Condom Deserts in Eastern Jackson County

Introduction

Cases of sexually transmitted diseases (STD) have continued to rise nationally. In 2017 the Centers for Disease Control and Prevention (CDC) reported that approximately 2.3 million cases of chlamydia, gonorrhea, and syphilis were diagnosed. When comparing rates from 2013, gonorrhea diagnoses increase by 67%, and primary and secondary syphilis diagnoses increased by 76%. Chlamydia remained the most common condition reported with more than 1.7 million cases diagnosed in 2017. Using latex condoms correctly remains one of the best ways to lessen the risk of infection; however, condom use remains low. According to a study by the CDC, from 2011 to 2015 only 23.8% of women and 33.7% of men reported using a condom at their last sexual intercourse from the past year. Additional studies find that many factors such as cost, availability, and location in stores can serve as a potential barriers to condom use. These factors many affect the differences observed throughout neighborhoods, therefore, creating geographical variations in STD rates. Collecting information on condom availability can identify areas with low access. A previous study labeled areas of low access as "Condom Deserts".

Methods

Following methods from a previous study on geographic variation of condoms, businesses were identify using Google and the Yellow Pages. The geography of study consisted of ZIP Codes under the Jackson County Health Department's jurisdiction. At the time of this study, Eastern Jackson County (EJC) included all areas of Jackson County, Missouri with the exception of the cities of Independence and Kansas City. Businesses located with EJC and 1 mile of EJC's boundary lines were included in the analysis. Businesses were then categorized as either a convenience vendor which included gas stations and convenience stores or other type of vendor which included liquor stores, bars, pharmacies, beauty salons, barbershops, grocery stores, and retail stores. Businesses were called and asked to answer questions on the availability of condoms, the location being sold in stores, the variety of options being sold, and the availability of larger packs. Results from the phone interviews were documented for analysis. ZIP Codes with rates of STDs higher than the average rate of Missouri were categorized as a high STD and low STD ZIP Codes using chi-square.

KEY POINTS:

• Of the 407 businesses who participated in this study, 142 businesses (34.9%) self-identified as selling condoms on site.

• The odds of condoms being easily accessible in stores were 3.34 times higher if they were located in low STD ZIP Codes then if located in high STD ZIP Codes. Easy accessibility is defined as condoms being located on a shelf or display where customers did not have to seek employee assistance to access them.

• The odds of condoms being sold in packs of 3 or greater were 30.0 times lower in convenience store locations than all other locations surveyed. Although larger packs of condoms were not as likely to be found, the overall odds of condoms being available were 23.1 times higher in convenience store locations than other locations.

Figure 1: Condom Locations with Population Density by Census Tract
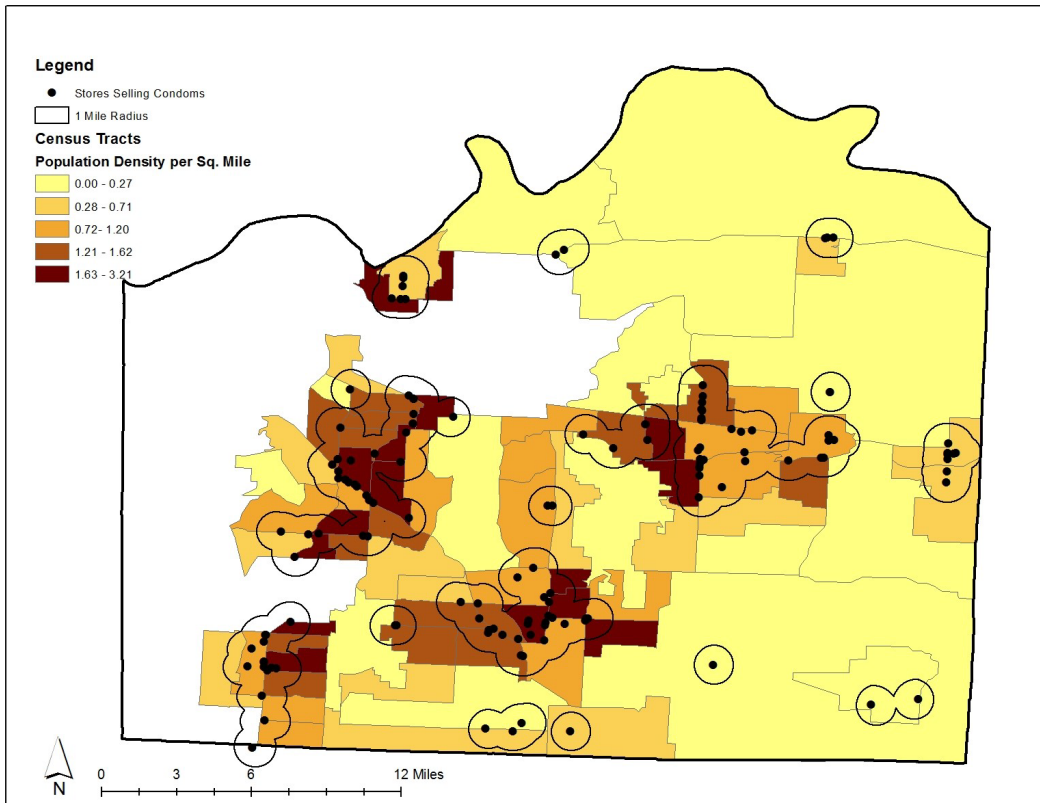
As illustrated in Figure 1, the dots indicate business locations where condoms are currently being sold. The circles around the dots are a 1 mile buffer, which has been shown to be a reasonable distance for someone to travel. More populated communities such as Blue Springs, Lee's Summit, Raytown, and Grandview have more businesses with access to condoms, while rural communities and unincorporated Jackson County have less easy access to businesses who sell condoms.

Figure 2: Condom Locations with STD Rates
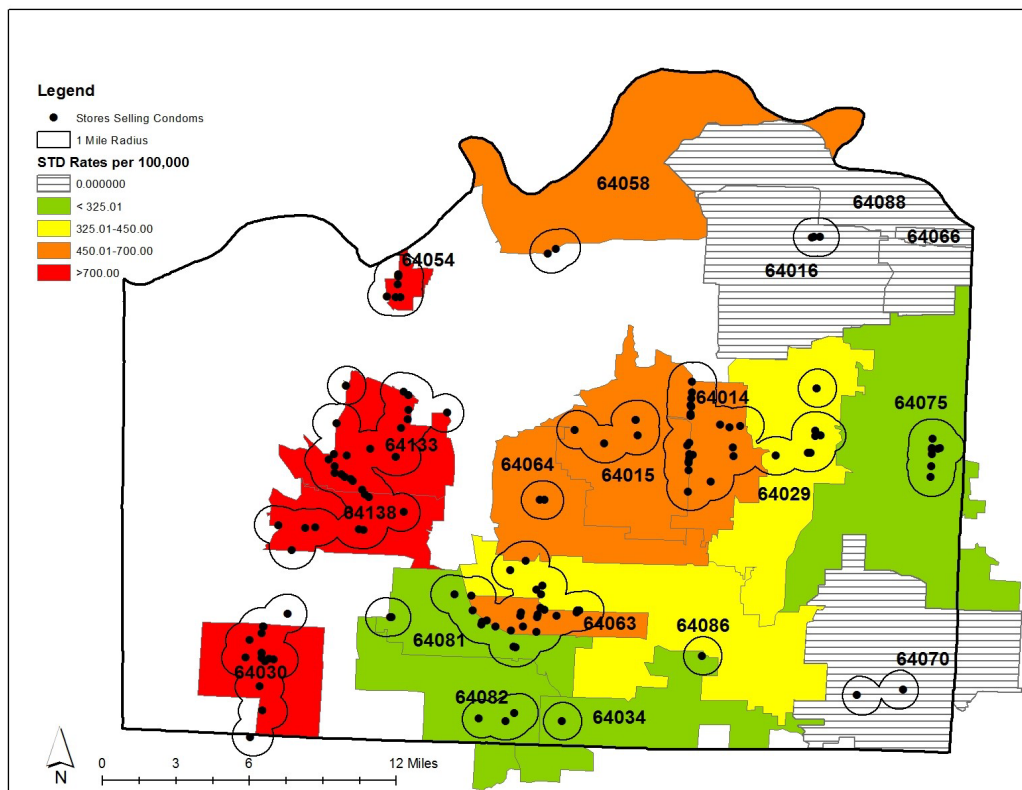
As illustrated in Figure 2, businesses who sell condoms with a 1 mile buffer are overlaid onto a map of STD rates by ZIP Code. ZIP Code 64030 has the highest STD rate in Eastern Jackson County at 1,233.00 per 100,000 people. While there are opportunities to improve access, there was not a significant association between ZIP Codes with high or low STD rates and whether or not condoms are sold.

Table 1: Locations Contacted by Business Type

Business Type	Businesses Contacted	Businesses Participated
Convenience	115	82 (71.3%)
Grocery	39	27 (69.2%)
Liquor	93	71 (76.3%)
Pharmacy	15	10 (66.7%)
Retail	72	62 (86.1%)
Service	203	155 (76.3%)
TOTAL	537	407 (75.8%)

Table 2: Comparisons of Characteristics of STD Rates

Characteristic	High STD Rates	Other STD Rates	p-value
Sell Condoms			
Yes	54 (41.2%)	88 (31.9%)	0.065
No	77 (58.8%)	188 (68.1%)	
Pack Size Greater than 3			
Yes	13 (24.1%)	30 (34.5%)	0.192
No	41 (42.5%)	57 (65.5%)	
Condom Located in Store			
Behind Counter	31 (57.4%)	25 (28.7%)	0.001
Out in Open	23 (42.6%)	62 (71.3%)	
Number of Condom Varieties			
Low (1.4)	31 (57.4%)	46 (52.9%)	0.600
High (5+)	23 (42.6%)	41 (47.1%)	

Table 3: Comparisons of Characteristics by Business Type

Characteristic	Convenience Store	Other Type	p-value
Sell Condoms			
Yes	71 (86.6%)	71 (21.8%)	<0.001
No	11 (13.4%)	254 (78.2%)	
Pack Size Greater than 3			
Yes	3 (4.2%)	40 (57.1%)	<0.001
No	68 (95.8%)	30 (42.9%)	
Condom Located in Store			
Behind Counter	43 (60.6%)	42 (60.0%)	0.946
Out in Open	28 (39.4%)	28 (40.0%)	
Number of Condom Varieties			
Low (1.4)	40 (56.3%)	37 (52.9%)	0.678
High (5+)	31 (43.7%)	33 (47.1%)	

Results:

Of the participating businesses, 34.8% offered condoms. While most of the suburban and more population areas had access to at least one condom selling vendor, many rural communities had access to no vendor within a mile radius. Most condom-selling locations were located in census tracts with a higher population (Figure1). When comparing STD rates to condom-selling locations, the areas in EJC with the highest STD rates do appear to have locations that sell condoms; however, gaps do appear for those who do not live near major roadways as shown in Figure 2. When comparing characteristics, statistically significant differences were observed as shown in tables 2 and 3. There was a significant association between the type of store and whether or not condoms were sold. The odds of condoms being sold in convenience locations were 23.09 (95% CI = 2.29, 232.79) times higher than other locations. There was also a significant association between the type of store and whether or not packs of condoms were sold. The odds of packs being sold in other locations were 30.23 (95% CI = 8.67, 105.35) times higher than convenience locations. Lastly, there was a significant association between the level of STD rates and whether or not condoms were easily accessible in stores. The odds of condoms being easily accessible in stores were 3.34 (95% CI = 2.58, 4.33) times higher if they were located in low STD ZIP Codes then if located in high STD ZIP Codes.

Conclusions:

The areas with high rates of STDs were less likely to have businesses that had condoms easily accessible. This indicates that individuals would most likely have to ask a worker to purchase condoms instead of discretely taking them from a shelf or counter. Having to ask an employee may discourage some to purchase condoms due to fear or embarrassment. In addition, if condoms are not easily visible within a location, patrons may not realize that condoms are available to be purchased. Convenience locations were most likely to sell condoms; however, condoms were sold individually instead of in more convenient packs. The number of condom sellers per ZIP Code in EJC varied from 1 to 24 locations with more rural areas having much less access. Future research should focus on other potential barriers within the high risk areas and on interventions to make condoms more easily accessible within condom-selling businesses. In addition, interventions should be implemented to allow for more access within condom deserts in EJC.

Limitations:

As with most observational studies, caution should be taken with results of the study. Due to limited staff and funding, in person follow ups could not be conducted on participating stores to ensure accurate information was collected over the phone. This leaves potential response bias which may have had an impact on the validity of the phone questionnaire. In addition, some ZIP Codes in EJC had low STD rates which resulted in the combining of syphilis, chlamydia, and gonorrhea into one STD rate for each Zip Code. Due to this, there is a possibility of double counting cases where one individual had multiple diagnoses. In addition, STD rates had to be treated as categorical data instead of continuous, limiting the options for analysis.

Works Cited:

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