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Assessing and Mapping the Availability of the Female Condom in the Philadelphia Metropolitan Area

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Abstract

This study assessed and mapped the availability of the female condom in relation to the male condom and HIV prevalence in the Philadelphia metropolitan area, which has a high density of HIV. One percent of the 1228 service providers contacted sold/provided the female condom and 77% sold/provided the male condom. The lack of availability of the female condom suggests this product will have no public health impact on reducing HIV and that interventions that promote use of the female condom are not sustainable in this high-risk area. Our findings may help policy makers increase female condom availability in this area.

Keywords

condom; mapping; geographic information systems; HIV; availability

Introduction

In order to improve the public health impact of HIV prevention interventions, efforts should be made to ensure that interventions are sustainable over time [1]. Intervention sustainability involves many things, including whether intervention recipients will be able to obtain recommended prevention resources (e.g., condoms) [2] after their participation in an intervention trial ends. Interventions that are not sustainable may both fail to have a public health impact and result in poor relationships between programs and communities [3].

The female condom is promoted in several interventions aimed at preventing sexually transmitted infections/Human Immunodeficiency Virus (STI's/HIV) [4]. However, poor availability of this product has been noted [5] and suggested to adversely affect long-term female condom use [6]. These reports raise questions about the sustainability of prevention programs that promote the female condom. Additional studies are needed that assess the availability of the female condom among a variety of service providers since the hours of operation of health care facilities, where condoms may be provided for free, may not meet the needs of consumers. Also, consumers access condoms from a range of service providers including places where they are obtained for purchase (e.g., convenience stores) [7].

Since there have been calls for comparable availability of the female and male condoms [5], studies assessing the availability of the female condom in comparison to the male condom could help determine disparities in accessibility to these different HIV prevention strategies. Finally, there have been calls for the use of geographic information systems (GIS) to assist in understanding the availability of HIV services in high-risk areas and to assist policy makers with issues related to HIV/AIDS [8, 9]. However, there are still relatively few studies using mapping to address issues related to HIV/AIDS [10] and we are unaware of any studies using GIS to map the availability of the female and male condom in relation to prevalence of individuals living with HIV/AIDS. This study aimed to 1) assess the availability of the female and male condoms and 2) use GIS to map the availability of the female and male condoms in relation to the prevalence of individuals living with HIV/AIDS within the Philadelphia metropolitan area.

Methods

Information for service providers that sell/provide contraception (e.g., pharmacies, convenience stores, and gas stations) in Philadelphia, Pennsylvania and Camden County, New Jersey was obtained from InfoGroup, a marketing service and analytics provider. Service providers in this area were selected because of the high density of HIV in the Philadelphia metropolitan area. InfoGroup provided information for 2142 service providers. An initial review of the 2142 service providers obtained from InfoGroup revealed that some health care facilities were not included in the list of service providers. Websites with information about health care facilities (e.g., government health centers or Planned Parenthood) were reviewed and twenty-four service providers were added bringing the number of service providers to 2166. Of the 2166 service providers, 365 (16.9%) were removed because they were service providers that would not sell or provide contraception (e.g. Bed, Bath & Beyond; BodyWorks, Marshalls, Ross, etc.) and/or 61 (2.8%) were found to have duplicate numbers. The remaining 1740 of the 2166 service providers (80.3%) were contacted and asked about whether they sold/provided the female and/or male condom.

A variable was created to distinguish health care facilities from other service providers (e.g., pharmacies, convenience stores, and gas stations). The twenty-four service providers that were added to the data obtained from InfoGroup were all classified as health care facilities along with service providers that appeared to provide health services based upon their descriptions provided by InfoGroup (e.g., abortion service providers, health and welfare agencies, health services, and clinics). Descriptive statistics were used to describe the data. Chi-square analyses were used to examine whether the service providers that were reached differed from those that were not reached by venue type or location.

Data about the prevalence of HIV by zip codes in Philadelphia and Camden County was obtained from the respective Departments of Health. The HIV prevalence data from Camden County, NJ was from 2014 and the HIV prevalence data from Philadelphia was from 2013. GIS was used to map the availability of the female and/or male condoms in relation to the prevalence of individuals diagnosed with HIV in these areas.

Results

Information was unobtainable from 512 (29.4%) of the 1740 service providers contacted. The most common reason for not being able to obtain information from these 512 service providers was due to 272 (53.1%) invalid phone numbers or 233 (45.5%) service providers not answering the phone after three attempts were made during regular business hours (i.e., 9 a.m. to 5 p.m.). Of the 512 service providers that were unable to be reached, the majority were convenience stores, gas stations, and pharmacies. The service providers that researchers were unable to reach were not similarly distributed to the sites that were reached. More convenience stores (25.8%) were unable to be reached than those reached [21.1%; Chi-square (df=1)= 4.56, $p<.05$]. Also, more gas stations were unable to be reached (21.7%) than reached [15.4%; Chi-square (df=1)=10.12, $p<.01$] and more health care facilities were unable to be reached (53.1%) than reached [46.9%; Chi-square (df=1)=47.66, $p<.01$]. In contrast, more pharmacies (40%) were able to be reached than not reached [13.5%, Chi-square (df=1)= 116.33, $p<.01$]. There were no differences in the service providers that were reached or not by location [i.e., Philadelphia versus Camden County: Chi-square (df=1)=0.26, $p>.05$].

Of the 1228 service providers contacted, the majority were pharmacies (40.4%), convenience stores (21.3%), or service stations (15.5%). Only 6.1% were health care facilities. Of these service providers, 278 (22.6%) did not sell/provide either the male or female condom, 950 (77.3%) sold/provided the male condom and 16 (1.3%) sold/provided the female condom. Fifteen of the services that sold/provided the female condom were health care facilities and one was a pharmacy.

The HIV prevalence in Philadelphia ranged from 192 to 3968 per 100,000 people. The HIV prevalence in Camden County ranged from 131 to 1626 per 100,000 people. Figure 1 shows the availability of the male and female condom in relation to HIV prevalence in Philadelphia and Camden County, New Jersey. Of the 12 providers of the female condom in Philadelphia, 7 were in the most densely populated central areas of the city where HIV prevalence is high (i.e., at least 1000–2000 per 100,000 people). In other areas of Philadelphia that had the highest prevalence of HIV (i.e., over 2000 per 100,000), there were no service providers distributing female condoms. Of the 4 providers of the female condom in Camden County, NJ; two were in areas in the City of Camden with higher HIV prevalence (i.e., at least 600–1000 per 100,000) while the other two were in more suburban areas where prevalence was low (i.e., less than 300 per 100,000). Another area in Camden County that had high prevalence of HIV (i.e., greater than 1000 per 100,000) did not have services that distributed the female condom.

Discussion

This study documents the lack of availability of the female condom in the Philadelphia metropolitan area, which has a high prevalence of HIV. While others have called for the male and female condoms to be equally available [5], our findings suggest a great disparity between the provision of male and female condoms with 77% percent of the service providers contacted reporting that they sold/provided the male condom compared to 1%

reporting that they sold/provided the female condom. Our findings suggest that individuals in the Philadelphia metropolitan area are unlikely to be able to obtain the female condom and therefore the female condom is unlikely to have a significant public health impact on reducing HIV in this high-risk area. Study findings call into question whether it makes sense to promote use of this product if it is unavailable for many individuals who would want to use it and whether HIV prevention interventions that promote the female condom are sustainable. Although it is possible to obtain condoms through online purchases, this is an unlikely means of condom purchase for many individuals, particularly those who have low incomes and may not have the technology to make those purchases. If this product is going to be considered as a serious option for reducing transmission of HIV, its availability must be improved. Also, even if the female condom were more widely available, access may be limited because of the significantly higher price of the female versus male condom.

This study has limitations that need to be considered. First, some service providers that sell/provide condoms may not have been included in this data analysis. The list of service providers obtained from InfoGroup did not include every relevant service provider in this region. Most notably, the original list of service providers obtained from InfoGroup did not include a number of health care facilities (e.g., health centers and Planned Parenthood facilities). While health care facilities were added to the data obtained from InfoGroup, we were unable to identify every relevant service provider that was not included in the data obtained from InfoGroup. Second, a substantial number of service providers (i.e., 512 of 1740/29%) could not be reached to find out if they sold/provided the female or male condom and the types of service providers that could not be reached were not equally distributed to the service providers reached. Finally, our data prohibited us from being able to distinguish between health care facilities, where condoms may be provided for free, versus service providers that sell condoms and we did not obtain data about the quantities of condoms provided in these settings. Future studies are needed that map the availability of where condoms may be obtained for purchase versus for free, and clarify the quantity of female condoms that health care facilities are able to provide as this may be a primary source of condoms for low-income individuals. It is unclear whether these service sites are able to provide sustainable quantities of female condoms to those who may rely on them to do so. Also, it would be helpful to have studies that assess women's patterns of condom acquisition since we found only one article on this subject and it was only for men in the United States [7].

Despite these limitations, this study has several strengths. This study responds to calls for research using mapping to address issues related to HIV/AIDS including available services [8, 9]. While mapping has been used to assess condom availability in Malawi [11], to our knowledge this is the first study to map female condom availability in the United States. Our findings underscore the need to increase availability of the female condom in order to allow individuals, particularly women, the option of using this product to reduce their risk for contracting HIV. Increased availability of the female condom along with improved education, promotion, access, and broader uptake of this product could help achieve a greater public health impact on reducing HIV/STI's[12]. Our maps identify specific geographic areas where policy planners can intervene to increase the availability of the female condom among service providers in these high-risk areas.

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Figure 1.
Condom Availability in Philadelphia, Pennsylvania (top) and Camden County, New Jersey
(bottom) in Relation to HIV Prevalence