Refrigerator				
Have refrigerator	1502 (50.2)	211 (44.4)	97 (44.1)	0.94
Number of people/bedroom				
0–2	1464 (49.5)	199 (42.3)	96 (44.4)	
More than 2–3	842 (28.5)	134 (28.5)	71 (32.9)	
More than 3	653 (22.1)	137 (29.2)	49 (22.7)	0.19
Socioeconomic classification survey site				
Lower/lower middle	901 (29.9)	64 (13.4)	63 (28.5)	
Poor	1400 (46.5)	283 (59.1)	108 (48.9)	
Very poor	708 (23.5)	132 (27.6)	50 (22.6)	0.001
Survey site				
Market	691 (23.0)	159 (33.2)	47 (21.3)	
Neighbourhood	1280 (42.5)	256 (53.4)	103 (46.6)	
Outside school	1038 (34.5)	64 (13.4)	71 (32.1)	0.001
Category of childbearing[2]				
Not started	1929 (65.3)	106 (22.3)	62 (28.4)	
Started (not pregnant/mother)	473 (16.0)	99 (20.8)	65 (29.8)	
Pregnant and/or mother	552 (18.7)	271 (56.9)	91 (41.7)	0.001

[1]Results of the chi-square test comparing the SRH care users-with-voucher with users-without-voucher for the various variables.
[2]Girls who are first time pregnant and visited a doctor more than 6 months ago are considered as started with sexual relations but not pregnant, because in Nicaragua it is most unlikely these girls did visit a doctor for an antenatal control in their first 3 months of pregnancy.

Table 2 The impact of voucher use on user satisfaction, satisfaction with the reception and the clarity of the explanations

Outcomes	Without Voucher N = 479*(100%)*	With voucher N = 221*(100%)*	N[1]	Unadjusted OR (95% CI)	Adjusted OR (95% CI)[2]
Overall satisfaction[3]	394 *(85)*	199 *(91)*	N = 660	1.99 (1.13–3.48)	2.23[4] (1.24–4.02)
Satisfied with the Reception[5]	374 *(80)*	190 *(88)*	N = 664	1.99 (1.22–3.26)	
Voucher use/not started					2.22 (0.87–5.63)
Voucher use/started, not P or M					6.93 (1.51–31.84)
Voucher use/P or M					1.13 (0.58–2.20)
Doctors' explanations were clear[6]	370 *(80)*	181 *(83)*	N = 660	1.34 (0.87–2.08)	1.37[7] (0.87–2.17)

95% CI, 95% confidence interval; OR, odds-ratio; Started, started sexual relations: P, pregnant; M, Mother.
[1]N is the number of records included in the logistic regression analysis.
[2]Result of multiple logistic regression analysis. The variables included in the model are: category of childbearing experience; age group; school attendance; level of educational attainment; refrigerator in the house; number of people/bedroom; socio-economic classification of the survey site; survey site; self-filled or completed by an interviewer.
[3]Missing data = 19.
[4]The variable childbearing experience was significantly associated with the outcome, but no confounder.
[5]Missing data = 17.
[6]Missing data = 21.
[7]The variable level of educational attainment was significantly associated with the outcome, but no confounder.

type (public, private, or non-government) in the analysis. The LRT was used as described above to assess the influence of the different variables (Table 3).

Results

No relevant differences were found in characteristics of voucher receivers in sampled sites versus non-sampled sites. Furthermore, characteristics of respondents were similar to girls who had received a voucher during the intervention. Therefore, it is likely that respondents are representative of girls who could have received a voucher, the target group of the intervention. Of the 3009 adolescent girls who completed the questionnaire, 700 adolescents reported use of SRH care within the last 15 months, 221 'users-with-voucher', and 479 'users-without-voucher'. Older and sexually active girls, especially mothers and pregnant girls, made more frequent use of SRH care. Users-with-voucher, compared with users-without-vouchers, were younger, more frequently still at school, less likely to be pregnant or mothers, and more frequently contacted outside school (Table 1).

The influence of voucher use on quality

Of all SRH care-users, 593 (87%) were *satisfied with the care received*, 91% of users-with-voucher and 85% of users-without-voucher. In multiple logistic regression analysis, voucher use was significantly associated with more frequent user satisfaction (Table 2).

Of all users, 564 (83%) were satisfied with *attention at the reception* of the clinic, 88% of users-with-voucher and 80% of users-without-voucher. In multiple logistic regression analysis, interaction existed between voucher use and childbearing experience. The positive influence of a voucher on perceptions of the quality of reception was very strong in sexually active girls who were neither mothers nor pregnant, strong in girls who were not yet sexually active, but absent in girls who were mothers or pregnant (Table 2).

Of all users, 551 (81%) reported that *the explanation* by the medical doctor was clear, 83% of users-with-voucher and 80% of users-without-voucher. In multiple logistic regression analysis, voucher use was not significantly associated with the clarity of explanation (Table 2).

No statistically significant differences were found for any of the quality indicators or with voucher use when comparing records with missing values with complete records.

Determinants of user satisfaction

The quality of reception and clarity of explanations were strongly correlated with overall satisfaction ($P < 0.001$; $P < 0.001$) and therefore not included in the multiple logistic regression analysis. Voucher users were significantly more frequently satisfied. Girls were more satisfied with a female than a male doctor; voucher use made this effect much stronger (Table 3).

Longer consultation times progressively increased satisfaction; longer waiting times progressively diminished satisfaction; older girls were more frequently satisfied as were girls who were pregnant or mother. Educational level, school attendance, socioeconomic background, and survey characteristics were not significantly associated with satisfaction.

Discussion

Voucher use was associated with a more frequent satisfaction with the consult and the reception in the clinic, compared with use-without-voucher. No association was found with the clarity of doctors' explanations. User satisfaction was associated with voucher use, consultation with a female doctor,

Table 3 Factors influencing female adolescent user satisfaction

Variables ($N = 584$)	Categories	AOR (95% CI)[1]
Voucher use[2]	No	Reference category
	Yes	3.32 (1.27–8.69)
Doctors' gender[2]	Female doctor	Reference category
	Male doctor	0.38 (0.19–0.75)
	Interaction male doctor voucher use	0.21 (0.05–0.81)
Consultation time[2]	0–10 min; 10–20 min; 21–30 min; >30 min	2.61 (1.89–3.60)[3]
Waiting time[2]	0–30 min; 31–60 min; 60–120 min; >120 min	0.45 (0.34–0.60)[3]
Age group[2]	12–15 years; 16–17 years; 18–21 years	1.62 (1.02–2.57)[3]
Childbearing experience[2]		
Not started		Reference category
Started (not pregnant/mother)		0.60 (0.27–1.33)
Pregnant and/or mother		1.53 (0.66–3.55)
Educational level	0–6 years; 7–9 years; 10–11 years; 12–16 years	0.70 (0.47–1.06)[3]
School going	Actually studying	0.94 (0.44–2.13)
Number of people per bedroom	0–2; 2–3; >3	0.96 (0.66–1.38)[3]
Refrigerator	No refrigerator in the house	1.36 (0.74–2.50)
Socioeconomic classification survey site	Lower/lower middle; poor; very poor	0.84 (0.47–1.49)[3]
Filling of questionnaire	Survey staff filled questionnaire	1.06 (0.53–2.13)
Survey site		
Market		Reference category
Neighbourhood		1.40 (0.65–3.05)
School		0.79 (0.28–2.28)

AOR, adjusted odds-ratio; 95% CI, 95% confidence interval.
[1]Results of the multiple logistic regression analysis.
[2]The variables were statistically significant associated with user satisfaction in the multiple logisitic regression analysis.
[3]The reference category is the first category mentioned (e.g. for waiting time this is 0–30 min, for consultation time 0–10 min, for age group 12–15 years).

longer consultation times, shorter waiting times, older age, and being pregnant or mother.

In interpreting our findings, strengths and limitations of the study design should be considered. The high response rate and the random sampling were strong aspects of this study. A representative sample of the target group of the intervention was obtained. However, although we have adjusted for all significant variables, we cannot exclude that girls who already had access to SRH care and girls accessing care through vouchers are different for aspects we were not able to control for through logistic regression. If this would be the case, it would most likely reinforce the success of the intervention in increasing acceptability of SRH care, because underserved adolescents mobilized through vouchers are not an easy group to reach and satisfy.

Sexual activity as reported through the self-administered questionnaires was higher than reported in interview-based surveys in Nicaragua. This illustrates known underreporting of sexual activity in face-to-face interviews and suggests a high degree of frankness when completing the questionnaire. The time between service use and the survey probably influenced the assessment of SRH care, but cannot explain the impact of voucher use, because there were no important differences in time elapsed comparing users-with-voucher with users-without-voucher. Furthermore, non-random reporting biases are unlikely because the survey was not overtly linked to the voucher programme, specific clinics or doctors.

Given these factors, we consider it likely that the associations found can be attributed to the intervention. But how can we understand the success of vouchers on quality?

Part of the higher satisfaction associated with voucher use might be explained by differences in quality between types of clinics. Vouchers gave access to private and non-governmental clinics that are not accessible by poor adolescents, a factor we were unable to analyse.

The finding that voucher users who were sexually active but not yet pregnant or mothers were most satisfied with clinic reception and that the quality of reception was strongly associated with user satisfaction suggests that confidentiality is a central factor for voucher success. Confidentiality is very important to adolescents because they fear that attending SRH care is a public declaration of being sexually active and/or that their parents will find out [3,7,9,18,19]. This was confirmed during focus-group discussions. The vouchers enhanced confidentiality in a number of ways. They removed the need to ask family and friends for funds or information because services were free-of-charge and clinics nominated. Adolescents could select a clinic of their choice with a good

reputation, nearby, or where the chance of meeting acquaintances was minimal. And adolescents could attend a clinic without fear of rejection, without prior appointment and without the need to inform the trained receptionist about the reason for the visit.

The quality was probably also influenced by other mechanisms. Clinic staff was trained in receiving adolescents and respecting their privacy. Also, providers felt supported by the programme serving young unaccompanied adolescents. Although there are no age restrictions in Nicaragua, providers affirmed during interviews moral reservations towards serving adolescents aged under 16. Furthermore, the voucher provided financial incentives to provide good quality care in order to attract more adolescents.

The finding that 82% of the adolescents were satisfied confirms findings from other studies that patients report satisfaction with 80–90% of the care given regardless of its actual quality [20]. Our survey data permit analysis of the relative importance of the different determinants of perceived quality. The results confirm evidence [9,21–23] underlining the importance of the entire circuit in a health centre, including waiting and consultation times, the quality of the reception and the clarity of doctors' explanation.

Intriguingly, differences in education, school attendance, and socioeconomic background did not influence girls' assessment of quality. Although respect for diversity is key to success in many adolescent programmes, for health care quality this aspect seems of less importance. The main inter-girl variable that made a difference was that girls who had not started reproductive life felt less well attended than mothers and pregnant girls. This suggests there remains room for improvements in addressing the needs of these girls.

Survey participants demonstrated a preference for consulting female doctors. Voucher use made this preference even stronger. Culturally, it is easier for girls to discuss issues related to sexuality with women. In addition, gender influences the communication styles of doctors [24], and the doctors' gender is an important factor in this type of intervention [24,25]. In general, the female doctors reacted more enthusiastically towards the programme than their male colleagues who also seemed less motivated to spend time on health education and to comply with programme protocols and instructions. Further research is planned to understand the underlying mechanisms.

In conclusion, adolescents in Nicaragua face many health threats related to their sexuality. Health care providers should provide information and services that adolescents need to make choices in their sexual and reproductive life, but commonly fail to do so. The voucher programme mobilized adolescents towards the services [11], supported the providers to attend to them, and users were more satisfied with the services, than those who consulted without voucher. This is an important achievement, given the crucial role user satisfaction plays in the adoption and continued use of SRH care and contraceptives. It is encouraging that a relatively simple and cheap intervention has potential to contribute to addressing a serious and persistent public health problem. Although further research is needed to prove causality and understand the exact mechanisms, confidential and guaranteed free access appear key factors behind increased user satisfaction through vouchers. Although the question of sustainability also needs further attention, vouchers are likely to be a powerful tool in reaching out to adolescents in need, and almost certainly have potential beyond the Nicaraguan borders.

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