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An observational study to test the acceptability and feasibility of using medical and nursing students to instruct clients in DMPA-SC self-injection at the community level in Kinshasa☆

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ABSTRACT

Objectives: Given the promise of DMPA-SC to increase community-level access to modern contraception in developing countries, we conducted an observational study to assess the acceptability and feasibility of DMPA-SC self-injection among women in Kinshasa, Democratic Republic of the Congo, and of medical/nursing (M/N) students as instructors for self-injection.

Study design: Women who selected DMPA-SC at a community outreach event adjacent to a health center were interviewed upon acceptance (baseline) and then 3, 6 and 12 months later.

Results: Of 850 clients selecting DMPA-SC at baseline, 640 (75.3%) opted for self-injection over being injected by the M/N students for reasons of convenience and personal agency. Among these 640 self-injectors, 47.5% were anxious at baseline (for fear of needles or injecting incorrectly). Over 80% reported feeling very ready after training, confident that they knew how to self-inject and confident that they would remember the next injection date. By 3 months, 97% described it as easy. Half (54%) experienced side effects, mainly menstrual irregularities, the main reason for discontinuation. At 6-month follow-up, self-injectors cited effectiveness and ease of use as positive elements, though one quarter reported side effects. Their impressions of M/N students as instructors were highly positive.

Conclusions: Where DMPA-SC was free and easily accessible, the majority of women interested in DMPA-SC opted to learn self-injection. The M/N students performed well in instructing women to self-inject. Clients were highly satisfied with the services received, yet many did not recognize their student status, possibly because outreach occurred near a health facility. Once told, clients remained very favorable, suggesting strong motivation to receive their preferred contraceptive free, whoever the provider.

Implication statement: This study provides additional evidence on the acceptability and the feasibility of the self-injection of DMPA-SC by users from a resource-limited setting.

1. Introduction

The Democratic Republic of the Congo (DRC) has among the highest total fertility rates in the world (6.6 children) and a very low modern contraceptive prevalence rate (mCPR of 7.8% among women married or in union as of 2013–14) [1]. Recent research underscores numerous cultural, social and financial barriers to modern contraceptive use: fear of side effects (especially sterility), costs of the method, sociocultural norms (especially the dominant position of the male in family decision making), pressure from family members to avoid modern contraception and lack of information/misinformation [2].

Although societal norms reinforce large families, mCPR has increased in the past 5 years in the capital city of Kinshasa, from 18.5% in 2013 to 26.7% in 2017 [3]. As of 2017, injectable contraceptives represented 19.5% of modern method use among women in union [3]. In recent years, the DRC government has shown strong support for increasing mCPR [4], consistent with the National Multisectoral Plan for Family Planning: 2014–2020 [5]. This study tested an innovative strategy for increasing contraceptive access, which, if successful, could be scaled up to further contribute to the national effort of increasing mCPR.

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DMPA-SC emerged in 2011 as a promising new option that could increase access to contraception, especially at the community level in low-income countries [6]. The product is a subcutaneous formulation of the intramuscular injectable contraceptive depot medroxyprogesterone acetate (DMPA-IM), available in the prefilled Uniject™ injection system [7]. Because it is effective, reversible and discrete, DMPA-SC has great potential to increase contraceptive use worldwide [8]. Further benefits include usability while breastfeeding, ease of administration and extremely low levels of unintended pregnancies [9]. Given its ease of administration, DMPA-SC lends itself to task-shifting to lower-level health care workers [7,10] and to self-injection, which has yielded positive user experiences in seven countries where tested [9,11–13] and increased continuation among users [14].

In the DRC, only physicians and nurses give injections. A 2015 pilot study in Kinshasa used medical and nursing (M/N) students to deliver DMPA-SC and other methods at the community level. It showed that women were highly satisfied with the method and service received from these providers [15,16]. Local Ministry of Health (MOH) officials encouraged further testing of innovative strategies. The objectives of this study were to assess the feasibility of training M/N students to instruct women in the community to self-inject DMPA-SC; the willingness of clients to self-inject over receiving DMPA-SC from a provider; and user satisfaction with DMPA-SC as a method, self-injection as a procedure and counseling/instruction from the M/N students.

2. Materials and methods

2.1. Intervention

We carried out the study in three of the 35 health zones in Kinshasa: Kintambo (urban), Lingwala (urban) and Nsele (rural). The research team partnered with a local NGO, *Action en Santé et Dévéloppement* (ASD), which has extensive experience in family planning training, to oversee the implementation of the intervention. Specifically, ASD arranged for participation of one medical and five nursing schools, including supervisors and students from the 2015 pilot; obtained relevant health zone authorization; developed training curriculum for educating/coaching women to self-inject; and coordinated free family planning "campaign days" in the community with health zone personnel. The students received a vest with a family planning logo and knapsack containing contraceptives, supplies (foam cushion to practice self-injection, sterile gloves, lidocaine, alcohol) and data collection forms.

On campaign days previously announced to the community, 10–15 students arrived at a location adjacent to a health center and provided counseling and services (pills, condoms, CycleBeads or DMPA-SC) onsite to eligible clients. The students referred women to fixed facilities for methods requiring a trained family planning provider for initiation (e.g., IUD and implant). At baseline, women interested in DMPA-SC were encouraged to try self-injection, but they could instead choose the provider-administered injection.

Women opting for self-injection at baseline were invited to practice injection on a *mousse* (a thick piece of foam mimicking skin and approved as a mannequin by the DRC Ministry of Health); they then self-injected as the M/N student supervised. Students assessed competency to self-inject (on their own body) based on a checklist of 23 items that included Uniject preparation, skin disinfection, DMPA-SC injection and waste disposal, among others. Clients had to correctly perform 80% (> 18) of these items to be declared competent by the M/N students.

2.2. Data collection

Data collection for this research consisted of (a) surveys conducted by trained interviewers at baseline and follow-up at 3, 6 and 12 months among DMPA-SC clients; (b) a survey among the M/N students about their experience as providers; and (c) in-depth interviews with MOH and health zone personnel. This analysis is limited to the acceptor surveys (baseline and follow-ups). Interviewers entered data on Android smartphones that have been programmed with the Open Data Kit application; data were immediately transferred to a server, which the research team regularly monitored.

2.2.1. Baseline

2.2.1.1. Initial acceptor survey (Nov. 2016–Jan. 2017). The intervention and data collection took place simultaneously in the three different health zones. Female interviewers experienced in contraceptive surveys received refresher training on the questionnaire content and survey procedures; they were present on campaign days. After a woman accepted DMPA-SC — either via self-injection or injected by the student — she was invited to participate in the baseline study. Clients who accepted the interview then moved from the student to the interviewer, who obtained informed consent. We aimed to enroll all DMPA-SC acceptors. However, because some acceptors were unable to wait while interviewers completed other interviews, we reverted to a convenience sample of clients available for the interview after receiving DMPA-SC. At baseline, interviewers obtained contact information for all participants willing to participate in follow-up surveys.

On all rounds of data collection, the wording on questions regarding the client's experience included four categories that the interviewer read: "very ___," "somewhat___," "not very ____" and "not at all" (anxious, satisfied, etc.).

2.2.1.2. Three-month follow-up (Feb. 2017–May. 2017). Community agents working for the health zone publicized a second round of campaign days, at which all DMPA-SC acceptors could receive a second dose. For clients who failed to return for the 3-month follow-up on campaign days, interviewers attempted to locate them in their homes or by phone. Because the research focused on DMPA-SC self-injection, only clients judged competent to self-inject by the 3-month follow-up were retained in the sample for the 6- and 12-month follow-up. At 3 months, these clients received three doses of DMPA-SC to cover home self-injection at 6, 9 and 12 months.

2.2.1.3. Follow-up at 6 months (May–Jul. 2017) and 12 months (Nov, 2017–Jan. 2018). After the first two rounds, there were no further campaign days. The research team located self-injectors (1) by phone, to establish a time and place for the interview, or (2) in their homes, via the community extension worker. Fig. 1 presents the number of cases retained at each round and the reasons for attrition. Over different rounds, some questions were dropped and new ones added to track self-injectors' experience over time.

2.3. Analysis

The researchers used Stata (version 13) to complete a descriptive analysis of the data.

To assess a possible selection bias resulting from attrition, we treated each survey (baseline, 3-month, 6-month and 12-month) as independent from each other; then, we conducted bivariate analyses, χ^2 statistics for categorical variables and analysis of variance (ANOVA) for continuous variables to compare the baseline sample to each follow-up sample on sociodemographic characteristics. We assessed statistical differences at an alpha level of .05.

Although this approach might not be best suited for longitudinal designs and could potentially lead to a lower likelihood to find significant differences, it was the best available approach given that we were unable to track participants as a unique longitudinal sample.

This research received human subjects approval from Tulane University (#911338-7) and the Kinshasa School of Public Health (#ESP-CE/071/2016). All the participants provided written consent before their inclusion in this research.