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Can a comprehensive voucher programme prompt changes in doctors' knowledge, attitudes and practices related to sexual and reproductive health care for adolescents? A case study from Latin America

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Summary

OBJECTIVES To evaluate whether participation in a competitive voucher programme designed to improve access to and quality of sexual and reproductive health care (SRH-care), prompted changes in doctors' knowledge, attitudes and practices.

METHODS The voucher programme provided free access to SRH-care for adolescents. Doctors received training and guidelines on how to deal with adolescents, a treatment protocol, and financial incentives for each adolescent attended. To evaluate the impact of the intervention on doctors, nearly all participating doctors ($n = 37$) were interviewed before the intervention and 23 were interviewed after the intervention. Answers were grouped in subthemes and scores compared using nonparametric methods.

RESULTS The initial interviews disclosed deficiencies in doctors' knowledge, attitudes and practices relating to adolescent SRH-issues. Gender and age of the doctor were not associated with the initial scores. Comparing scores from before and after the intervention revealed significant increases in doctors' knowledge of contraceptives ($P = 0.003$) and sexually transmittable infections ($P < 0.001$); barriers to contraceptive use significantly diminished ($P < 0.001$ and $P = 0.003$); and some attitudinal changes were observed ($0 = 0.046$ and $P = 0.11$). Doctors became more aware of the need to improve their communication skills and were positive about the programme.

CONCLUSIONS This study confirmed provider related barriers that adolescents in Nicaragua may face and reinforces the importance of focusing on the quality of care and strengthening doctors' training. Participation in the voucher programme resulted in increased knowledge, improved practices and, to a lesser extent, in changed attitudes. A competitive voucher programme with technical support for the participating doctors can be a promising strategy to prompt change.

keywords adolescents, doctors' knowledge attitudes practices, nicaragua, quality of care, reproductive health care, voucher programme

Introduction

Nicaragua has one of the highest adolescent fertility rates of Latin America, with 119 births annually per 1000 young women aged 15–19. High fertility rates are associated with low socio-economic status and low educational attainment [Instituto Nacional de Estadística y Censos and Ministerio de Salud (INEC) 2002]. In addition, adolescents experience high rates of unwanted pregnancy, illegal abortions, high maternal mortality rates and are at high risk of contracting sexually transmitted infections (STIs), including human immunodeficiency virus (HIV). These risks are closely connected with the low use of contraceptive methods among sexually active adolescents: only 7% use a condom and 47% another modern method (INEC 2001).

Lack of access to information about sexual and reproductive health, lack of access to sexual and reproductive health care (SRH-care) and a low quality of care are the principal reasons for the low use of contraceptive methods among adolescents. Whilst there is no need to further

assess the extent to which knowledge, attitudes, and practices of medical doctors can be an obstacle to appropriate care for adolescents, there is an urgent need to better understand how to motivate and support doctors to change (Stanback *et al.* 1997; Eggleston *et al.* 1999; Pons 1999; Senderowitz 1999; Speizer *et al.* 2000; Shelton 2001; Stanback & Twum-Baah 2001; Lande 2002; Langer 2002; Rudy *et al.* 2003).

Evidence of interventions that have succeeded in improving the quality of SRH-care for adolescents in existing health centres in developing countries is scarce. A competitive[1] voucher programme for sex-workers in Managua, Nicaragua, proved to be a cost effective intervention with potential to encourage quality care practices (Borghi *et al.* 2005). Although indications existed that competitive voucher programmes in health have strong potential to improve quality (Gorter *et al.* 2003), this had never been the subject of explicit research. Therefore, when the Central American Health Institute (ICAS) piloted, between 2000 and 2002, a voucher programme designed to increase access to and quality of SRH-care for poor and underserved adolescents, various aspects of the quality of care provided were closely monitored and evaluated. Methods used were interviews with adolescents, focus group discussions, revision of medical files, simulated patients and interviews with doctors.

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 3.1, 95% confidence interval 2.5–3.9) and of contraceptives and condoms in specific groups (Meuwissen *et al.* 2006a). Furthermore, girls were more satisfied with the quality of SRH-care delivered through the voucher programme, compared to care delivered without voucher (Meuwissen *et al.* 2006b).

The fact that vouchers offered SRH-care free-of-charge can explain part of the increase in satisfaction. However, the voucher programme was also seeking to induce improvements in technical and communication skills in relation to SRH-care in the participating health facilities. This was to be achieved through specific training and support providers would receive as well as the experience gained through participation in the programme. To evaluate whether the programme influenced knowledge, attitudes and practices, doctors were interviewed before and after the intervention. This paper reports our findings.

[1] Competition refers to the fact that in the described programme there is competition between service providers, as opposed to programmes were the voucher is redeemable at a single service provider. Competitive voucher schemes are one form of demand side financing where purchasing power is given to the consumer and money follows the patient (Gorter *et al.* 2003).

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 doctors, and clinics run by non-governmental organizations (NGOs). Most clinics are staffed by two doctors, and, in general, in the larger clinics two doctors were allocated to receive adolescents.

Over 15 months, 28 711 vouchers were distributed to poor adolescents at markets, outside schools and door-to-door in disadvantaged neighbourhoods. The vouchers gave free access to SRH-care in any of the four public, five private or 10 NGO clinics contracted by ICAS. The selection of clinics was based on suitability and proximity to the areas in which vouchers were distributed. Identified clinics invited to participate were required to sign a contract, while prices per consultation were negotiated based on customary fees. The clinics received reimbursement for each adolescent consultation. The programme started with four clinics and new clinics were added periodically.

Vouchers were valid for 3 months and 20% of the vouchers were redeemed by girls. This is a relatively high redemption rate, considering the short life of the vouchers (3 months) and that they were distributed without asking adolescents about their SRH-care needs. Among sexually active girls, 51% used their voucher, while among girls who were not yet sexually active use was only 14%. Adolescents could seek more than one service during their consultation, so the sum of percentages exceeds 100%: 34% sought contraceptives, 30% sought treatment for an STI or reproductive tract infection (RTI), 28% counselling, 27% antenatal care, 17% pregnancy testing and 15% gave other reasons.

Doctors completed standardized clinical forms that guided them during each consultation. This protocol was designed to ensure that every adolescent was asked about their sexual activity, their need for information, their need for contraceptives and was given a package with two condoms plus health education material on adolescence and STIs. 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. Furthermore, all doctors were encouraged to attend a

training course, conducted over three mornings on 'youth friendly services' (Senderowitz 1999), counselling, adolescence and sexuality, contraceptives and sexual abuse. The course was organized by the Department of Sexual and Reproductive Health at the University of Nicaragua. Seventy per cent of the doctors participated in at least one training session.

The evaluation

Thirty-seven of the 40 participating doctors were interviewed before the programme started in their clinic. The three missed were doctors newly employed in the participating clinics after the programme had started and had already started seeing adolescents, using programme protocols. Two doctors from the research team interviewed the participating doctors. They made appointments and interviewed the doctors in the privacy of their consultation rooms. A structured questionnaire with 28 open-ended questions was used. The interviewers were instructed to record answers and not to provide feedback. One month after the intervention ended, doctors were contacted for a second interview, with the same basic questionnaire, with additional questions on their experience. The study was approved by the ethical review committee of ICAS.

The selection of questions was based on programme objectives and literature review and was refined by a team of medical doctors with experience of SRH-care in Nicaragua. Measurement of *knowledge* was straightforward, focusing on (i) family planning and (ii) STIs. The doctors were asked for example: According to your criteria, what type of family planning is most suitable for girls aged 12–14? What type for girls aged 15–17? And for girls who have had a baby? Please explain your understanding of the relationship between STIs and HIV/AIDS? Describe the syndromic treatment for STIs? Why is the syndromic treatment used in STI programmes?

Attitudes were assessed through questions related to barriers to SRH-care and to understanding how access to care can be facilitated. The focus was (i) on service delivery and (ii) on family planning. Examples of questions include: What do you think are the different reasons why adolescents experience difficulties in consulting a doctor for sexual and reproductive health issues? If an adolescent aged 14 consults you and asks for oral contraceptives, do you prescribe them?

Practices were assessed by evaluating the medical barriers mentioned when doctors described how they dealt with contraception among adolescents. Medical barriers are practices that use a medical rationale but result in an impediment to or denial of contraceptive use that cannot be scientifically justified (Bertrand *et al.* 1995). The focus was (i) on barriers because of erroneous knowledge (e.g. When you prescribe Mesigyna®[2], when can it be started?); (ii) on barriers because of socio-cultural assumptions and values (e.g. In what type of cases do you propose the use of emergency contraceptives?) and facilitation of correct use (e.g. included instruction on what to do when a girl forgets to take the pill as essential information to be shared with an adolescent who starts using oral contraceptives) The full questionnaire is available on request.

The criteria for evaluation were based on programme objectives, defined before the data were analysed and approved by the research team. Each aspect was divided in two subthemes as indicated above. By providing the correct responses to all four or five criteria of one subtheme, a maximum score of 10 points could be attained. For an overview of all criteria used see Tables 2–4. The internal reliability of the multiple subscale scores is good (Cronbachs' alpha = 0.75)

All completed questionnaires were codified in a random order (before and after mixed) by one doctor after disconnection from the personal identifiers. Data were entered twice using Epi Info 6.04 d (CDC, Atlanta, GA, USA). Stata 7.0 software (State Corp, College Station, TX, USA) was used for further analysis.

A general description of the participating doctors is given, reflecting basic characteristics and experience. The total number of positive answers for each criterion, and the mean score per subtheme, are calculated and tabulated for all 37 doctors interviewed at the beginning of the programme. The relation between different characteristics of these 37 doctors (gender, age group and type of clinic) and their initial score was assessed. The Mann–Whitney rank sum test was used to analyse the influence of gender and age group on the scores in each subtheme and the Kruskal–Wallis test for the influence of the type of clinic (public, private and NGO).

Of the 23 doctors interviewed twice, the numbers of correct answers before and after the intervention are tabulated, and the total score per subtheme calculated. The scores before and after the intervention are compared using the Wilcoxon signed rank test (paired design).

[2] Mesigyna is a monthly injectable hormonal contraceptive available in Latin America. This type of method has several advantages for adolescents: it does not require continuous application; it is coitus-independent; it is highly effective and reversible; and it does not require the user to keep supplies and therefore its use can be concealed (Singh 1995). Mesigyna is very popular among adolescents in Nicaragua but rather expensive.

Results

Twenty-three of the 37 medical doctors were interviewed twice (62%). Reasons for failure to follow-up were that the doctor had stopped working in the participating clinics (five doctors); exclusion of the clinic from the programme because of administrative reasons (four); absence during interview period (two); refusal because of moral rejection of the programme (two); removal from the programme because of complaints from adolescents (one). The sample of 23 doctors (that is, those who participated in the follow-up) did not differ significantly in terms of their main characteristics from the 14 doctors lost to follow-up (Table 1).

As a result of the stepwise introduction of the programme, the period over which 'the 23 doctors' had participated before the second interview varied between 4.5 months and 15.2 months: 44% had participated more than 9 months. 'The 23 doctors' were aged between 28 and 53. Most were younger than 40, and worked in NGO clinics. More female than male doctors participated, similar to the gender profile among general practitioners in Nicaragua.

Answers from the 37 initial interviews are shown in the second column of Tables 2–4. In summary, the main findings were: not all doctors knew of current contraceptives appropriate for adolescents and knowledge of STIs and syndromic treatment was limited (Table 2). Few doctors appreciated that provider related obstacles contribute to non-use of health care services by adolescents and many were reluctant to prescribe contraceptives to younger adolescents (Table 3). Many doctors imposed medical barriers to the use of modern contraceptives and most doctors clearly had a favourite contraceptive that they prescribed for specific age groups (Table 4). For example, a condom is their favourite method for girls aged 12–15, while only two of 37 (5%) include condoms as the recommended method for girls who have already had a baby. Ten of the 37 doctors (27%) gave information on the negative aspects of condom use to teenagers who wanted to

Table 1 Baseline characteristics and experience of the doctors

	All doctors before, $n = 37$ (100%)	MD followed*, $n = 23$ (100%)	MD lost†, $n = 14$ (100%)	χ^2 (*P*-value)
Sex of doctor				
Female	22 (59.5)	15 (65.2)	7 (50.0)	0.36
Male	15 (40.5)	8 (34.8)	7 (50.0)	
Age of doctor (years)				
30–34	11 (29.7)	7 (30.4)	4 (28.6)	0.20
35–39	16 (43.2)	12 (52.2)	4 (28.6)	
40+	10 (27.0)	4 (17.4)	6 (42.9)	
Type of clinic				
Public	7 (18.9)	4 (17.4)	3 (21.4)	0.81
Private	9 (24.3)	5 (21.7)	4 (28.6)	
NGO	21 (56.8)	14 (60.9)	7 (50.0)	
Reported experience at first interviews				
Little experience	5 (13.5)	1 (4.4)	4 (28.6)	0.04
Lot of experience	32 (86.5)	22 (95.6)	10 (71.4)	
Prescribes pill to 14 year-old girls				
Has serious reservations	16 (43.2)	7 (30.4)	9 (64.3)	0.08
Yes	21 (56.8)	16 (69.6)	5 (35.7)	
Experience with prescribing the morning after pill				
No	23 (62.2)	13 (56.5)	10 (71.4)	0.66
1–2 times/year	7 (18.9)	5 (21.7)	2 (14.3)	
>2 times/regular	7 (18.9)	5 (21.7)	2 (14.3)	
Reported experience in this year with girls suffering from sexual abuse ‡				
None	17 (60.7)	10 (55.6)	7 (70.0)	0.68
1–2 times/year	6 (21.4)	4 (22.2)	2 (20.0)	
3 times or more/year	5 (17.9)	4 (22.2)	1 (10.0)	
Missing	9	5	4	

* Doctors with complete follow-up.
† Doctors lost to follow-up.
‡ This question was not asked for in the first nine interviews.

Table 2 The knowledge of the medical doctors before and after the intervention

Knowledge	All Initial*, $n = 37$ (%)	Initial†, $n = 23$	After†, $n = 23$	P-value‡
I On contraceptives and their use				
1.1 Did not mention natural methods as appropriate for adolescents	32 (86.5)	20	21	
1.2 Prescribes Ovrette® only to lactating mothers	20 (54.1)	15	19	
1.3 Knows girls can start Mesigyna® on day 1–5 of their menstrual cycle	15 (40.5)	10	16	
1.4 Can mention at least one method for emergency contraception correctly	26 (70.3)	19	23	
1.5 Can mention the dose of at least one method or emergency contraception correctly	13 (35.1)	10	13	
Mean score§ (SD)	5.7 (2.0)	6.4 (1.7)	8.0 (1.7)	0.003
II On STIs, their prevention and treatment				
2.1 Mentions risk assessment, as a crucial part of STI treatment	3 (8.1)	2	4	
2.2 Knows what syndromic treatment is and can give at least one correct reason for its use	7 (18.9)	4	15	
2.3 Mentions that STIs increase the transmission-rates of HIV	10 (27.0)	7	14	
2.4 Knows the correct treatment for urethral discharge in male adolescents	15 (40.5)	12	13	
Mean score§ (SD)	3.6 (2.8)	2.7 (2.4)	5.2 (2.6)	<0.001

* Number of doctors and percentage of total that responded correctly to the criteria.
† These columns reflect the absolute number of doctors who gave the correct answers in the interviews before and after the intervention.
‡ The P-value calculated from the Wilcoxon Signed Rank Test comparing the scores before and after the intervention for every subtheme.
§ Scores are the mean scores per subtheme and can range between 0 and 10 points.

start using them: for example 'not the best method to prevent STIs'; 'can give irritations'; 'can give allergic reactions'; 'psychological disadvantages'; 'condoms break easily'; 'can have disadvantages'; '90% effective'; 'not good as a contraceptive'.

When comparing the initial scores of male and female doctors and doctors under 35 with older doctors, no statistically significant differences were found in any subtheme. However, the initial scores of doctors working in public clinics were statistically significantly lower in attitudes towards accessibility (subtheme 3) and medical barriers because of erroneous knowledge (subtheme 5) (not shown). The group followed up was too small to permit analysis of whether different groups of doctors responded differently to the programme.

The scores of the initial interviews with 'the 23 doctors' are comparable to the scores of the complete group of 37 (Tables 2–4, column 'All Initial' and column 'Initial').

When comparing the results of the initial interview with the interview after the intervention, a significant increase in knowledge of contraceptives was noted ($P = 0.003$; Table 2). A higher percentage knew that Mesigyna®[2] can be started from day 1 up to day 5 of the menstrual cycle and more were able to mention at least one emergency contraceptive.

Knowledge of STIs also increased significantly ($P < 0.001$; Table 2). Higher proportions, but far from all, understood what syndromic treatment is and why it is used and/or could mention that STIs facilitate the transmission of HIV.

A significant improvement was observed in attitudes towards accessibility of SRH-care, more doctors recognized obstacles faced by adolescents to accessing SRH-care ($P = 0.046$; Table 3). Many more mentioned accessibility to health services and contraceptives as crucial elements of SRH programmes, while in the first interview, their focus had been more on health education.

Attitudes by doctors towards contraceptive use by adolescents did not change significantly ($P = 0.11$; Table 3). Many doctors remained reluctant to prescribe hormonal contraceptives in the hypothesized case where requested by a 14-year-old girl. With regard to instructions given to adolescents wanting to start using condoms, only a few doctors stressed the advantage of condoms for dual protection against pregnancy and STIs.

Significantly fewer medical barriers because of erroneous knowledge were observed ($P < 0.001$; Table 4). However, most doctors remained very reluctant to prescribe intra-uterine device (IUD) to adolescents who

Table 3 The attitudes of the medical doctors before and after the intervention

Attitudes	All Initial*, $n = 37$ (%)	Initial†, $n = 23$	After†, $n = 23$	P-value‡
III Towards accessibility SRH-care for adolescents				
3.1 Mentions at least one clinic related obstacle as reason for no-use of SRH-care	14 (37.8)	9	9	
3.2 Does not mention negative factors attributed to adolescents such as they do not care/do not have time/ignorance as reason for non-use of SRH care they do not care/do not have time/ignorance as reason for no-use of SRH care	30 (81.1)	20	20	
3.3 Mentions the importance of health care services in SRH programmes	13 (35.1)	8	15	
3.4 Mentions the importance of contraceptives in SRH programmes	21 (56.8)	13	22	
Mean score§ (SD)	6.0 (2.6)	5.4 (2.3)	7.2 (2.2)	0.046
IV Towards contraceptive use by adolescents				
4.1 Includes a modern contraceptive that can be controlled by girls amongst methods suitable for girls of 12–14 years	17 (46.0)	11	14	
4.2 Suggests more then one modern method for girls of 15–17 years	10 (27.0)	5	11	
4.3 Prescribes oral contraceptives if an adolescent of 14 years ask for that	20 (54.1)	15	16	
4.4 Indicates what a girl should do when forgetting to take the pill, as essential information when prescribing oral contraceptives.	9 (24.3)	9	8	
4.5 Explains that the condom has double usage, preventing STIs and pregnancy	7 (18.9)	5	7	
Mean score§ (SD)	3.4 (2.4)	3.9 (2.3)	4.9 (2.6)	0.108

* Number of doctors and percentage of total that responded correctly to the criteria.
† These columns reflect the absolute number of doctors who gave the correct answers in the interviews before and after the intervention.
‡ The P-value calculated from the Wilcoxon Signed Rank Test comparing the scores before and after the intervention for every subtheme.
§ Scores are the mean scores per subtheme and can range between 0 and 10 points.

had not yet given birth. The promotion of condoms for protection against STIs increased, but remained low.

Also significantly less medical barriers because of the doctors' socio-cultural assumptions and values were recorded ($P = 0.003$; Table 4). More doctors suggested to younger girls contraceptive methods which girls could themselves control; indicated unprotected intercourse as reason to prescribe emergency contraception and not only in cases of rape; and less frequently provided negative information on condoms.

All doctors were asked on which topics they would like to be better informed. In the initial interview 13 of 23 asked for information on contraception, 14 of 23 on STIs and two of 23 on topics related to communication (on sexuality, counselling, or dealing with violence). When asked in the second interview, the results on contraception and STIs were the same, but the number of doctors asking for training in relation to communication had increased to 11 of 23.

When asked about their experience with the programme, all but one were positive: 17 of 23 reported to have improved their knowledge, 15 of 23 reported to have improved their communication skills and 15 of 23 to have gained experience. None complained about the increased workload. Most had enjoyed this new experience, although 12 of 23 found it difficult to work with adolescents. Some explained that it was difficult to gain their confidence; that it was hard to identify their real reason for consulting; that some were very timid; and that adolescents lack a lot of information.

Discussion

The responses of the doctors clearly illustrate the obstacles that adolescents may face when they consult a doctor for sexual or reproductive health care. Erroneous knowledge, outdated practices and non-supportive attitudes appeared rather common. Significant improvements were observed among the participating doctors, especially with regard to doctors' knowledge and practices.

There was nearly full participation of available doctors. Only one doctor refused to participate in the second interview. The most important reason for doctors being not available was frequent doctors' rotation, not only in the public but also in the private and non-governmental sector, complicating the intervention as well as the survey. The interviews were taken in a relaxed and non-judgmental way and the doctors appeared to put effort in answering the questions. While a potential bias of this type of survey is that study participants report what they think the interviewer wants to hear, rather than what they actually do (Hardee *et al.* 2001), the strength of the design was that

Table 4 The medical barriers before and after the intervention

Medical barriers	All Initial*, $n = 37$ (%)	Initial†, $n = 23$	After†, $n = 23$	*P*-value‡
V Because of erroneous knowledge				
5.1 Knows the current contraceptive methods for adolescents Mesigyna® and Ovrette®	30 (81.1)	20	23	
5.2 Does not mention out-dated contra-indications for IUD use	11 (29.7)	6	9	
5.3 Knows girls can start Mesigyna® on day 1–5 of their menstrual cycle	15 (40.5)	10	16	
5.4 Knows that emergency contraception can be prescribed until 72 h after unprotected intercourse	17 (46.0)	14	19	
5.5 Explains that condoms protect against STIs.	10 (27.0)	6	12	
Mean score§ (SD)	5.4 (2.5)	4.9 (1.9)	6.9 (2.4)	<0.001
VI Because of socio-cultural assumptions and values				
6.1 Includes a modern contraceptive that can be controlled by girls amongst methods suitable for girls of 12–14 years	17 (46.0)	11	14	
6.2 Includes condoms in the methods preference in girls who already have a baby	2 (5.4)	2	6	
6.3 Prescribes oral contraceptives if an adolescent of 14 years ask for that.	20 (54.1)	15	16	
6.4 Considers unprotected intercourse an indication for emergency contraception	23 (62.2)	17	23	
6.5 Does not give exclusive practical and negative attributions when girls start using condoms	28 (75.7)	18	21	
Mean score§ (SD)	5.7 (2.2)	5.5 (1.9)	7.0 (1.8)	0.003

* Number of doctors and percentage of total who responded correctly to the criteria.
† These columns reflect the absolute number of doctors who gave the correct answers in the interviews before and after the intervention.
‡ The *P*-value calculated from the Wilcoxon Signed Rank Test comparing the scores before and after the intervention for every subtheme.
§ Scores are the mean scores per subtheme and can range between 0 and 10 points.

no feedback was given to the doctors. Their answers give the impression that they were not seeking to provide answers consistent with the objectives of the intervention. The degree of correspondence between their answers and their daily practice cannot be assessed by interviews alone, but it is unlikely that they perform better than their self-assessment (Hardee *et al.* 1995, 1998).

Although no control group was available, the observed changes are likely to be attributed to the voucher programme as no other interventions on SRH-care took place in these clinics in the same timeframe. Furthermore, all but one doctor confirmed the contribution the intervention had made in improving their knowledge of SRH-care and their experience and communication with adolescents.

The main objective of this survey was to evaluate whether participation in a voucher programme could improve doctors' knowledge, attitudes and practices. As a result, the representativeness of the sample for all Nicaraguan doctors was for this exploratory study of less importance. However, the fact that only few differences were observed between different groups of doctors (male-female, younger-older and public-private-NGO), suggests that similar results might be found among other doctors in Nicaragua. More research is needed to assess the potential of a competitive voucher programme in other populations of adolescents and doctors; to evaluate whether specific groups of doctors are more responsive to this kind of intervention; which elements of the programme are especially effective; and how the length of the implementation period influences the results.

The implications

The study illustrates the many opportunities that are missed by health care providers to reach out to adolescents who want to protect themselves against the risks of sexual intercourse. Provider attitudes persist as a major obstacle towards good quality SRH-care. In Nicaragua, doctors know that sexual activity among young teenagers is a reality, with 8% of 15-year-old girls and 45% of 19-year-old girls pregnant or already mothers (INEC 2002), and they are familiar with the high levels of unwanted pregnancies and forced sexual activity (Olsson *et al.* 2000; INEC 2002). The reluctance to prescribe the contraceptive pill to a 14-year-old girl, despite the risks of a pregnancy and the lack of alternative contraception, is more typically characteristic of a parent than a medical doctor. Also, the negative attitudes towards condom use that some doctors exhibit do not reflect

current public health insights that promote the use of condoms among sexually active teenagers for their dual protection (prevention of STIs and prevention of unwanted pregnancy).

It should be noted that these phenomena are not unique to Nicaragua (Pons 1999; Hardee *et al.* 2001; Langer 2002). The results underscore the need to develop and evaluate effective approaches to improve the quality of the care delivered by the doctors. Strengthening the demand side by supporting adolescents to claim their rights is very important but might not be enough.

Individual doctors cannot be blamed. During their training in medical school, SRH-care is scarcely addressed, communication training is not given, neither are medical ethics and attitudes discussed. Most doctors participated enthusiastically in the voucher programme and training sessions and attempted to provide this new group of clients with high quality care. The fact that payment was linked to the number of adolescents a doctor succeeded in attracting to her/his clinic may have been an important incentive. An interesting result of the programme was that doctors discovered their own deficiencies in communicating with adolescents. Improving client-provider interactions shows great promise in increasing positive outcomes in terms of clients' satisfaction, increased knowledge, and more effective and longer use of contraceptives (RamaRao & Mohanam 2003). Consulting with adolescents in relation to SRH is not easy, as has been concluded in many places in the world (MacFarlane & McPherson 1995; Hassan & Creatsas 2000). More substantial changes in how the participants deal with adolescents might be achieved by intensification of the training in communication and extension of the intervention period.

The interviews with doctors proved an effective instrument to identify problems and assess advances in knowledge, attitudes and practices related to adolescent friendly health care. Although the doctors showed improvement, particularly in the more practical aspects of their work, in terms of attitude change, the programme was less successful. The risk is that doctors remained unaware of erroneous understandings and of how their attitudes make their professional behaviour less effective. Personalized feedback has proven to be an important strategy in motivating doctors to change (Wensing & Grol 1994; Hays *et al.* 2002; Lande 2002; Rudy *et al.* 2003) and procedures should be developed to provide feedback to doctors. Small group interactive education with active participation is another strategy that showed positive effects (Grol & Grimshaw 2003) and could be used to strengthen programmes' impact.

In conclusion, this study reveals that serious deficiencies exist in the knowledge, attitudes and practices of doctors with regard to the quality of SRH-care provided to adolescents; that doctors were willing to improve; that a competitive voucher programme with technical support for the participating doctors can be a promising strategy to prompt change among practicing doctors; and that the voucher programme can be developed further to increase its' impact. The success of the intervention could be explained by the combination of training, support and experience with adolescents, as well as financial incentives.

These results are of special interest in view of the key role that doctors can play in decreasing the vulnerability of youth to HIV infection through correct treatment of STIs, and in reducing the risks of unwanted teenage pregnancies by providing ready access to reliable contraceptives.

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L'application d'un programmme d'aide complet par distribution de bons peut-elle favoriser le changement des connaissances, attitudes et pratiques médicales dans les soins de santé de reproduction chez les adolescents? Etude de cas en Amerique Latine

OBJECTIFS Evaluer si la participation à un programme de bons d'aide concu pour améliorer l'accés aux et la qualité des soins de santé de reproduction pour les adolescents favorisait le changement des connaissance, attitudes et pratiques des médecins.
METHODES Le programme d'aide a procuré l'accès gratuit aux soins de santé de reproduction pour les adolescents, un protocol de traitement et un support financier pour chaque adolescent servido. Pour l'évaluation de l'impacte chez les médecins, presque tous les médecins ($n = 37$) ont été interviewés avant l'intervention et 23 d'entre eux ont été interviewés après l'intervention. Les réponses obtenues ont été groupées en sous-thèmes et les scores ont été comparés en utilisant des méthodes paramétriques.
RESULATS Les premiers interviews ont revelé des déficiences dans les connnaissances, attitudes et pratiques des médecins pour ce qui est des soins de santé de reproduction chez les adolescents. Le sexe et l'âge des medecins n'étaient pas associés avec les scores initiaux. La comparaison des scores avant et apres l'intervention a revelè une augmentation significative de la connaissance des médecins sur la contraception ($P = 0{,}003$) et les infections sexuellement transmissibles ($P < 0{,}001$), les barrières à la contraception ont significativement diminué ($P < 0{,}001$ et $P < 0{,}003$), des changements d'attitude ont été observés ($P = 0{,}0046$ et $P = 0{,}11$). Les médecins se sont rendu compte de la nécessité d'ameliorer leur abilités de communication et étaient positifs vis à vis du programme en général.
CONCLUSIONS Cette étude confirme l'existence de barrières liées aux praticiens, auxquelles les adolescents du Nicaragua peuvent être confrontés et rappelle l'importance de la focalisation sur la qualité des soins et le renforcement de la formation des médecins. La participation dans le programme de bons d'aide a mené à une augmentation de la connaissance, une amélioration des pratiques et dans une moindre mesure, un changement des attitudes. Un programme de bons d'aide incluant un support technique pour les médecins participant peut être une stratégie prometteuse pour favoriser le changement

mots clés adolescents, Nicaragua, qualité des soins, soins de sante de reproduction, connaissance, attitudes et pratiques médicales, programme d'aide par distribution de bons

Puede un programa de bonas competitivo inducir cambios enel conocimiento; actitudes y prácticas de los doctors relacianados a los servicios de Salud Sexual y Reproductiva para Adolescentes? Un estudio de casos en América Latina

OBJETIVOS Evaluar si la participación en un programa competitivo de bonus (*voucher program*) diseñado para mejorar el acceso y la calidad del acceso de adolescentes a la salud sexual y reproductiva (SSR), inducjo cambios en los conocimientos, actitudes y prácticas de los médicos.
MÉTODOS El programa de bonus provee acceso gratuito a los adolescentes a la SSR. Los médicos recibieron entrenamiento y formación sobre cómo tratar con adolescentes, un protocolo de tratamiento e incentivos financieros por cada adolescente atendido. Con el fin de evaluar el impacto de la intervención sobre los médicos, prácticamente todos los participantes ($N = 37$) fueron entrevistados antes de la intervención mientras que 23 de ellos fueron entrevistados tras ella. Las respuestas fueron agrupadas bajo sub-temas, y las puntuaciones comparadas utilizando métodos no paramétricos.
RESULTADOS Las entrevistas iniciales mostraron deficiencias en los conocimientos de los médicos, en actitudes y prácticas relacionadas con la SSR de los adolescentes. Ni la edad ni el género de los médicos estaban asociados con el puntaje inicial. La comparación de los puntajes previos y posteriores a la intervención reveló un aumento significativo en los conocimientos de los médicos acerca de métodos anticonceptivos ($P = 0.003$) e infecciones de transmisión sexual ($P < 0.001$); los obstáculos frente al uso de anticonceptivos disminuyeron($P < 0.001$ & $P = 0.003$); y se observaron algunos cambios de actitud($0 = 0.046$ & $P = 0.11$). Los médicos se tornaron más conscientes sobre la necesidad de mejorar sus habilidades de comunicación y se mostraban optimistas con el programa.
CONCLUSIONES Este estudio confirmó la presencia de obstáculos que a nivel de proveedores pueden encontrar los adolescentes en Nicaragua, y apoya la importancia de enfocarse en la calidad del servicio y el fortalecimiento del entrenamiento del médico. La participación en el programa de bonus resultó en un aumento del conocimiento, unas prácticas mejoradas y en menor medida, cambios en la actitud. Un programa de bonus competitivo, con el apoyo técnico para los médicos participantes, puede ser una estrategia prometedora para inducir cambio.

palabras clave adolescentes, Nicaragua, calidad del servicio, salud reproductiva, conocimiento actitudes y prácticas de los médicos, programa de cupón