



Invisible Offenders: A Study Estimating Online Sex Customers

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Abstract

This study estimates the population of active customers of online sex ads in 15 cities in the United States. Decoy online ads, advertising the sale of sexual services/prostitution, were placed online on two websites in fifteen U.S. cities twice, one week apart. The voicemails and texts responding to each ad were recorded and the callers' phone numbers stored. Callers were counted and using an ecology sampling design entitled capture-recapture, a model was created to estimate the active online sex ad customer population for those websites in each city. Using this model, an estimate was developed for the number of customers contacting online sex advertisements for each city. The ads received 677 contacts (voicemails and texts) and 451 phone numbers of online sex ad customers were collected. On average, within the fifteen markets explored, one out over every 20 males over the age of 18 in a metropolitan city area was soliciting online sex ads. The findings ranged from approximately one out of every 5 males (Houston, 21.4%) to less than one of 166 males (San Francisco, .6%). In Houston, this study found that there were an estimated 169,920 males who were soliciting online sex ads, while in Phoenix; there were an estimated 78,412 males who were soliciting online sex ads.

Introduction

Sex buyers have received increased attention from the media, legislators and activist groups as awareness has grown. Sex buyers of prostituted and sex trafficked persons are rarely punished for their actions and significantly contribute to the victimization of sex trafficking victims. This movement has produced an increased awareness of the role of the demand or the buyer of sex in sex trafficking and in some states has assisted in the implementation of more stringent penalties for customers, specifically those buying sex from minors. Other actions towards the penalty of sex buyers have burgeoned, including the public shaming of offenders through websites and billboards, but little is known about the deterrent effect of these interventions because the scope of the population of sex buyers is currently unknown; they are elusive, complex to research and in most cases hidden in plain sight in our communities. Because of these challenges, they continue to be enigmatic with very little known about how they buy sex, when they buy sex and where they buy and receive sex services.

Research on prostitution demand has well documented why men buy sex from girls and women (Monto, 2004; 2010; Shively, Kliorys, Wheeler, & Hunt, 2012) but little is known about the impact of interventions to deter prostitution customers from buying sex. Much of the gap in the literature is due to the lack of an available baseline number of buyers of sex to determine if that number was impacted by the intervention. Previous attempts at estimating the population of sex customers, also called 'Johns,' have been made through social surveys including the General Social Survey (as cited in Monto, 2010; Smith, Marsden, & Hunt, 1972-2010) with an estimate that 14% of men surveyed had previously bought sex and the National Health and Social Life Survey (as cited in Monto, 2010; Michael, Gagnon, Laumann & Kolata, 1994), which found that 16% of men had visited a prostitute in their lifetime. Unsupported media reports have estimated that between 16 and 80 percent of men pay for sex (Bennetts, 2011). None of these estimates are helpful in creating social

policy and law enforcement actions to systematically address, by city, the demand aspect of sex trafficking and prostitution in the United States.

The majority of information known about sex customers, particularly men buying sex from women, is based on what is collected from 'John Schools,' which are court ordered programs for sex buyers and are offered in 58 cities and counties in the U.S. (Monto, 2004; Monto & McRee, 2005; Shively et al, 2012). The 'John School' attendees are caught in a law enforcement action which are limited in scope and impact and are directly relative to the effort and priority place on the low level, non-violent crime by each city/county. Thus, they are unlikely to represent sex buying customers as a population. Wilcox, Christmann, Rogerson, and Birch (2009), in their review of 181 research studies, on prostitution demand found that there were significant methodological problems with most studies, major gaps in the research and weak or inconclusive findings on what impacts the demand for sex selling. Wilcox et al (2009) also stated that because buying sex in most cultures is stigmatized and out of sight, developing accurate and reliable estimates of the number of people who buy sex has been difficult. In the United States, there are currently no estimates of the population of sex buyers.

Customers of online sex ads have yet to receive research attention, as there are numerous challenges to detecting and studying them. Online sex ad customers are hidden offenders who are rarely exposed to the public except by episodic targeted enforcement by police (Sanders, 2008). Online sex customers experience a lower risk of being caught by police than street-level prostitution customers due to the insulation provided by the relative anonymity inherent in internet-based solicitation, or attempt to buy sex. These risk-mitigating factors include the fact that online sex customers remain out of (physical) sight of law enforcement while soliciting for sex, the arrangements are made by phone or email and the sex exchange is done in private in a hotel, brothel or private home while street-level prostitution customers make sex exchange deals and many times sex acts in public spaces where they are more likely to receive law enforcement attention.

The goal of this study was to develop new knowledge about customers of online sex ads; almost nothing is known about them. Traces of their behavior can be

found online on 'John Boards' where they review women they have bought sex from including rating her body, what she is willing to do (kissing, sex without a condom, specific sex acts, etc.) and how good their experience was (Monto & Mitrod, 2013). These reviewers do not represent the population of online sex ad customers and cannot be used to estimate the size of the customer population. The term customer herein refers to online sex ad customers.

Information about online sex ads is available regarding how many are posted each month on Backpage.com Adult Entertainment Services (Aimgroup.com) and research has been conducted on how many of the ads posted in 5 cities were for the sale of prostitution (Roe-Sepowitz et al, 2012). What is not known is how many responses there are to the ads placed online selling sexual services, thus how large is the online sex ad customer population in a metropolitan area. Knowing the number of online sex ad customers would greatly assist policy makers and law enforcement agencies in creating action plans to address the scope of the demand for online sex services.

Research questions:

1. What is the population estimate for each city of online sex ad customers?
2. What is the rate of demand (online sex ad customers) relative to the total exposed population (all male over 18 years old) in each metro city area?
3. Which of the cities have the highest rates of demand?

Method

Fifteen cities were included in this study with the goal of having a diversity of metropolitan areas in the United States. Cities on the east coast included Boston, New York City, Baltimore, and Atlantic City. Miami represented the southeastern U.S.. Chicago, Kansas City, Minneapolis, and Salt Lake City represented the Midwestern U.S. and Portland, San Francisco, San Diego, Phoenix, Las Vegas and Houston covered the west and southwestern U.S. In each of these cities there are multiple in-person and online methods of buying sex but we explored only the use of craigslist.com (Casual Encounters section) and backpage.com (adult entertainment section, escorts) by customers.

The law enforcement personnel in charge of vice enforcement in each city was contacted to notify them of the study and the decoy ad was sent to them so they would not respond to it if they were doing enforcement activities during the study period. Backpage.com charges \$7 (San Francisco) to \$17 (New York City) for sex sellers to post photos and text with a title line to advertise for sex customers to contact them through voicemail, text or email. Craigslist ads are free to place. The Arizona State University Institutional Review Board approved this study.

The online sex ad posted was designed with reference to three ads that had been posted previously by law enforcement for customer stings and contextual development assistance by the Lieutenant of a Vice Enforcement Unit in the 5th largest city in the United States (Phoenix, Arizona) and by a researcher with extensive experience analyzing online sex ads on Backpage.com. The ad was placed at 2pm (local time) on Fridays twice, one week apart and calls/texts were recorded including phone numbers and messages.

This study used a capture/recapture sampling technique, which has been used in ecology and population biology, as well as demography research. These studies estimate the density of a population of animal such as jaguars in Brazil (Soisalo & Cavalcanti, 2006) and tigers in India (Karanth et al, 2002), as well as estimates of a problem population such as drug users in London (Hickman et al, 2002), heroin users in Australia (Larson, Stevens, & Wardlaw, 1994), and type 2 diabetes in the United Kingdom (Ismail, Beeching, Gill & Bellis, 1999). This analysis estimates the size of a population by matching individuals from two random samples. This analysis technique has also been called list matching sampling. This study will estimate the total size of the online sex ad customer population from the exposed population, all males in the metro area over the age of 18 (American Fact Finder, 2011) that appear in multiple samples taken from the same population.

An example of this type of sampling is counting how many deer are in a wooded area at a given time. A spotter will be sent to the woods to photograph as many deer as they can during a 10-hour period. The photographs are examined to identify them by some unique feature and a list is created. A short time later, a spotter returns to the woods and photographs as many deer as they can in a 10-

hour period. Those photographs are compared with the photos from the first data collection and the overlap is counted as capture-recapture variables, which create the formula to determine the size of the deer population.

Both in this study of online sex ad customers and the example of deer in the woods, the overall population is not closed and to minimize issues of attrition and new recruits, we attempted to keep the time between collecting samples as short as possible. We placed our ads in the exact same place (craigslist. com, casual encounters section and backpage.com for each of the 15 cities in the escort section) one week apart (Friday at 2pm local time). We attempted to avoid issues of trap addiction or trap avoidance by placing the identical ad. Although their attempt to purchase sex from the first online sex ad was not completed, not having a call or text returned by an online sex ad placer is not uncommon (James Gallagher, personal communication) thus placing the second identical ad did not influence the potential customers to be more or less likely to attempt to purchase sex from the poster.

Analytics

These concepts can be expressed in the following formulas. We know n_1 (number of phone numbers first ad responses), n_2 (number of phone numbers in response to second ad) , and m (the number of phone numbers recaptured). In order to estimate the population we need to either directly estimate N (the total population of online sex ad responders) or q (the number of customers not captured on either list).

		In List B		Total
		Yes	No	
In List A	Yes	m	$n_1 - m$	n_{1+}
	No	$n_2 - m$	q	n_{2+}
Total		n_{+1}	n_{+2}	N

There are two ways to find N . First is to estimate N directly using a formula by Chapman (1951) for small samples:

$$\bar{N} = \frac{(n_1 + 1)(n_2 + 1)}{m + 1} - 1$$

with an associated standard error of

$$SE(\bar{N}) = \sqrt{\frac{(n_1 + 1)(n_2 + 1)(n_1 - m)(n_2 - m)}{(m + 1)^2(m + 2)}}$$

The 95% confidence interval in this case is simply

$$95\%CI(N) = \bar{N} \pm 1.96SE(\bar{N})$$

However, this can sometimes produce very large confidence intervals. Thus, we also employed a method introduced by Cormack (1992) that employed a Pearson chi-square algorithm that finds a smaller and larger estimate for q that satisfy a p -value of less than 0.05. Thus, two values of N are calculated with these values for q . If no recaptures were found, we were unable to calculate a confidence interval and

Another method to estimate q , and thus N is to fit a Poisson regression model

(Cormack, 1989) on a simple three row dataset

$$Y = \begin{matrix} m \\ n_1 - m \\ n_2 - m \end{matrix} \quad X = \begin{matrix} 1 & 1 & 1 \\ 1 & 0 & 1 \\ 0 & 1 & 1 \end{matrix}$$

where the model is

$$\exp(Y) = Xb$$

where the exponent of the intercept is the estimate value for q . We then use the standard error of this estimate as the standard error for N . For each city, we first tried the Poisson method, if that failed to produce a confidence interval or estimate, we used Chapman's method to estimate N and the chi-square method to estimate the confidence interval, if that method failed we then used Chapman's standard error to develop the confidence interval.

The exposed populations for this study are all of the males over the age of 18 years old in the metro-area of each city. These were determined using American Fact Finder and uses the 1-year estimate from the American Community Survey from the most recent year available, 2011. This is the basis by which we calculated

the percentage estimate of the male population in each city to be online sex ad customers. This exposed population is the denominator and calculated with the number of unique calls/texts for each ad (captured for 24 hours twice divided by number of re-captured phone numbers during second 24 hours) and the average number of ads posted on Backpage.com (escort section) in each city (counted for 24 hours twice). This model reports the number of active online sex ad customers on the first data collection date (mid-June 2013) and considers issues of attrition (customers no longer buying sex from online ad source) and new customers (who are entering the market to buy sex online in that city for the first time). These estimates are conservative with consideration of confidence intervals and standard error rates.

Study assumptions necessary to consider when interpreting the findings from this study are: 1) all men over the age of 18 in each city are potential customers for online sex ads posted on Backpage.com. 2) That ad placed on backpage.com was normative to all of the other ads posted on backpage.com and was not detected as a deceptive ad by potential customers. 3) That the callers (customers) called other sex ads posted on backpage.com during the 24 hours after our ads were posted. 4) That a significant percentage of the customers were from the local area. 5) That the ads were placed on two average Fridays in late spring 2013.

Participants

We received a total of 677 contacts from the backpage.com ads; either texts or calls, from online sex ad customers in the 15 cities in response to the two ads during the 7 days after the ads were placed. The majority (69.6%) of the contacts were made during the first 24 hours after the ad was posted ranging from 48% in San Francisco to 90% in New York City. The contacts were from 105 of area codes and ranged from one to nine calls/texts ($M = 1.5$). There were 677 total calls with 451 from unique phone numbers. Craigslist.com ads were taken down almost immediately by craigslist.com except in two instances. The first, an ad placed in the casual encounters section of craigslist.com in Phoenix was posted and remained

posted for seven days with 14 contacts (including ten texts) with one duplicate contact. The second ad placed 7-days later in the same market (Phoenix) was immediately removed. A second instance was when we placed an ad in the same section in the Las Vegas market and it was posted for 27 minutes. During that time we received 14 calls (including eight texts) with one duplicate contact. The second attempt to place the ad in Las Vegas was unsuccessful with craigslist.com not allowing the ad to be posted.

Please see Table 1 for details about the contacts stimulated by the backpage.com ads including unique callers, percentage of texts, and number of voice calls and percentage of contacts from the primary area code in each city's metro area.

Recaptured phone numbers, i.e. online sex ad customers who called in response to both ads, were found in six cities. One recaptured phone number was found in both Baltimore and Chicago, two were found in Salt Lake City and Atlantic City, and three were found in Portland and Phoenix.

Findings

An estimate was made for the number of online sex ad customers in each city as well as a percentage estimate of the male population (over the age of 18) who are customers of online sex ads. Please see Table 2 for customer population estimates and the average number of ads placed during each of the 24 hours after the decoy ad was placed. On average, one out over every 20 males over the age of 18 in each metropolitan city area was soliciting online sex ads. The findings ranged from one out of every 5 males (Houston, 21.4%) to less than one of 166 males (San Francisco, .6%). In Houston, this study found that there were an estimated 169,920 males who were soliciting online sex ads, while in Phoenix, there were 78,412 males who were soliciting online sex ads. In acknowledgement that some of the sex ad customers may not be from the city where the ad was placed, we conducted analytics of the area codes and differences between texts and voice calls. Area codes of the callers being from the metro area of the identified city was found to range between 54.7% (Portland) to 88.6% (Kansas City) except for Atlantic City which was an outlier at 17.9%. Some of

these calls may be from hotel phones. Please see table 3 for details about texts and voicemail messages.

Please see Table 3 for the order of cities studied by highest percentage of males in their metro-area that were found to be online sex ad customers. The city in our study with the highest percentage of the male population over age 18 identified as online sex ad customers was Houston with 21.4%. Houston also had the second highest number of online sex ads posted during the data collection period (48 hours), with Chicago having the highest number of online sex ads posted.

Discussion

An important strength of this study is that the method of data collection and analyses can easily be replicated and changes in the estimated population over time or pre-post of an intervention can be calculated. Limitations of this study include that we were only able to gather useable data from one website (backpage.com) in 15 metro areas and we did not make any contact with any of the customers so verification of their intent to solicit sex from the posted ad was not conducted. No major events occurred during the two dates the ads were posted but in Miami, a NBA Finals game was held the day before the second ad was placed.

A number of trends in the data were noted including:

- 1) Atlantic City callers were the least likely of all of the 15 cities to be from a local area code.
- 2) Kansas City callers, were all voicemail calls and had the highest rate of local area codes (88.6%).
- 3) Most of the total contacts were via voicemail except in Miami and Salt Lake City where contacts were primarily by text (61.5% and 76.5%).
- 4) Kansas City callers were the most persistent with 50% being repeat callers.

Conclusion

These findings are intended to set a baseline of the scale of online sex ad customers. Without some understanding of the size of this population, we cannot begin to develop interventions, whether policy or law enforcement, to address this criminal behavior. The intention of these findings are to inform law enforcement, advocacy

group and policy makers about the issue and breadth of the nearly invisible problem of online sex customers.

Table 1: Call type details and area code information.

City	Unique calls/texts	Total calls for ads including dups (7 days each ad, 2 ads)	Number of Texts	Number of Voicemails	% of calls within local area codes
Atlantic City	24	39	15 (38.5%)	24	17.9%
Baltimore	17	22	6 (27.3%)	16	59.1%
Boston	23	27	7 (25.9%)	20	55%
Chicago	20	31	9 (29%)	23	67.7%
Houston	19	31	10 (32.3%)	21	74.2%
Kansas City	35	70	0	70	88.6%
Las Vegas	26	33	17 (51.5%)	16	60.6%
Miami	26	39	24 (61.5%)	15	76.9%
Minneapolis	24	27	17 (63%)	10	85.2%
New York City	7	10	3 (30%)	7	70%
Phoenix	62	79	28 (36.7%)	51	79.7%
Portland	49	79	23 (29.1%)	58	54.7%
San Diego	20	33	16 (48.5%)	17	76%
San Francisco	18	24	10 (41.7%)	14	62.5%
Salt Lake City	48	68	52 (76.5%)	16	66.2%

Table 2: Population and Percentage Estimates of Online Sex Ad Customers.

City	% of Males in City who call sex ads (Confidence Intervals)	Estimated Sex Ad Customer Population	Average # of ads posted on Backpage.com in a 24 hr period (Friday 2pm)
Atlantic City	1.4% (0.5% - 3.2%)*	10,275	206
Baltimore	1.8% (1.0% - 2.1%)*	17,766	211.5
Boston	7.6% (4.8% - 10.3%)**	130,416	247
Chicago	2.4% (1.4% - 3.1%)**	83,478	518.5
Houston	21.4% (13.8% - 29%)**	169,920	472
Kansas City	14.5% (9.1% - 17.9%)**	106,624	98
Las Vegas	13.5% (9.1% - 19.9%)**	99,910	515
Miami	6.6% (4.2% - 8.9%)**	140,184	265.5
Minneapolis	4.9% (3.2% - 6.7%)**	60,120	167
New York City	3.9% (0% - 7.6%)	21,514	341.5
Phoenix	4.9% (3.4% - 6.4%)**	78,412	307.5
Portland	3.7% (2.6% - 4.8%)**	31,282	145.5
San Diego	3.1% (0% - 7%)*	36,890	310
San Francisco	.6% (.1% - 1.3%)*	9,504	96
Salt Lake City	2.6% (.6% - 4.7%)*	10,675	87.5

*Chapman Confidence Interval, **Chi-Square Confidence Interval, *** Poisson Confidence Interval.

Table 3: Rank order with largest Online Sex Ad Customer Numbers by % of male population over age 18 for the metro area.

Rank	City	Percent of Male Population Over age 18 that are online sex ad customers
1	Houston	21.4%
2	Kansas City	14.5%
3	Las Vegas	13.5%
4	Boston	7.6%
5	Miami	6.6%
6	Minneapolis	4.9%
7	Phoenix	4.9%
8	New York City	3.9%
9	Portland	3.7%
10	San Diego	3.1%
11	Salt Lake City	2.6%
12	Chicago	2.4%
13	Atlantic City	1.8%
14	Baltimore	1.8%
15	San Francisco	.6%

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