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Indicators of Sex Trafficking in Online Escort Ads

Final Report

Prepared for

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Abstract

To improve precision in sex trafficking victim identification and investigations, this study has two objectives. First, we investigate whether there are indicators that differentiate online escort ads related to sex trafficking from ads for non-trafficked sex work. The second is to determine which indicators are most likely to predict whether the ad represents a case of sex trafficking. Recommendations are made about how and when online escort ads are most useful in identifying trafficking cases.

The key contribution of this work is that the indicators found to be predictive were tested against a counterfactual (ads known not to be related to trafficking). We developed the set of indicators to test based on previous literature and three sets of focus groups: law enforcement and victim advocates, trafficking survivors, and non-trafficked sex workers. Our focus groups also provided insight into indicators that may be misinterpreted and into how advertising practices have changed, especially since the passage of SESTA/FOSTA and the shutdown of Backpage.com by the FBI.

We then collected investigative file information on closed cases involving escort ads from several locations in the United States. We used the phone numbers identified in each case to pull associated ads missing from case files from one of three web scraper databases (the MEMEX archive and the active TellFinder and LEADS web scrapers). The final dataset includes commercial sex and massage cases from seven states, with ads covering 35 states and one province in Canada. We pulled additional ads not present in the case files from the scraper archives to conduct three case studies of trafficking movement patterns, network management, and advertising structures to provide context for the hypothesis test results.

After data analysis, we held a second round of meetings to obtain each focus group's responses to the results, advice on interpretation, and input on recommendations. Four indicators were found to significantly predict trafficking, and several others commonly used by law enforcement were shown either not to be statistically significant or to be more strongly associated with non-trafficked sex work than trafficking.

These results were used to create a practical guide for police and prosecutors who use escort ads as evidence to help with analyzing these advertisements more efficiently in investigations and as a basis for jury instructions regarding ads as evidence during prosecution.

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Web scraper partners. Finally, we thank our partners that administer web scraping tools that archive millions of escort ads daily from the internet and who queried their databases to supply additional data for our project. These include Uncharted, Inc., Dr. Greg DeAngelo at Claremont Graduate School, and the LEADS tool at HTI Labs, Inc. at Creighton University.

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Executive Summary

Introduction

Law enforcement and prosecutors have long used online escort advertisements to identify sex trafficking victims and investigate cases. Investigators have used and shared several indicators with each other in practice over the years, but these indicators have not been empirically tested for predictive power to support investigative decisions or the use of ads as evidence in court. This study has two objectives:

- Examine whether there are indicators that can differentiate escort ads related to sex trafficking from ads for consensual, non-trafficking sex work.
- If so, determine which indicators are most likely to predict whether the ad represents a trafficking case.

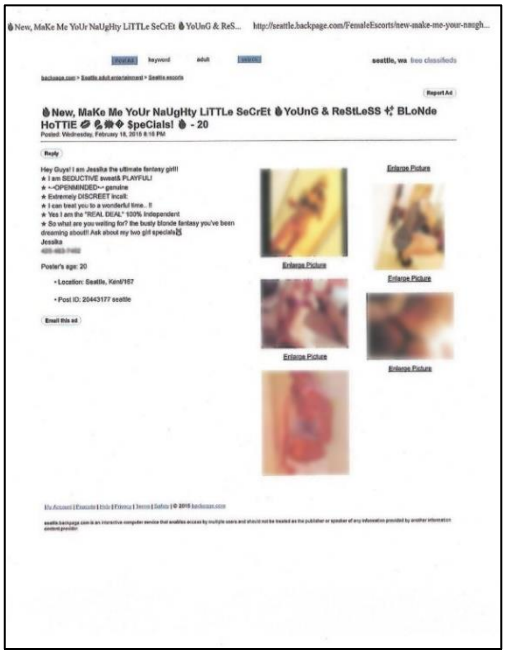
The goal is to create guidance investigators can use to increase precision in victim identification and help focus limited investigational resources on ads more likely to be associated with trafficking. This research consisted of three main activities:

- Analyze ads from closed cases from a variety of U.S. jurisdictions, supplemented by ads from three web scraper archives:
    - TellFinder, hosted by Uncharted, Inc.;
    - a copy of the MEMEX archive at Claremont Graduate School; and
    - the LEADS tool at HTI Labs at Creighton University.
- Interview investigators and analysts to learn how they use ads in investigations.
- Conduct focus groups with three groups of stakeholders at the beginning of the project for design input and at the end for input on interpreting results:
    - sex trafficking survivors,
    - non-trafficked sex workers, and
    - criminal justice/victim advocate professionals.

Fieldwork sites that provided access to case files included the San Diego County District Attorney's Office (SDCDA), the San Francisco District Attorney's Office (SFDA), the Georgia Bureau of Investigation (GBI), the Texas Department of Public Safety (TXDPS), and the Nebraska State Patrol and Attorney General (with help from HTI Labs). Additional ads for three more states (Oregon, New Mexico, and New York), mostly for massage cases, were provided from a "ground truth" dataset constructed by Dr. Greg DeAngelo at Claremont Graduate School.

Our final sample included 318 cases investigated in seven states (California, Georgia, Texas, Nebraska, New Mexico, New York, and Oregon) involving 1,586 unduplicated ads. These ads were posted in a total of 35 states and Ontario, Canada, indicating extensive travel involved in most cases. Seventy-nine percent of ads were associated with trafficking cases, 9% were negative for trafficking, and 12% were classified as outcome unknown due to insufficient case file detail to support definitive categorization under the federal definition of sex trafficking described below. DeAngelo independently verified outcomes for the "ground truth" cases with prosecutorial agencies when he built that data set.

Figure ES1: Escort Ad Example



We analyzed data for non-massage cases using weighted logistic regressions clustered on case number to account for ads that were interrelated. We used Analysis of Covariance (ANCOVA) models to analyze subgroups where missingness of key data was not random (photos, emojis). This method of analysis was also used for massage ads, where the original case files were not available to this research team for independent classification of trafficking outcomes and for identifying phone numbers that were potentially related. The more conservative ANCOVA model conclusions avoid claims of prediction for these subgroups.

We created our indicator groupings first based on previous literature and stakeholder input, then verified for soundness using Latent Class Analysis (LCA). Given that all ads were hand coded, we also performed interrater reliability testing. The dependent variable, whether a case was a sex trafficking case, was determined by examining external case files available for cases collected during fieldwork to determine whether the facts of the case to which each ad belonged fit the federal definition of trafficking,[1] which reflects the burden of proof that most prosecutors must meet.

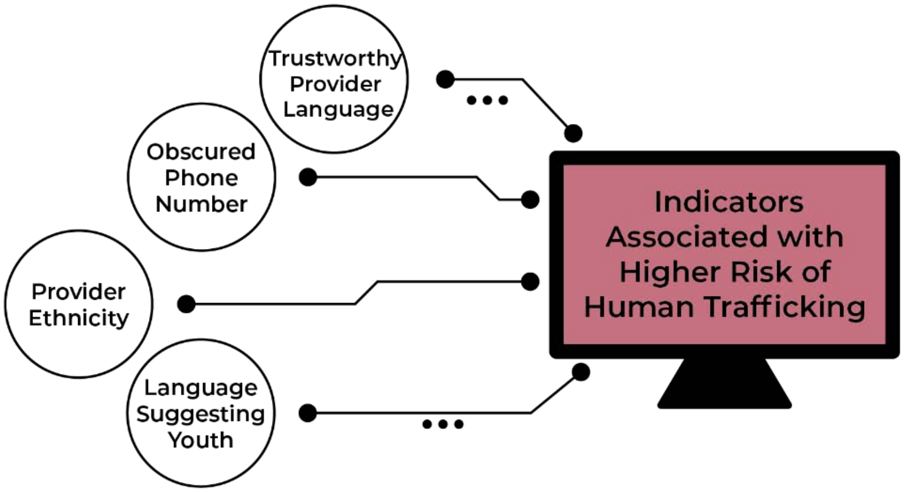
Key Findings

Indicators that Predicted Sex Trafficking

We tested 27 potential indicators derived from the literature, focus groups, law enforcement interviews, and fieldwork. Four indicators emerged as strongly predictive of sex trafficking, controlling for the effects of other indicators in the ad.

[1] The federal Trafficking Victims Protection Act (TVPA) definition of sex trafficking is: "*Recruitment, harboring, transportation, provision, or obtaining of a person for the purpose of a commercial sex act in which a commercial sex act is induced by force, fraud, or coercion, or in which the person forced to perform such an act is younger than age 18" (*Trafficking Victims Protection Act of 2000, 22 U.S.C. § 7101 et seq).

Figure ES2: Language Indicators Associated with Trafficking Cases



Trustworthy Provider

- **Conventional Wisdom:** Providers use language to indicate trustworthiness to create an environment centered around client comfort rather than the provider's preferences and safety and points to potential exploitation.
- **Result:** Language assuring potential clients of provider trustworthiness was over **four times** as likely to represent a trafficking case. In massage ads, this language was used in 20% more trafficking ads than non-trafficking ads.
- **Interpretation:** Traffickers may use trustworthiness language to convince the buyer that the provider is willingly engaged, that the buyer will not be robbed, and that foul play is less likely while ignoring potential preferences and the safety of the sex provider.

Obscured Phone Number

An obscured phone number is one that uses techniques to avoid collection by technology or web scraping platforms and detection by law enforcement, such as emojis between numerals, spelling out numbers, extra spaces, or other methods.

- **Conventional Wisdom:** Purposefully obscuring detection by law enforcement implies the presence of sex trafficking.
- **Result:** Presence of these techniques increased the likelihood that the ad was associated with trafficking by almost **12 times**, controlling for the presence of other indicators. However, an obscured phone number was *not* a significant correlate in massage ads – likely because they advertise as legitimate businesses and do not use this practice.
- **Interpretation:** Traffickers may use obfuscation techniques to avoid collection of phone numbers by technology platforms and detection by law enforcement.

Provider Ethnicity

- **Conventional Wisdom:** Traffickers post ads catering to the desires of sex buyers, which includes providing explicit choice of ethnicity or race.

- **Result:** If the ethnicity of the individual advertised is described, the ad was over **five times** as likely to be associated with a trafficking case. However, specification of provider ethnicity was *not* a significant correlate of trafficking in massage ads.
- **Interpretation:** Traffickers may focus more on racialized descriptions in their marketing of victims than non-trafficked sex workers.

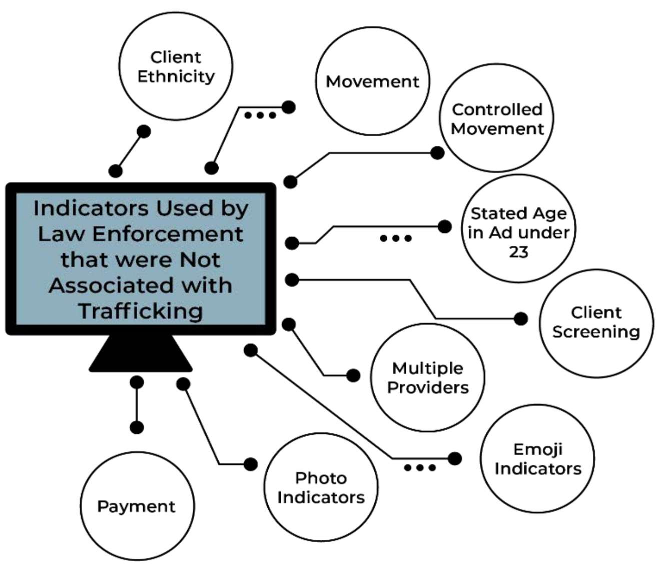
Language Suggesting Youth *(use with caution)*

- **Conventional Wisdom:** Language communicating that the provider is young is coded language to sex buyers that the provider is under 18.
- **Result:** This language increased the likelihood that a case was a trafficking case by over **four times**. *However*, the significance of this indicator may also be an effect of our sample.
- **Interpretation:** Given that common law enforcement practice has been to search for ads with young language for investigation, that practice will manifest itself in the distribution of ads in our sample. We recommend interpretation of this result with caution, as non-trafficked sex workers also use this language regularly for marketing purposes.

Indicators Used by Law Enforcement that were Not Associated with Trafficking

Several indicators previously considered signs of sex trafficking were found not to be statistically significant predictors; some were even more likely to be associated with non-trafficked sex work than with trafficking when controlling for the effects of other indicators.

Figure ES3: Commonly Used Indicators Not Associated with Sex Trafficking



Stated Age in Ad Under 23

- **Conventional Wisdom:** Ads for minor victims of sex trafficking tend to list their age as between 18 and 23 years old.

- **Result:** A stated age of under 23 was not a statistically significant predictor when accounting for other indicators. It was a significant correlate in massage ads, but the proportion of trafficking ads containing stated ages under 23 was only slightly higher than non-trafficking ads. Stated age was tested independently from young language.
- **Interpretation:** A stated age under 23 is more likely a marketing tactic used both by traffickers and non-trafficked sex workers. Sex workers may use this language to suggest youthfulness (over 18) of older workers than to suggest the presence of a minor.

Movement Language

- **Conventional Wisdom:** Victims of sex trafficking are moved frequently to avoid detection by law enforcement and to isolate and disorient victims.
- **Result:** The presence of movement language, which is separate from language indicating preference of location of the sexual encounter (controlled movement), was over 70% less likely to be associated with trafficking, which is opposite of the expected effect.
- **Interpretation:** Both non-trafficked sex workers and victims of trafficking travel regularly. “Newness” and “limited time” language may also be used for marketing purposes to drum up demand.

Controlled Movement Language

- **Conventional Wisdom:** Restrictions on movement indicate trafficking. Specification of venue (buyer comes to the provider or vice versa, i.e., incall or outcall) is an indicator of such restriction.
- **Result:** Controlled movement language was not a reliable predictor in our sample. Both ads featuring non-trafficked sex workers and ads featuring victims use this language to specify preferred location.
- **Interpretation:** This result, which was surprising to our survivor focus group, comports with the non-trafficked sex worker focus group who indicated that independent workers use this language to assert control in their interactions and ensure their own safety.

Restrictions/Preferences for Client Ethnicity

- **Conventional Wisdom:** Previous research and the survivor and law enforcement focus groups indicated that restrictions on client ethnicity are signals to warn away other pimps.
- **Result:** Restrictions or preferences for specific client ethnicities (i.e., no AA, I love white men) were not predictive of trafficking when controlling for other indicators.
- **Interpretation:** This result is consistent with the input from the non-trafficked sex worker group, who said these restrictions may also reflect the preferences of an independent provider.

Client Screening Language

- **Conventional Wisdom:** Client screening is carried out by traffickers on behalf of victims; the presence of such language is associated with trafficking.

- **Result:** This language did not predict trafficking in our analyses.
- **Interpretation:** Per our non-trafficked sex worker focus group, client screening practices are often used by non-trafficked workers who have the autonomy to dictate their terms of engagement and enforce practices to stay safe.

Payment Language

- **Conventional Wisdom:** Information regarding pricing indicates trafficking.
- **Results:** Inclusion of pricing was not a statistically significant predictor of trafficking.
- **Interpretation:** Pricing may be included by both trafficking victims and non-trafficked sex workers as part of their business practices.

Multiple Providers

- **Conventional Wisdom:** Advertising multiple providers or "bringing a friend" indicates trafficking because traffickers often control multiple victims. An independent worker would not want to share the money earned.
- **Results:** Advertising multiple providers was not a significant predictor of trafficking.
- **Interpretation:** Per our non-trafficked sex worker group, ads featuring multiple providers were as likely to represent victims as non-trafficked sex workers who travel or work together for safety.

Available 24/7

- **Conventional Wisdom:** Specification of round-the-clock availability may indicate a provider's lack of control over their schedule or demanding quotas set by a trafficker.
- **Result:** Presence of language advertising a provider as available all hours indicated that the ad was 10% <u>less</u> likely to represent a trafficking case than non-trafficked sex work.
- **Interpretation:** Inclusion of this language is more a marketing technique than an indicator of quotas or restricted activity.

Emojis

- **Conventional Wisdom:** Emojis are used to hide coded messages in ads, such as the presence of minors or specific sexual services.
- **Results:** Emojis were not useful as predictors of trafficking. Emojis representing money or provider *services* (e.g., tongues, water drops, open or closed umbrellas, Playboy bunny) occurred in slightly more trafficking ads than non-trafficking ads, but they occurred most often in ads for cases where trafficking could not be determined. The prevalence of other emoji types was not significantly different between trafficking and non-trafficking ads.
- **Interpretation:** Emojis are most often used to get around character limits or make an advertisement more colorful and attention-grabbing. More research is needed, but these results support the input from our non-trafficked sex worker focus group who stated that emojis are simply a marketing tool and do not contain codes that can uncover trafficking.

Photo Indicators

- **Conventional Wisdom**: Images are important for detecting potential trafficking, especially if an individual is under 18 and legally a victim under the federal definition.
- **Results:** Most of the photo indicators tested (*obscured face, visible tattoo, hotel room, third party photo, professional photo*) were not significant correlates of trafficking.
- **Interpretation:** This result was surprising to our survivor focus group members, especially regarding obscured faces (e.g., pixilation, placing an emoji, or simply cropping the head of the subject out). Widespread photo manipulation, use of stolen or fake images, and relative uniformity in photographic techniques, styles, and posing may make using photos unreliable in identifying victims and analysis of potential trafficking.

Photos: "Looking Young"

- **Conventional Wisdom:** Ads containing photos of providers who appear young are more likely to represent victims of trafficking, as these providers are likely under 18.
- **Result:** This indicator had the opposite effect: Photos of individuals that appeared suspiciously young occurred in ***three to four times*** as many ***non-trafficking*** and ***outcome unknown*** ads as trafficking ads.
- **Interpretation:** With photo filters and other manipulation techniques, images cannot be relied upon as they once were. Minors are often made to look older through use of cosmetics and other techniques and older individuals may use filters to try to look younger. Furthermore, photos used may be of someone else altogether.
- ***Conclusion: Given that one of the top criteria cited by investigators when deciding which ads to investigate is whether the subject in the photo "looks young," this result should prompt a re-thinking of using "youthful appearance" as a decision criterion. While more research is needed, this may have implications for some common proactive investigation practices, such as "john stings," which some law enforcement have moved away from after uncovering little trafficking through those methods.***

Combining Ad Indicators with Other Evidence

Members of the sex worker focus group provided input from their experience posting escort ads and interacting with human trafficking victims regarding the use of indicators in combination to point to ads with a higher likelihood of human trafficking. While not statistically significant in our sample, we highly recommend these be tested with larger datasets in research and considered during investigations. These examples show the importance of combining analysis of indicators in escort ads with other sources of evidence to make more definitive determinations of trafficking, rather than using analysis of ads alone:

- **Three or more providers traveling in a large group who do not appear to know the established circuit, move every 3-4 days, and/or who do not have means for transporting themselves**. *Investigating these cases requires detailed knowledge of local and regional markets, the ability to connect providers across ads, establish patterns of movement, and gain an understanding of the means of the providers or of those transporting them.*
- **Advertising prices lower than average for the market**. *This may be more difficult to identify given the frequency with which providers copy each other's ads—especially if they are inexperienced. However, combined with other evidence and knowledge of the market, this could be useful.*

Potential limitations

All research has limitations. Focus groups underwent attrition between 2018 and 2021, though all participants who returned in 2021 provided invaluable input on our results and recommendations. Second, by using law enforcement and prosecutorial case data as our starting point, some of the indicators we analyzed had been used to select ads to investigate in the first place. This introduces some selection bias, which we acknowledge in our framing of results. For cases collected during fieldwork, access to the case files themselves allowed us to make our own determinations of trafficking and we erred on the side of categorizing a case as "unknown" if there was not enough evidence in the file to support all elements of the federal definition.

Accessing this level of case file data from multiple agencies was a complex process. It resulted in a smaller sample for our study than is often used for machine learning studies in this area, but the ability to analyze cases with known and independently verified outcomes and to include sufficient confirmed counterfactuals is the key contribution of this study. For the massage ads sampled from DeAngelo's "ground truth" set, we relied on his confirmations of trafficking with the agencies he worked with, but we limited analyses of those data to ANCOVA models and avoided claims of prediction. Relatedly, emojis and photos were available only for some ads extracted from the web scraper archives, and these patterns of missingness were not necessarily random. More conservative ANCOVA models were used with these subsets as well.

Implications for Research

This research has several implications for future research on indicators of sex trafficking in online escort ads. Some of these impacts come from how we assessed the presence of trafficking to ensure a counterfactual; it was clear that reliance on expert opinion in assigning levels of risk in previous research, without access to external case information, presented validity problems for those studies (e.g., Alvari et al., 2016, 2017; Tong et al., 2017; Whitney et al., 2018). Several specific indicator findings also challenge previous research, which often relied on indicators assumed to be predictive, but that had not been tested in a falsifiable way. This study is a crucial step forward in theoretically and practically grounded research on this topic.

Implications for Practice

The purpose of this project was to generate knowledge to advance precision in sex trafficking victim identification during investigations and to provide empirical support for the use of ads as evidence in prosecutions of traffickers. This work adds to the body of knowledge on the construction and use of ads when advertising a trafficking victim as opposed to a non-trafficked sex worker, and the full report also provides updates on changes in the online marketplace since the shutdown of Backpage.com in 2018. This knowledge may also enable better explanation of these phenomena to instruct juries on cases involving escort ads and in diversion programs for sex buyers called "john schools" that educate buyers that they may respond to ads featuring trafficking victims.

To assist investigators to better focus their limited resources on ads more likely to find trafficking victims, we have created a user-friendly guide that law enforcement and other practitioners can use as a quick reference during case building and as a basis for training investigators, prosecutors, judges, and victim service providers. This guide is publicly available on the JRSA website at https://www.jrsa.org/projects/escorts.html.

Conclusions and Recommendations

Mark Latonero (2011) offers guiding principles for technological interventions in human trafficking, including the adaptation of algorithms in web scraper and intelligence tools that screen large numbers of ads for potential trafficking. Among these principles are that:

- the ultimate beneficiaries of any intervention should be victims and survivors.
- continuous involvement is necessary to ensure that tools are user-centric and refined over time to effectively respond to shifts in technology and trafficking, and
- technological interventions should account for the range of human rights potentially impacted by the use of advanced technologies (Latonero, 2011, pp. v-vi).

Our overall aim with this work is to provide support for investigations to reach and help victims and survivors while avoiding potential harm to others. Therefore, we also want to be sure that the voices of non-trafficked sex workers are heard as interventions targeting victims can, at times, harm their communities with excessive surveillance, misidentification of someone as a victim who does not identify as one, or removal of tools that their communities use to stay safe.

The products of this research will only be as good as they are able to be adapted over time. The characteristics of sex trafficking and commercial sex via the internet are constantly changing, although we see that general marketing principles in ad content and format hold even as the environment changes. We believe the methodology used for this project is replicable so that this process can be repeated at intervals to account for changes, keep practitioners updated on the latest knowledge, and ensure that the communities most affected continue to be heard.

This research provides practical and immediately actionable information for sex trafficking case building in the United States. It can easily be put into practice for investigations, prosecutions, and algorithmic development for web scraping and analysis technologies. We recommend these results be tested with larger datasets and that work in this area continues.

We strongly acknowledge, however, that increasing technological capabilities in this field does not change the reality of how trafficking manifests and its emotional, physical, and mental effects on victims. Any efforts to increase victim identification must be accompanied by a trauma-informed approach, readily available support services for victims who want them, and even the flexibility to allow victims to decline participation in the prosecutorial process if that is their choice. Nevertheless, we hope that this work will allow more victims the avenues and channels within which they can make that choice.

Introduction

The internet has been used since its earliest days as a tool to facilitate the operation of sex marketplaces and sex trafficking (Hughes, 2001). Websites, social media, and mobile phone technologies are prime venues for soliciting customers in the commercial sex marketplace in the United States and traffickers have also shifted to these technologies to recruit victims (Dank et al., 2014; Latonero et al., 2012; Tidball et al., 2016). Law enforcement and prosecutors have long used escort advertisements from various websites and discussion fora to identify victims and investigate cases, but little research has been done to test which indicators contained in such ads are most likely to point to a potential case of trafficking. Several indicators have been used and shared anecdotally by investigators in the field as signs of trafficking; however, they have not been tested for predictive power in a falsifiable way that provides empirical support to investigators deciding which ads to investigate or present as evidence in court.

Project Objectives. To improve precision in sex trafficking victim identification and investigations, this study had two objectives. First, the project team investigated whether there are indicators that can be used to differentiate online escort ads related to sex trafficking versus ads associated with non-trafficked or consensual sex work. Second, the team collected and analyzed data to determine which of these indicators (or combinations of indicators) are most likely to predict whether the ad represents a sex trafficking case. Indicators examined include text, image, and emoji characteristics. Recommendations are made about how and when escort ads are most useful in identifying trafficking cases.

The goal of the project is to create, among other products, a user-friendly guidebook that law enforcement can use as an empirically based quick reference for analyzing escort ads that can help them focus limited investigational resources on ads that are more likely to identify true cases of sex trafficking in the larger sex marketplace. Additionally, the empirical findings from this research can be used by expert witnesses to support testimony in court about the validity of using ads as evidence and to inform jury instructions.

Project Summary. This project has three parts. The main thrust of the project is the analysis of a sample of ads from closed trafficking or related cases involving escort ads from a variety of jurisdictions in the United States, supplemented by linked advertisements from established tools that scrape and archive online escort ads daily. Second, we interviewed investigators at each fieldwork site to learn about online sex trafficking case investigation processes and their use of ads during these investigations. Finally, we bookended our data collection and analysis with two waves of focus groups involving three groups of stakeholders: sex trafficking survivors, consensual (non-trafficked) sex workers, and criminal justice/victim advocate professionals. The purposes of the first set of focus groups were to gather input to shape the research hypotheses and data coding protocols and to ensure that each group's concerns about the research intent, process, and potential impacts were included from the beginning. The second set of focus groups were to gain the insights and reactions of each group to the results and their input on recommendations for research and practice.

Data Sources. The list of ad indicators developed prior to fieldwork for coding and testing was based on a literature review and the first wave of focus groups. Fieldwork sites that provided case data and made investigators available for interviews included local District Attorneys' (DAs') offices and state law enforcement agencies. These in-person fieldwork sites included the San Diego County District Attorney's Office (SDCDA), the San Francisco District Attorney's Office (SFDA), the Georgia Bureau of Investigation (GBI), and the Texas Department of Public Safety (TXDPS). In March 2020, the COVID-19 pandemic prevented further in-person travel. Data were therefore provided electronically over secure channels by the Nebraska State Patrol and Nebraska Attorney General with help from HTI Labs at Creighton University. The variation in agency types provided different perspectives on case priorities and investigative techniques.

Ads are often missing in stored case files even if their existence is referenced elsewhere in the file. Emojis or photos are also often obscured when an ad is printed from a website. We filled in such missing ad information from the field data collection by pulling the original ads from one of three ad scraper databases: TellFinder (administered by Uncharted, Inc.), a copy of the MEMEX database held at Claremont Graduate school, and HTI Labs' LEADS escort ad database. These databases are described in greater detail in the methods section of this report. In addition to using these resources to backfill missing data on ads present in investigative files, we further queried the databases using key phone numbers identified in the files to collect additional ads that may have been posted using the same phone numbers. These additional ads can be used to determine whether the individuals identified in these cases were operating in multiple locations or on a larger scale. Finally, we were able to collect a sample of ads with known outcomes from three additional states with the help of Dr. Greg DeAngelo at Claremont Graduate School that increased the representation of massage ads in our final dataset.

After coding these ads and building the final dataset, we analyzed these data to test the predictive power of our list of indicators. Because the data collected were based on law enforcement cases where the outcome (trafficking vs. non-trafficked sex work) is known, it was possible to test hypotheses about the predictive power of specific indicators against a counterfactual. This fills a major gap in previous research.

This project is guided by three research questions:

(1) Are there indicators in escort ads that are predictive of whether the ad represents a sex trafficking case?
(2) If so, what indicators or combinations of indicators are most predictive of a "true

positive" case?

(3) Under what circumstances (stage of investigation, other evidence collected, type of sex trafficking) is this information most useful for identifying a sex trafficking case?

We then make recommendations about how best to use online escort ads in trafficking case identification including strengths and limitations in practice and which indicators are most likely to be associated with a case of human trafficking if present. Through the focus groups, we gained insight into indicators that may have multiple meanings that could lead to false positives and negatives and how potential indicators might change over time. Indicators are known to change organically in response to law enforcement initiatives, market conditions, and/or changes in technology (Carpenter & Gates 2016; Dank et al. 2014). Our goal is to create practical knowledge for police and prosecutors that will facilitate efficient analysis of escort ads during investigations and prosecutions. As the prosecutors and investigators we initially spoke with said, "Please! Something to go by instead of just guessing."

A note about SESTA and FOSTA and their impact on this research. Shortly after this research began, the Fight Online Sex Trafficking Act (FOSTA) and the Stop Enabling Sex Traffickers Act (SESTA), were signed into law on April 11, 2018 renamed as the Allow States and Victims to Fight Online Sex Trafficking Act of 2017 (Public Law 115-164—hereafter SESTA/FOSTA).[2] This law amended the Section 230 Communications Act of 1934, commonly known as the Communications Decency Act of 1996, to clarify that "section 230 of such Act does not prohibit the enforcement against providers[3] and users of interactive computer services of Federal and State criminal and civil law relating to sexual exploitation of children or sex trafficking, and for other purposes." In plain language, this law provided an avenue to hold websites liable if a trafficking victim is advertised on their platforms (Madhani, 2017).

Critics, however, argue that this law has created a climate of fear that does more to harm non-trafficked sex workers than to end sex trafficking, and that it potentially violates the First Amendment (Chamberlain, 2019). It was asserted that sex workers now rely more on street work as opposed to online solicitation where a certain amount of vetting can take place prior to meeting clients (Chamberlain, 2019; Dickson, 2019). Sex workers and sex trafficking victims alike are thus put in more danger (Chamberlain, 2019; Dickson, 2019), and access to a key source of evidence for investigators is now more difficult. Given the timing of its passage, which was after this research was proposed and funded, Public Law 115-164 impacted practices related to online sex advertising and our study.

Backpage.com, the largest website hosting ads for commercial sex, was also shut down and seized by the Federal Bureau of Investigation (FBI) in 2018, soon after this study began. Our

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[2] See https://www.congress.gov/115/plaws/publ164/PLAW-115publ164.pdf.

[3] The term "provider" will be used throughout this report in cases where both victims of sex trafficking and consensual sex workers are referred to. For example, this can occur when discussing use of indicators to predict whether a "provider" might be a sex trafficking victim.

data sample is limited to ads from closed cases for privacy purposes and to preserve ongoing case investigations, as discussed in more detail below, which dates the sample to an extent as most of our cases date from prior to the Backpage shutdown. However, we adapted our interview and focus group questions for practitioners, trafficking survivors, and non-trafficked sex workers to attempt to capture some of the changes that resulted from SESTA/FOSTA and the shutdown of Backpage.

This report proceeds as follows. First, a literature review covering the history of research and investigative practices involving online escort ads is presented. Methodological issues identified in this previous research are also discussed, and background input from the first three waves of focus groups is woven throughout. Following this, we present our methods including research design, sampling, variable coding, and the analysis plan. The results section begins with qualitative findings on the process of using ads in sex trafficking investigations to provide context for the quantitative analytical findings that follow. Results from qualitative analysis of the variety of manifestations of various indicators and how they may appear in ads are woven throughout that section, as is focus group input on indicator interpretation and meanings. The report concludes with the discussion and implications for research, practice, and policy.

Background Research

Law enforcement and prosecutors have long used escort ads to identify potential victims and investigate cases. Investigators have used and shared several ad characteristics with each other as signs of trafficking via word of mouth, but these indicators have not been tested for predictive power in a way that investigators can refer to for empirical support. The purpose of this research is to investigate whether there are indicators that differentiate online escort ads related to sex trafficking from ads for non-trafficked sex work. Additionally, we attempt to determine whether prevalence of various indicators differs depending on victim age (minors versus adults), state, or type of sex trafficking. The following background section outlines current research on commercial sex pertaining to the manifestation of sex trafficking in online escort ads, with additional insights provided by our focus groups with three important sets of stakeholders. The utility of previous research that identifies potential indicators and considers them as means to identify potential sex trafficking is evaluated. Gaps and methodological issues that informed the present data collection process are then discussed, followed by a summary.

Roadmap and Rationale for this Section. To frame the present research, we collected a variety of background information both from extant research and from the first wave of focus groups with law enforcement/victim services advocates, sex trafficking survivors, and non-trafficked sex workers. The purpose was to synthesize the perspectives provided by previous research and the stakeholder groups who would be impacted by this research and who should have a voice in shaping it and in advising on the interpretation and use of results. Background information from both sources is intertwined where contributions were provided by both sources on the same topics, thus allowing researchers that came before us and our focus group participants to "talk to each other." This section begins with the methods used for the 2018 wave of focus groups and the literature review. Then the results of both are presented by topic.

Focus Group Methods. We conducted pre-fieldwork focus group meetings with three groups: sex trafficking survivors; investigators, prosecutors, and victim advocates; and non-trafficked sex workers. Investigators and prosecutors were recruited from the list of agencies originally participating in the case file field data collection. An additional victim advocate was recruited with the help of Bridgette Carr, the founding director of the Human Trafficking Clinic at the University of Michigan Law School. The law enforcement and victim advocates' focus group included 11 law enforcement and prosecutor participants and two victim advocates. Sex trafficking survivors were recruited via snowball sampling through Rebekah Charleston, the project's trafficking survivor-advocate consultant, and included seven participants. Non-trafficked sex workers were recruited by snowball sampling through sex workers' rights advocates and included five participants, including a dominatrix who does not provide sexual services but who posts ads on the same websites as non-trafficked sex workers and traffickers.

All first wave focus groups were conducted via conference call between August and October 2018. Each call lasted approximately one hour. Additionally, two emailed responses to focus group questions were received and two individual interviews were conducted with participants who were unable to attend the scheduled group calls. Informed consent forms for the conference calls were discussed with individual participants in advance of the meetings; consent was obtained verbally or by email prior to the start of each meeting. Institutional Review Board (IRB) approval for the protocols was received on January 22, 2018 (see Appendix A). Each focus group was facilitated by two researchers, documented by a dedicated notetaker, and recorded with permission from the participants.

We used the discussions from these meetings to refine our initial list of literature-derived ad indicators and to increase the specificity of our hypotheses about their effects. Some accepted interpretations of indicators in the literature to date may be also based on untested assumptions or colored by ideological biases; by including the differing perspectives of these three groups, we were able to test some of these assumptions. Indeed, the focus group interviews revealed that several commonly accepted meanings behind certain indicators considered "red flags" for trafficking by law enforcement do not necessarily reflect accurate interpretations of why sex workers or traffickers may use them. This can lead to over-estimates of their predictive power. The focus group findings, therefore, helped the research team to specify more specific indicator patterns by grounding some of the expected relationships in the experiences of these three groups. Finally, the focus groups allowed each group to voice their concerns about the research intent, process, and potential impacts from the beginning.

Literature Review Methods. We conducted a literature search of studies that examined indicators of sex trafficking in online escort ads and those providing background information about the use of ads in sex trafficking and by law enforcement in their investigations. We focused on sources that conducted empirical testing of some kind and examined the indicators tested, how they were coded, and methodological questions, including:

- how they defined sex trafficking,
- what their sample was,
- what stakeholders they talked to,
- what assumptions were made,
- whether they tested against a counterfactual, and
- what conclusions they drew.

Empirical studies in this area have thus far been few; therefore, all studies found were evaluated to identify their contributions and gaps in order to frame the present research.

Previous Research on Online Sex Marketplaces

Technology and the internet have changed the way society conducts commerce, providing ease of access to customers, goods, and services across the globe. These technological advances have also empowered criminals who can efficiently and effectively recruit, advertise, and exploit others at a high rate, across geographical boundaries, under the cover of anonymity (Latonero, 2011; Tidball et al., 2016). Technology plays a role in most federal child sex trafficking cases. According to a review of judicial opinions from all federal child sex trafficking prosecutions from 2000 to 2012, 78% of cases involved technology (Leary, 2014).

The use of online classified sites exploded in the 2000s with the ascent of Craigslist. Craigslist took the local newspaper classified section to a global audience, providing internet users with a means to connect offline to exchange goods, seek employment, and organize events (Boulton, 2013). In one of the first studies exploring the use of classified ads websites in identifying sex trafficking, Latonero (2011) identified ads in subsections of Backpage and Craigslist for adults seeking romantic relationships and adult escort services that had coded language indicating the advertised provider of sexual services could be a victim of trafficking. For example, language or images focused on the youthfulness of the individual might indicate potential sex trafficking of a minor. The most common venues for these ads were sections of classified ad websites pertaining to escorts, dating, or massage, or complete websites dedicated to hosting escort ads.

The shift in preference to advertising online over street-based solicitation has been associated with an increased number of sex buyers per day per victim due to the ability to reach more customers, resulting in increased profits (Bouché, 2018). However, the party posting ads for a potential victim (the trafficker, a bottom,[4] or the victim themselves) can differ. In trafficking cases, ad posting roles are generally split evenly between victims and traffickers (Bouché, 2018), but traffickers may give this responsibility to a third party such as a bottom (Bouché, 2015). Youth engaged in survival sex, but who mentioned the possible presence of a pimp or trafficker, tended to post their own advertisements (Dank et al., 2015). Minors engaging in survival sex often preferred to post ads in classified sites such as Craigslist and Backpage over engaging in street work to help preserve their anonymity and their ability to screen potential clients for signs of danger (Dank et al., 2015). Online advertising also provided individuals posting on their own behalf the ability to negotiate more money from potential clientele (Dank et al., 2015). Bouché (2018) and Dank et al. (2015) demonstrated that there is no one profile for individuals who post escort ads.

Bouché (2018) also found that most victims communicated with buyers themselves; the trafficker controlled the communications for fewer than half of those identified as victims in that

[4] A "bottom" is a sex worker assigned by the pimp or trafficker to oversee other sex workers, and, depending on the situation, can be considered a victim or a trafficker (Lugo, 2016).

study. In her earlier study, Bouché (2015) found that traffickers were *more* likely to control the posting of ads and communication with buyers, but her 2018 study suggested that traffickers have shifted to providing victims more autonomy over posting, operating their ads, and their interaction with buyers. Bouché (2018) also noted that a key area for future research is the strong correlation she found between a trafficker controlling communications with sex buyers and the victim being more likely to be under the age of 13.

Bouché (2015) explored how the internet is also used to recruit, groom, and exploit minor victims of trafficking as well as the level of access to the internet and technology permitted to victims by their traffickers. Bouché (2015) found that over 60% of victims surveyed had access to a cell phone while they were trafficked and over 40% had access to the internet. Of those with access to the internet, a little over half had unmonitored access (Bouché, 2015). The 2015 study found that traffickers retained sole control over posting ads in 56% of cases, 18% of victims posted their own ads; and victims and traffickers shared posting responsibility in 17% of cases in the sample (Bouché, 2015). Of note, several victims stated that their internet access was restricted by their trafficker to allow only for posting of escort ads (Bouché, 2015). According to Dank (2015) and Bouché (2018), approximately half of the minor-aged individuals they surveyed frequently composed, posted, and managed their own ads and more than half scheduled and managed their own appointments with sex buyers.

Participants in our trafficking survivor focus group indicated that, in their personal experiences, ad posting was generally done by the trafficker, a madam,[5] or a bottom. Survivor participants stated that they were kept in the dark about the process of posting ads and that, in their experience, trafficking victims often do not even know how to post ads. These statements are in line with Bouché's (2015) conclusions, but it should be noted that most of the focus group participants had been out of their trafficking situations for several years and that this may have changed as traffickers may now be savvier about not leaving a "paper trail." One survivor, however, stated that she posted some ads herself but gave money to a "madam" who ran other ads for her and others in her group. She said that her trafficker was aware of this arrangement and that the madam booked the dates and screened the large volume of calls received.

Survivor participants in this focus group were, for the most part, unaware of how the ads were paid for since they did not post their own ads. The survivor for whom a madam was involved stated that she would pay for ads at Western Union or by using Bitcoin and then the madam would post them. Since the amounts were small, Western Union did not require identification to make these payments. Survivors said that the contact information included in the ad was dependent on who was responsible for screening the calls. They were unsure how long specific ads would typically stay up; however, it was mentioned that the price for posting the ad depended on the length of time the ad was to remain active (e.g., one day, three days, or longer).

[5] A "madam" is a female pimp or trafficker.

Participants in our sex workers focus group said that many ad services no longer allow users to call to post an ad, which was a common practice previously, and have ceased direct phone communication with posters after the passage of SESTA/FOSTA (renamed Allow States and Victims to Fight Online Sex Trafficking Act of 2017).[6] Now, websites only post ads after receiving users' information and money electronically, potentially via encrypted methods. Others have ceased hosting ads completely. Chamberlain (2019) describes how entire sites or portions of sites (including Craigslist, Reddit, and TheEroticReview) "have been shut down or have censored themselves out of fear that hosted user-generated content could be interpreted as promoting the sale of sexual services" (p. 2,198) due to over-moderation in response to SESTA/FOSTA. Additionally, interacting with moderators is more challenging now that more individuals are using sites hosted in foreign countries to evade regulation.

Hultgren et al. (2016) described how quickly trends in ad posting change and develop, requiring investigators to regularly assess and update the criteria they use to determine whether an ad is "low-hanging fruit." Traffickers and victims frequently change techniques used to obscure their identities, making them appear younger or older, to circumvent law enforcement. Some researchers reference how providers newer to using escort ads changed the way they used images by cropping out or obscuring their faces, or by using images featuring other people (Hultgren et al., 2016; Bouché, 2018).

Survivors mentioned that selection of sites for ad posting was partially dependent on perceived popularity. Posters migrate from site to site as different ones become popular among potential customers. Survivors noted that Cityvibe, Eros, Craigslist, CityGuide, and Backpage were popular, with Cityvibe and Eros being more popular prior to the ascendance of Backpage to market dominance.

The sex worker focus group mentioned other sites as well, including Rentboy (now also defunct), Adultsearch, Escortdirectory, Adultlook, Usa.topescortbabes, Eurogirlescort, Tsescorts (for transgender individuals), Flixa, Sexcompass, and GFEMonkey. They discussed a range of features associated with some of these sites. For example, Flixa featured high-end, professional pictures and users typically called the service to post ads. Flixa was a Northern California site that may have had some overlap into New York City, although respondents said that there were differences on the site between the two locations. Sex workers expressed that Flixa did not include younger providers since it was expensive to post and to have professional pictures taken; usually minors are unable to afford that level of expense. Sex workers stated that Sexcompass

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[6] SESTA/FOSTA changed how sex work is advertised online. Behavioral changes occurred even before the law was in effect. This was due to the law's retroactivity provision which prompted some UISPs to "self-censor before the law was actually enacted" (Chamberlain, 2019, p. 2,190). Furthermore, Backpage and similar sites were shut down on April 6, 2018 following a federal indictment charging site owners/employees with facilitating prostitution, among other crimes (see Cassidy & Ruelas, 2018: https://www.usatoday.com/story/news/2018/04/06/backpage-seized-fbi-raids-founders-home-classified-listing-site-shutdown/494718002/; see also Department of Justice, 2018: https://www.justice.gov/opa/pr/justice-department-leads-effort-seize-backpagecom-internet-s-leading-forum-prostitution-ads).

may be geographically specific to New York, but also might be an aggregator site that scrapes and recycles ads from other websites. GFEMonkey was described by sex workers as potentially limited to San Francisco and potentially "fake;" it contained ads but did not allow users to post ads independently. Rather, it used a contact form through which an individual can request an ad to be posted. Sex worker participants mentioned never receiving a response after submitting the form, but some criminal investigations have included ads from GFEMonkey. Sex workers also mentioned that the high-end site Eros was raided in November 2017. While servers, documents, and computers were seized, Eros was not shut down at the time of the 2018 focus group (see also Brown, 2017).

One survivor focus group participant indicated that one could be more selective with clients on paid sites that verify clients and providers. For example, Eros allowed posters to become "verified,"[7] signaling reliability to buyers and attracting better clientele. However, sex workers also described how some sites frequently scrape other escort ad sites, copying and posting ads of well-known escorts who have never posted on their site or even that city to attract users. Respondents reported that some escorts enjoy getting the free publicity, however, sometimes they must make the website take the false ad down if they start receiving too many calls. This practice is now less prevalent due to market changes after SESTA/FOSTA.

Since 2018, due to scarcity of outlets resulting from the disappearance of several sites, sex workers are using all remaining sites available to advertise. Sex worker focus group participants mentioned that several of the existing aggregator sites[8] are still functioning, but that most non-trafficked providers migrated to Eros immediately after the shutdown of Backpage. Websites have also become more regionally specific: they only accept ads from certain geographic areas by using IP addresses to detect the poster's location. Some regional sites, however, may overlap in certain metropolitan areas.

The dominatrix focus group participant stated that ads for bondage, domination, and sadomasochism (BDSM)[9] services are usually on the same sites as commercial sex, even if sexual services are not provided. This participant previously ran a dungeon through the BDSM section on Backpage, but since then has migrated her ads to the BDSM section of Eros. She said that Eros ads cost almost double the price that Backpage charged and reach half as many potential clients. The shutdown of Backpage, therefore, hit the BDSM industry hard. However, an advantage of this shift is that providers do not have to spend as much time screening out clients that are uneducated about how BDSM services work. MaxFisch and DickyVirgin were

[7] Becoming "verified" on a site means that it has been determined that the account is authentic and belongs to the individual represented.
[8] Aggregator sites gather web content from different online sources for reuse or resale. See https://www.jeffbullas.com/content-aggregators/.
[9] BDSM refers to sexual activity involving such practices as the use of physical restraints, the granting and relinquishing of control, and the infliction of pain. A "dungeon" is a business establishment catering to BDSM-interested clientele. See https://www.merriam-webster.com/dictionary/BDSM.

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also mentioned as top BDSM advertising outlets. While the provider now spends less time weeding out unserious customers, customers must search harder to find what they want.

Sex buyer review fora are a different sort of online environment. They contain two distinct spaces where law enforcement search for potential trafficking indicators: escort provider profiles and message boards where buyers discuss various providers. In escort profiles, providers post profiles of themselves that usually contain their basic demographic information, services they provide, cost, and other marketing information. This provides a space for providers to engage with potential buyers who can later rate and review the provider after an engagement. Sex buyers then leave ratings and review the provider on their escort profile, providing information to other sex buyers about their interaction with the provider and often their sexual experience. On the message boards, sex buyers converse with each other in threads about different topics, where they talk about engagement with providers or establishments where they purchased commercial sex or other related subjects (TGG Group, 2016). They also sometimes paste copies of ads within their reviews.

Sex buyers are candid in these environments because most sites require either payment or verification or both. While law enforcement can glean information about the presence of a potential pimp, movement patterns, age, and other factors from the context provided on review sites (DeAngelo et al., 2019), they often face accessibility challenges without the use of a scraper (Reid & Fox, 2020).

Investigative Practices Using Escort Ads

Escort ads are valuable sources of evidence used routinely by law enforcement and analysts to investigate potential cases of sex trafficking (Bouché, 2015; Latonero, 2011; Roe-Sepowitz et al., 2013). According to Hultgren et al. (2016), such investigators often turned to online classified ad websites to search for escort ads deemed to be "low-hanging fruit." In these searches, law enforcement combed ads looking for individuals who appeared underage, which then triggered investigation. While the full legal definition of human trafficking is discussed below, for a case to be considered human trafficking under both the federal definition and most state statutes, investigators do not need to prove that the trafficker used force, fraud, or coercion to force the victim to participate when the victim is a minor. This lessens the burden of proof, making it more likely that the case will be accepted for prosecution (hence "low hanging fruit"). Manually searching through ads can be cumbersome and time consuming (Hultgren et al., 2016), but can be considered worthwhile if exploited minors and their potential traffickers can be readily and reliably identified.

Law enforcement and victim advocate focus group participants were asked about these processes. Typical practices included using the phone number associated with each ad as the key data point to trace the posters of ads and to search for other ads placed by the same poster or other connected individuals, thereby creating networks of ads and phone numbers.

Initial investigations are usually conducted by local police or a sheriff's department.

Suspected trafficking cases are usually referred to the District Attorney or the local Human Trafficking Task Force of specialized investigators. One participant specifically mentioned cross-referencing ads across different cases to provide leads in criminal and non-criminal matters, such as missing persons cases. This individual also mentioned preferring to use ads for identifying and building out networks rather than simply "one-off" cases. Agencies also place decoy ads on escort sites as part of conducting sex buyer or "John" sting operations.

Challenges Using Ads to Identify Trafficking Cases

Criminal justice system participants were also asked about what challenges they experienced using ads to identify potential trafficking cases. Victim and non-victim providers alike use screening practices with potential buyers to determine whether a buyer might be a member of law enforcement. These present an obstacle when attempting to meet potential victims or set up prostitution stings. Conditions potential clients may need to meet can include responding to the ad; meeting the provider in person or through video call; showing a credit card, driver's license, or proof of employment (i.e., not a police officer); and/or sending selfies or images of genitalia with proof of the current date. Furthermore, many review sites featuring escort profiles require that users (potential customers) have multiple dates within 30-45 days and rate providers to keep their "verified" status, which complicates undercover activities.

The primary challenges mentioned by investigator and prosecutor participants included having sufficient time and resources to sift through the sheer volume of ads in a decentralized marketplace and the number of ads that are duplicated on aggregator sites. They described technological tools that help scan the web for ads, including MEMEX/TellFinder, Traffic Jam, and Spotlight, as being helpful.

The group discussed several difficulties in distinguishing between trafficking and non-trafficking ads. One participant, however, disagreed with that premise and said that the indicators of trafficking are "fairly obvious" to law enforcement. They specifically said that if the subject in the images appears to be a minor or the phone number in the ad is determined to be owned by a male, investigators will look further into the case. However, the view that these indicators were enough by themselves was not shared by the other focus group participants. They pointed out that using these potential indicators alone misses much of the trafficking facilitated via online ads. Furthermore, non-trafficked sex workers sometimes use "managers" that are not traffickers to perform certain functions, such as security, while they work (Weitzer, 2009). Traffickers also often make their victims register assets like phones into their own names, or other people's names, to avoid detection (Dank et al., 2014). Therefore, identifying male ownership of the phone number in the ad is not a reliable way to differentiate trafficking from non-trafficking ads.

The victim advocates in the practitioners' focus group voiced concern that the current practice of focusing trafficking investigations on the "low-hanging fruit" also misses many cases of exploitation online. However, they also stated that victims often do not want law enforcement intervention or surveillance due to the potential dangers they face for cooperating, either at the hands of their trafficker or because they fear arrest for prostitution. Advocates, therefore, did not necessarily view criminal justice solutions as the most victim-friendly remedy when victims are recovered. Furthermore, they confirmed that many victims they encounter do not see themselves as victims. The possibility that criminal investigation of a trafficker may cause more harm than good is always a concern among victims and victim advocates.

Use of Ads Since Passage of SESTA/FOSTA, Backpage Shutdown

Sex worker focus group participants described many changes to how they use ads and to the whole commercial sex industry since the passage of FOSTA and SESTA and the shutdown of Backpage. They discussed how the internet gave rise to the independent sex worker, since they could now vet clients and mitigate risk without the services of a pimp. Additionally, law enforcement shifted its resources to terrorism after September 11, 2001, which provided relief from high intensity prostitution enforcement efforts. Sex workers, therefore, reported the ability to build safety practices that resulted in a newer generation of sex workers that experienced lower levels of trauma and higher stability than prior generations.

However, respondents asserted that SESTA/FOSTA reversed these previous gains and created a more dangerous environment. They reported reduced ability to screen clients caused by providers moving most activity back to street-based work, including minor girls and college students who previously had higher end businesses, resulting in increased violence against both sex workers and trafficking victims. One participant voiced concern over how many "young(er) women" are being trafficked and how it is possible they are now the ones on the street corners. Participants had strong feelings concerning whether SESTA/FOSTA helps victims, stating that the law instead prevents non-trafficked sex workers from making a living safely.

Non-trafficked sex worker respondents also described how the shutdown of Backpage made identifying sex providers in bad situations "impossible." Previously, ads provided space for more free text content that facilitated the recognition of writing or linguistic patterns that could identify specific, known individuals and context around their situation. One participant described how she identified trafficking victims on Backpage using signs such as shared language across multiple ads intimating that the individual was *traveling in a large group* or *did not know the circuit*.[10] Now, ad posting forms for many of the remaining sites consist more of checkboxes with less room to write individualized content.

Practitioner and sex worker focus group participants also asserted that Backpage *helped* victims of trafficking before it was shut down because the site's management routinely cooperated with law enforcement subpoenas. This statement was supported by law enforcement and prosecutor focus group members. This had allowed for deeper investigation since

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[10] A "circuit" is a common traveling pattern that sex workers may use when working in different cities. For example, one known circuit on the West coast may involve San Diego, Los Angeles, Las Vegas, and Phoenix. There are many circuits throughout the United States.

information returned for subpoenas also included user and payment metadata as well as other ads related to the same phone numbers or posters. Relevant escort ads might be posted live for very short periods only and then removed, but Backpage provided the archived ad information.

Post-Backpage, law enforcement respondents reported facing more obstacles related to requests for evidence from other escort ad sites. Craigslist and Backpage had generally complied with subpoenas, but sites with servers hosted outside the United States often do not comply. Encrypted communications are also difficult, if not impossible, to subpoena; these may include private messages where the actual solicitation activity occurs. The use of other types of websites for solicitation, such as dating sites and apps like Tinder or Plenty of Fish, also make it difficult to obtain these encrypted records. Usually, a provider using a dating site sets up a regular dating profile and then contacts individuals via private message to solicit them. It was noted that the use of dating sites to solicit is more common among non-trafficked sex workers than trafficking victims, but a trafficker can run a dating website page for a victim.

Therefore, investigator and prosecutor participants reported less success with accessing and using ads since the shutdown of Backpage, with one prosecutor in the 2018 focus group stating that they had not prosecuted a case with ads since Backpage was shut down. Both victims and workers have gone underground, or their ads are scattered between many smaller, regional websites, making them more difficult to find. These findings were confirmed by others in the sex worker advocacy community.[11]

Several websites have started to censor many of the individuals advertising on their platforms in response to SESTA/FOSTA,[12] although a 2021 Government Accountability Office (GAO) report on the law's effects found that the law has only been applied against an ad hosting platform once in the three years since its passage (GAO, 2021).

Definitions of Human Trafficking

The U.S. federal Trafficking Victims Protection Act of 2000 (TVPA) (22 U.S.C. § 7101 et seq) provides the following legal definition of human trafficking:

> *Sex trafficking involves the recruitment, harboring, transportation, provision, or obtaining of a person for the purpose of a commercial sex act in which a commercial sex act is induced by force, fraud, or coercion, or in which the person forced to perform such an act is younger than age 18. A commercial sex act means any sex act on account of which anything of value is given to or received by any person. Types of sex trafficking include prostitution, pornography, stripping, live sex shows, mail order brides, military prostitution, and sex tourism. Labor trafficking is… the recruitment, harboring, transportation, provision, or obtaining of a person for labor services, through the use of*

[11] See Blunt & Wolf, 2020: https://hackinghustling.org/wp-content/uploads/2020/01/HackingHustling-Erased.pdf
[12] Ibid.

> *force, fraud, or coercion for the purpose of subjection to involuntary servitude, peonage, debt bondage, or slavery. Labor trafficking situations may arise in domestic servitude, restaurant work, janitorial work, sweatshop factory work, migrant agricultural work, construction, and peddling.*[13]

However, there is lack of conceptual clarity over what constitutes sex trafficking. Different ideological and practical considerations contribute to lack of agreement, as well as the conflation of all commercial sex with sex trafficking, whether or not force, fraud, or coercion are present. This lack of discernment between commercial sex more broadly and potential trafficking was evident in several of the interviews we conducted with investigators and often spills over into research as well. This lack of conceptual clarity and precise delineation in research and practice often ignores important phenomena and leaves survivors and non-trafficked sex workers feeling unheard or misunderstood.

The view of some advocacy organizations that all sex work is trafficking can color research and result in varying viewpoints pitted against each other (Schwarz et al., 2017; see also Chuang, 2010; Agustín, 2007). These views commonly sit between two ends of a spectrum: on one end, the abolitionist view that any form of sex work, and therefore, the entire commercial sex industry, is a violation of human rights to be considered modern-day slavery and the pro-sex work perspective that consensual sex work is a legitimate form of work and should be treated as such in law and society (Schwarz et al., 2017). When strongly held ideological differences color research, it can be unproductive for generating new knowledge, prevent discovery of solutions that help victims with their real-life concerns, and result in different sets of criteria by which to define and identify a victim.

Given that much of the escort ad indicator research to date is concentrated in the fields of computer science and technology-based inquiry, it is particularly pertinent that potential sources of bias are recognized and interrogated. Artificial intelligence is only as good as the criteria programmed into it, and trained classifier algorithms could generate false positives if the training criteria contains human biases (Hundman et al., 2018; Thinyane & Sassetti, 2020).

In one example conflating the concepts of sex trafficking and commercial sex, Ibanez and Suthers' (2014) study skewed and misrepresented the meanings of many indicators identified in previous research. The authors stated that movement, use of aliases, ads for incall services, traveling in groups, and the use of different ages in ads indicated the presence of trafficking without validating whether those assumptions were true. In a later study, Ibanez and Suthers (2016) explicitly stated that shared management (more than one provider or shared phone number/post ID) is an indicator of trafficking and was not indicative of non-trafficked sex work, also without validation. This assumption ignores that many non-trafficked sex workers travel together to protect themselves, as described by participants in our sex worker focus group. Such

[13] See Pub. L. No. 108-193, 117 Stat. 2875 (2003) (codified as amended in 22 U.S.C. §§ 7101-7110 (2003)). The Trafficking Victims Protection Act has been reauthorized and amended further in 2005, 2008, 2013, and 2018.

erroneous assumptions can then proliferate in the literature and become reinforced the more they are published, cited, and shared among researchers and practitioners.

Whitney et al. (2018) also conflated commercial sex and sex trafficking. This was apparent in their classification of language advertising any sexual services as a trafficking indicator. Their *sale of services* keyword category, which included language about price, was used as a flag for potential trafficking. They also examined whether there were emojis often used in tandem with pricing-related keywords (Whitney et al., 2018). However, by looking at indicators of commercial sex broadly without making distinctions between forced and independent activity, it is not possible to draw conclusions about indicator associations with potential human trafficking. Law enforcement and others cannot focus scarce resources on ads more likely to represent victims if every escort ad represents a potential victim.

For this study, human trafficking is defined in line with federal statute. The essence of human trafficking, further clarified using the Action-Means-Purpose (AMP) model, lies in the purpose: according to the TVPA, human trafficking consists of an *Action* (recruitment, harboring, transportation, or obtaining of a person) through *Means* (force, fraud, or coercion) for a specified *Purpose* (forced sex or labor). A trafficking victim is not free to leave his/her situation whether due to physical confinement, threats to themselves or their families, debt bondage, psychological and emotional control, or other means (Bales et al., 2009; Kreidenweis & Hudson, 2015).

The only exception to having to prove the means (force, fraud, or coercion) under federal law relates to the sex trafficking of minors. While debates about the level of consent possible when the individual is a minor are outside the scope of this study (however, see Marcus et al., 2012, for a good discission), by U.S. legal definition, a minor cannot consent to engage in commercial sex and law enforcement may consider that person a trafficking victim under the TVPA due to age alone. Otherwise, legally proving the presence of human trafficking under federal law requires the presence of all three elements (Action, Means, and Purpose) (Lugo-Graulich et al., 2020).

This study uses the same criteria. While other studies of broader scope may explore the complexities further, we chose the federal definition for this study because it represents the general components of which most state laws also require proof to prosecute trafficking charges. This definition also allows for delineation between human trafficking and other commercial sex.

There are two important exceptions to these classifications. First, in the present study, survival sex[14] was not classified as human trafficking due to the lack of an identified third-party controller or trafficker. Under the TVPA, survival sex is classified as human trafficking because it involves commercial sexual exploitation (see above). However, in terms of behavior,

[14] Survival sex is the exchange of sex for something of value, such as food, money, or a place to sleep for the night, but does not always involve a third party acting as a controller (Dank et al., 2015).

individuals engaging in survival sex are assumed to engage in similar ad posting behavior as independent, non-trafficked sex workers because of the lack of third-party involvement in directing how they post ads.

Second, where bottoms were explicitly identified in case files, either through their images or phone numbers, these cases were classified as sex trafficking cases; however, specific ads that could be confirmed to correspond to an identified bottom were separated from those confirmed to belong to specific victims and classified as "unknown/no trafficking present." Because bottoms typically have experienced victimization in the past, there is a possibility that for some of their ads, they could be classified as victims. However, this probability is low given the frequency with which advertised providers change their phone numbers.

Nevertheless, victim advocates in the practitioner focus group stated that this contextualizing of the roles of victims, bottoms, and perpetrators is important, given that posting or facilitation responsibilities are not always clearly defined, and victims may be made to carry out certain activities to limit the exposure of the controller. For example, victims are often charged with trafficking offenses simply because they posted an ad, even if it was under duress. However, the individual posting the ad may just be the individual with computer skills and not necessarily the person in control of the operation. Furthermore, the victim advocates did not believe that the identity of the ad poster was related to decisions about ad content; the trafficker may dictate the content of the ad to the poster. Allowing more time to gather information during an investigation can help ensure all necessary facts are discovered before determining whether trafficking is present.

Escort Ad Indicators Identified in Past Research

When investigating online escort ads to identify sex trafficking or support investigations, investigators look for certain indicators in the ads that signify that there may be a potential victim. Kejriwal et al. (2017) define an indicator of human trafficking as "a flag, typically binary, but potentially multi-categorical, that is suggestive of suspicious activity that would warrant investing more resources into investigating the subject of the content being flagged" (p. 1). While investigators would like to be able to immediately classify an ad as a trafficking case based on the presence of a single indicator, "this is extremely problematic… without a proper field level investigation. A more attainable goal in data mining is to instead use the mined indicators to *guide* further investigation" (Kejriwal et al., 2017, p. 2). Additionally, escort ads that contain potential indicators of human trafficking must also be considered in the overall ecosystem of the online commercial sex industry, of which sex trafficking is only one part.

The next section discusses indicators examined in past research, how they were defined, and the rigorousness of the methods used to study them. Input from the three first wave focus groups on the potential meanings of these indicators is also woven throughout. This information was then used to define our hypotheses. Indicator categories included language indicating a young provider, client screening criteria, ethnicity specification, indicators of general movement and of controlled movement, shared management, financial and price indicators, indicators of commercial sex services, and image and emoji indicators. We also explored potential combinations of indicators that might be more useful than any indicator in isolation.

Young Indicators

Indication that a provider may be young, or a minor, is one of the most common indicators that investigators look for. It is also one of the most common marketing techniques used by non- trafficked sex workers, according to our focus groups. According to TGG Group (2016), the ages that traffickers or victims of traffickers listed in their ads and reviews were ten times more likely to be in the range of 18 to 20 years old, averaging three years younger than the average posted age in the overall dataset. According to Bouché (2015; 2018), Tidball et al. (2016), and Whitney et al. (2018), escort ads used a number of specific phrases that they classified as signals to a buyer of a victim's status as underage. Table 1 shows words and phrases identified by these authors as signifying youth.

Bouché (2015) mentioned that some victims she interviewed did not use signaling keywords because they believed that sex buyers did not strongly consider age when purchasing sex. Bouché (2018) also found that a small sample of victims listed their actual birth year in the

Table 1: "Young" Language Indicators Specified in Previous Research

addict	girl/girly/girlfriend/girl next door	prime
amateur	ho	PYT[15]
baby face/baby girl	hot lizard	school
barely legal/18	innocent	slut student
bunnies	liked girls	straight out
1986 Firebird	little	student/girl
candy	lolita	sugar daddy
clean	lovely	sweet/sweetheart
college	my underage bitch	teen
coochie (shaved)	naïve	tender/tenderoni
daddy's little girl	never been touched	tight
fantasy	new/new in town/new in the life/new to the game	tiny
fillies	non-pro	virgin
flowers	novice	young/young meat/ youthful
fresh/fresh meat	petite	

[15] PYT is an acronym for "Pretty Young Thing."

free text portions of their ads to signal their age to buyers, while listing an older age in the designated age field. Tidball et al. (2016) identified variations of "new" language as an indicator of youth, but other scholars categorize them as indicators of movement (e.g., "new in town"). Whitney et al. (2018) also performed a literature review and interviewed law enforcement investigators to compile a list of indicators of trafficking. They grouped language into the following categories: *sale of services, minor victims, ethnicity/race identified, country of origin identified, transient activity,* and *non-independent worker/restricted movement* (Whitney et al., 2018). However, their study did not differentiate trafficking ads from non-trafficking ads.

Regarding the word "young" or other terminology connoting youth, sex worker focus group participants asserted that this is a common marketing strategy and that anyone who markets themselves as a youthful worker will use youth-signaling language in their ads regardless of their actual age. This means that this commonly used "red flag" might have little power in differentiating between trafficking and consensual sex work. Sex workers described how, for example, madams in Nevada brothels taught them to play up their strengths and market themselves in a unique manner and to niche markets to attract more business. "Everyone knows their strengths and weaknesses in advertising," said one participant. Sex workers stated that anyone under twenty-five will use the term "young" in their ads. While law enforcement and survivor focus group participants disagreed with this, it cannot be assumed that young language reflects that the provider is underaged simply by virtue of the language's presence in the ad.

Investigator participants did suggest an additional item for the ad-level coding instrument: "purported age." Purported age, or stated age, was suggested based on their shared belief that anyone listed as under the age of 23 is probably a minor—especially those listed as 18 or 19 years old. It was mentioned that police particularly search ads by age when trying to find runaway youth.

Client Screening

Some textual components considered by many to be trafficking indicators may alternatively be viewed as indicators of sex workers managing risk by screening clients and establishing rules and boundaries for safety. These textual indicators include prohibitive phrases, such as "no law enforcement," "no games," "no dirty talk," "no blocked calls," and "no text messages" (Moorman & Harrison, 2016). The authors found these elements to be most prevalent among the most vulnerable sex workers, particularly transgender individuals and black females. Moorman and Harrison (2016) established how analysis of the same phrases using different theoretical frameworks provides alternative perspectives on their meanings and their connection to non-trafficked sex worker vulnerability versus trafficker activity.

Ethnicity of Client

A separate client screening variable pertains to specifying requirements concerning client ethnicity, which may imply the presence of a potential controller. For example, TGG Group

(2016) noted that law enforcement often looks for phrasing such as “no black men”, “no AA,”[16] or “I love white men” either in the text or superimposed over an image (TGG Group, 2016). The assumption among law enforcement is that this phrasing is used by black pimps posting ads for victims to deter other black men, potentially rival pimps, from visiting trafficking victims under their control. Survivor focus group participants agreed. It is assumed that a rival pimp could potentially recruit or kidnap a victim away from the trafficker (Dank, et al., 2014). However, TGG Group (2016) found no statistically significant difference between escort ads they categorized as posted by traffickers and ads in the wider dataset containing the same phrases.

Ethnicity of Provider

In reference to mentioning *ethnicity or nationality of the provider* in the ad, survivor participants said that the term “Asian” may be a trafficking indicator. However, mentioning ethnicity or nationality in an ad for a non-trafficked worker was described as “strange” by the sex worker participants, despite it being a widespread practice. However, it remains undetermined whether the mention of specific provider ethnicity or a more general term like “exotic” is anything more than a marketing tactic. Nevertheless, Whitney et al. (2018) categorized the following terms as trafficking indicators within the *Ethnicity/Race* category: *AA, African American, Brown Sugar, Black (Beauty), Pocahontas, Asian, Pacific Islander, Caucasian, White, European, Latina,* and *Hispanic*. Similarly, Whitney et al. (2018) classified the following keywords under *country of origin* in their dataset: *South, East Asia, Eastern/Western Europe*, and *Central America.*

Movement and Controlled Movement

According to TGG Group (2016), traffickers and trafficking victims were less likely to travel than non-trafficked sex workers, which they surmised by noting the use of phone numbers with local area codes in the ads. However, the authors do not address whether traffickers may be using disposable phones to conduct activities in each city to avoid detection, which is a common practice according to all three of our focus groups. Other researchers posited indications of movement as a sign that individuals *were* being trafficked.

General Movement

Whitney et al. (2018) classified indicators of *transient activity/movement* of victims as trafficking indicators, which included the following terms[17]: *new, new in town, just arrived, weekend only, limited time, new arrival, brand new, in town for the weekend, gone, back, leaving soon,* and *only for the weekend*. The focus group participants echoed these terms.

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[16] “AA” = African American

[17] Note that Whitney et al. (2018) included the phrases “new” and “new in town” under both the *youth* and *movement* categories in their study.

Survivor participants indicated that these movement terms were relevant and indicate potential control. They suggested examining this language closely with other potential movement indicators, such as the same ad or photo posted in different states and locations. The investigator, prosecutor, and victim advocate participants agreed.

Sex worker participants, on the other hand, asserted that non-trafficked sex workers often travel or tour to get more work, avoid detection by law enforcement, or avoid persecution in their local communities. They also use movement language for marketing. Sex workers stated that the term "limited time" implies that the provider is on tour and that "brand new" was not a trafficking indicator. College girls try to look "fresh" when marketing themselves, but sex workers said this does not mean that they are trafficked. Non-trafficked sex workers asserted that everyone uses this technique to stay current and drum up demand. However, they described one movement indicator that could indicate trafficking, which is noticing that the same ad is being placed in many locations *but not disclosing that the individuals are traveling*.

Potential Controlled Movement

Whitney et al. (2018) classified the following language under the *non-independent worker/restricted movement* category:

- incall only
- no outcall
- come to me
- my house

Survivor participants agreed with these and also suggested "no law enforcement allowed," which was mentioned earlier under the client screening category. Survivors said that the use of "in-calls only" in an ad can indicate that the provider is being monitored at a hotel, and that "no law enforcement allowed" indicates that a pimp has told the provider that police must disclose that they are law enforcement if asked. It was a common notion years ago that law enforcement had to disclose their occupation if asked, and survivors indicated that the presence of this language may indicate that a trafficker coached the poster.

However, the *potential controlled movement* indicators listed above (incalls only, no outcall, only incalls, come to me, my house) were again described by sex workers as safety measures that do not necessarily indicate trafficking. Specifically, "incalls only" can represent workers reducing their risk of harm by hosting and controlling the space for the transaction. Outcalls were described as more dangerous because the buyer is given the power to arrange the location. Sex worker participants stated that the term "no outcalls" indicates that the worker does not trust their clientele and that an independent provider is more likely to use that term. "My house" was described as a sign of consent and another safety measure, as it signals that the provider feels safer in their own environment. Sex workers asserted that a provider using this term is probably not being coerced, because a trafficking victim typically does not have roots in one location.

Ads for Potential Commercial Front Brothels

Commercial front brothels can be a venue for sex trafficking and involve restrictions on the movement of providers. Survivors, law enforcement, and victim advocates agreed that the presence of ads for commercial front brothels on typical escort ad sites would be suspicious. Sex workers stated that ads for potential commercial front brothels would also be suspicious to see for non-trafficked sex workers; in their experience, public-facing sites like Backpage were simply not outlets that brothels often used to advertise. Rather, brothels tend to target specific clientele (Dank et al., 2014). However, sex worker respondents stated that an ad for such an organized establishment could also represent a dungeon specializing in BDSM. In our dataset, massage parlors often advertised on commercial sites like Backpage, but in the massage section rather than the escort section. Massage establishments also have their own websites, like *bodyrubs.xxx* and others whose ads are also picked up by web scrapers such as MEMEX/Tellfinder.

Shared Management

Survivor participants asserted that the statements "friend in town" or "can bring a friend" indicated *shared management* and were "huge" trafficking indicators. In contrast, sex workers pointed out that an ad referencing multiple providers could simply indicate that two or more workers are traveling and advertising together for safety reasons. In this instance, operating costs such as ads or hotel rooms are split between the involved sex workers or commission is earned. Referencing multiple providers, therefore, may not be indicative of trafficking.

Sex workers recommended paying attention to ads referencing *three* or more individuals because that may be an indicator. Signs might include posting ads for the individuals in the group separately, but in the same location and with connectivity to each other. This connectivity can be demonstrated through evidence of traveling the same circuit together (i.e., posting in the same cities at the same times), appearing in the same ads together, using the same phone number across all the ads, and/or wearing similar clothing. The means with which providers afford group travel and how they know how to work the circuit should be considered, as trafficking victims are more likely to lack knowledge of typical practices and the money to pay for their own travel.

Financial and Price Indicators

Whitney et al. (2018) classified the following price indicators into their *sale of services* category: *donation(s), price. rose(s), dollar(s), jacks, jacksons*, and *hundreds*. As a reminder, Whitney et al. conflated all sex work with trafficking in their study. Survivors stated that, in their experience, language about payment was typically phrased using any word other than "dollars" (e.g., "benjamins" or "stacks") to avoid being flagged as advertising for commercial sex. As mentioned above, emojis can also be used to indicate payment or price, such as a specific number of roses. Whitney et al. (2018) found that the rose emoji was commonly used to indicate price in their sample, specifically in ads containing other trafficking keyword indicators.

However, sex workers stated that the *language about payment* examples provided are used by everyone and do not specifically indicate trafficking. "Tribute" was mentioned as an additional term the project team should add to the coding instrument for *language about payment*.

Sex worker participants also suggested exploring how to add indicators that could discern whether the person featured in the ad is educated on sex work as a business model. A provider displaying a lack of business knowledge, such as inexperience with posting ads or charging incorrect rates, could indicate that an inexperienced trafficker or victim of trafficking is posting the ads. Examining out-of-market-range rates and very unusual use of language would be a way to start looking at this. Victim advocates from our focus groups agreed that online ads operate in the larger ecosystem of a sex marketplace, not in a vacuum. It was mentioned that mapping the whole market, not just ad information, might be more useful for investigations.

Practitioner and sex worker participants also suggested that the research team might examine prices in ads that deviate from the market average if the data are available. While our sample was not large enough to test this, DeAngelo et al. (2019) conducted a large market pricing study using machine learning techniques with the archived MEMEX dataset as of March 2016, which contained 30 million U.S. ads and reviews. They found that the average price for an hour of "incall" service, where the customer comes to the provider, was $151.00.

Ad metadata and financial indicators. Sex workers also provided context to help interpret *financial information* indicators that can be pulled from the metadata of ads, if available. Metadata is information that provides details about the ad poster, such as their user ID, IP address, or payment information.[18] One sex worker stated that she recognized it was not possible to be fully untraceable on the internet, so she was not hesitant to use credit cards to buy ads because there was no way to hide it anyway. Furthermore, she reported that the only sites left to advertise on immediately after SESTA/FOSTA passed required real-name verification. She felt that due to this requirement, many individuals have simply given up on shielding their identity, which made the use of a credit card to pay for an ad less meaningful as an indicator for differentiating trafficking from non-trafficked sex work.

In reference to login ad metadata, one sex worker hypothesized that if one login was used to post ads for many people, it could be a flag for trafficking. However, this could also represent a brothel or dungeon that is not necessarily involved in trafficking. For our data collection, metadata was usually only available for ads that were provided to an investigative agency in response to a subpoena.

Use of Images

Bouché (2018) found that most victims used images or photos in their ads and the content of these images is a frequent focus for academics and law enforcement. Law enforcement in

[18] https://techterms.com/definition/metadata.

particular reported scouring ads online, looking for individuals who appear young or underaged as a top indicator. However, victims reported that ads featuring a minor were more likely to use an image of a different person to conceal the age of the victim (Bouché, 2015). Sex worker participants also stated that providers use photoshop and posing to appear young in photos, often coupled with terminology indicative of youthfulness, as a marketing tactic. The sex workers stated that when they encountered actual underage providers working on the street, they often dress up and use more makeup to make themselves look over eighteen and avoid trouble, and they do this for photos as well. Indeed, the judgement of whether an individual in a photograph is truly underaged can be quite subjective and unreliable (Cafarella et al., 2021).

Survivor participants emphasized that photos could contain other information relevant to screening for trafficking and the age of the person advertised. Law enforcement, prosecutors, and survivors suggested these possible indicators: *face of individual obscured* and *images of body parts only*. Faces can be obscured in several ways, including shining a bright light on the individual to blur their face out, covering the face with an emoji, pixilating the face in the photo, or simply cropping the provider's head out altogether. In addition to anonymizing, law enforcement and survivor respondents described pixilated faces as "code" for a younger individual. However, Bouché (2018) found that there was no significant difference between older and younger victims regarding whether their faces were obscured or hidden in images.

Survivors also suggested *images taken in hotel rooms*, including evidence of keys, soaps, and hot tubs, and *photos taken by third party*. Survivors indicated that images taken in hotel rooms were suspicious if minors are involved, but a picture taken in a hotel room is not a trafficking indicator by itself. In cases involving escort ads reported to the National Human Trafficking Hotline, 81% of cases occurred in a hotel (Anthony, 2018). Hotels can be used for both incalls (provider's room) and outcalls (buyer's room) (Anthony, 2018). Anthony (2018) found that 45% of survivor survey respondents stated that their hotel was booked under their trafficker's name. For this reason, when images in escort ads feature hotel rooms, law enforcement and researchers frequently consider the ad positive for trafficking (e.g., Tong et al., 2017). The prevalence of this narrative led to the development of technology that attempts to identify specific hotels through capturing images of hotel rooms through travel websites and crowd-sourced images from mobile applications such as TraffickCam, and then comparing those images to the background of images in escort ads (Stylianou, et al., 2019; Couch, 2016).

Survivors noted the importance of whether the photo was taken by a third party (rather than a "selfie"); however, examples of how one might make that distinction were not given. A related distinction mentioned by sex workers was whether the photo was taken by a professional, apart from those involved in BDSM and some high-end work. Lower-end providers and traffickers will not invest the money in professional photos for their advertisements.

Sex worker participants stated that it is most pertinent to evaluate whether the subject appears to want to be in the image. However, they also caution that evaluating an individual's attitude or appearance in a photo is extremely subjective. While an individual appearing forced in a photo could be an indicator of trafficking, there are several examples of when this would not be so. For example, it could simply be a bad photo, or the individual may pose looking scared on purpose to appeal to someone interested in BDSM (i.e., a submissive looking for a dominator). Therefore, it is important to examine the appearance of the individual in the photo in context with other indicators.

This photo indicator of *unwillingness* sparked quite a debate in the focus groups. Victim advocates and sex workers mentioned that the viewpoint that all prostitution is forced is problematic; consent must be examined. This view was not shared by all law enforcement or prosecutor focus group participants, several of whom stated that that no one would engage in prostitution if they had a choice. This difference in perspective has powerful influence over interpretation of photos and other ad indicators, just as it can influence the design of research. The underlying assumption of this study is that there is a difference between sex trafficking and non-trafficked sex work, so we coded for this indicator in all the ads for which we had photos. Unfortunately, this could only be coded as present in ads from one of our cases, which made it unfruitful to include in our final analyses.

Finally, survivor participants asserted that if the provider met in person is not the actual person advertised, that could be an important indicator, but sex worker participants stated that this does not always indicate trafficking. It could instead be representative of someone who used old pictures. However, there have been scammers in operation using fake pictures. Sex workers went on to describe how scammers occasionally steal pictures or even copy entire websites by taking sex workers' or clients' deposits to fund that activity. Survivors suggested that looking at visible tattoos could be a way to identify if the provider in the photo was in fact the person met in real life. This information is not available solely from an ad but could be combined with information in a police report narrative to build a case.

Emojis as Content Indicators

Since they were introduced in 1998 and adapted into the Unicode standard of text across computer platforms in 2010, emojis have become a significant part of electronic communications across languages and cultures (Pardes, 2018). Emojis, small digital characters that can be inserted into text in messages and online postings, are also commonly found in escort ads and can describe sexual services, a provider's physical attributes, or characteristics of financial transactions. They can also obscure identifying or contact information and attract attention.

Whitney et al. (2018) published a preliminary study using natural language processing to understand correlations between emojis and other hypothesized indicators. Whitney et al. (2018) and our survivor focus group participants both identified the *rose* and *rosette* emojis to indicate price; the *growing heart* emoji to signify a young girl; *cherry* and *cherry blossom* emojis to reference a minor female or virginity (see also Wang et al., 2020); the *airplane* or *airplane arrival* emoji to demonstrate movement, specifically the arrival of a minor; and the *crown* emoji to signify a pimp controlling a minor.

Whitney et al. conducted correlational analysis to identify emojis associated with certain language indicators (Whitney et al., 2018). Their limited regression results showed some weak correlations, but nothing causal. Results for the seven emojis they regressed on the *sale of services* (pricing) language indicator (*roses, rosettes, money bags, money with wings, heavy dollar signs, dollar bank notes,* and the *100-points emoji*) were inconclusive. One significant finding was that the odds of *rose* emojis being used increased when *pricing* keywords were used in combination with *transient* keywords (Whitney et al., 2018).

The major limitations with the Whitney study were the small number of emojis that were tested (just ten), and the failure to ground the results in the lived experiences of sex trafficking survivors or non-trafficked sex workers that have used ads. The authors also did not differentiate between commercial sex and sex trafficking, neglected to collect any case data, and did not test their trafficking indicators against a counterfactual.

According to our survivor focus group, while some emojis may indicate a trafficking situation (such as *candy* or *cherries*), many simply advertise specific services. For example, an umbrella (open or closed) with water drops can indicate parameters for condom use and a tongue sticking out with water drops may indicate oral sex. Survivors also noted the difficulty of using emojis as indicators since ad content is often copied, especially if certain ad characteristics become known to generate more business. Our sex worker focus group members stated that emojis are used by everyone and do not indicate trafficking. Rather, their use is a marketing technique used especially by college girls because it is a familiar language to them.

Useful Indicator Combinations

Survivors and sex workers in our focus groups asserted that the inclusion of one indicator in an ad is not enough to conclude that it is connected to human trafficking, but that the presence of multiple indicators simultaneously increases the likelihood. One sex worker participant provided specific trafficking and consent indicators that she has seen in her experience. Importantly, she mentioned that all of the following must be present to indicate trafficking: posting high volumes of ads on low-end sites (not high-end sites that can charge $150 to $500 per ad); provider moving cities every three to four days without socioeconomic means to transport themselves; same phone number for three to four girls all moving together; same verbiage used for postings of different providers; and poor writing in the content of the ad which could indicate a low education level or someone less savvy in the business.

Indicators of *consent* mentioned included posting on high-end sites and having professional video or photography. These expensive investments imply that a savvy businessperson is investing in their product, something a trafficker will not do with providers they feel are disposable. While these could also represent an abusive relationship with a partner or a pimp, respondents stated that there is generally a smaller chance that force, fraud, and/or coercion are present in these cases.

Indicators in Sex Buyer Reviews

Indicators of trafficking in sex buyer discussions and review forums are different than many of the assumed indicators in ads. While our analysis did not focus on reviews due to the limited numbers of reviews associated with our fieldwork cases, the insights from research on reviews warrant discussion.

Instead of language and information intended for marketing purposes, included either by a provider or a trafficker, sex buyer review forums are spaces where sex buyers congregate to share their interactions with sex workers and trafficking victims in real, often graphic conversations. Many habitual sex buyers consider purchasing commercial sex to be a hobby, referring to themselves as hobbyists, and openly share information about their experiences with others. Because of these honest and real accounts of sexual encounters, sex buyer review forums can have pertinent and often crucial intelligence about trafficking victims (Villarreal, 2019). Buyers may also paste copies of ads into their reviews.

There are certain limitations to the utility of sex buyer review forums for identifying trafficking victims. Because of the anonymity, there is no way to verify accounts of sex transactions provided by posters happened and are not exaggerated. Accessing the data via open source is difficult because most messages lie behind paywalls. Additionally, much information exists in private messages between buyers; records of such private conversations are almost impossible to access (Bounds et al., 2020). Analysis is time intensive and can be subjective because the content is often not limited to specific keywords, but rather multiple descriptive sentences or phrases (Bounds et al., 2020).

In analyzing the profiles of providers on review sites, TGG Group (2016) found that trafficking victims were less likely than the general population of sex workers to advertise willingness to engage in certain intimate acts, such as kissing or group sex. TGG Group (2016) stated that their sample of sex buyer reviews written about known trafficking victims was limited; however, they provide a preliminary analysis. TGG Group (2016) found that reviewers gave ratings to trafficking victims that were an average of one point lower (on a scale of 1 to 10) than those for the general population of providers and were more likely to complain that services were not "delivered as promised" (TGG Group, 2016, p. 11).

TGG Group (2016) concluded that sex buyer reviewers in their sample who admitted to seeking out providers between the age of 18-20 years old have strong preferences for providers listed in this age range and were seven times more likely to seek younger providers again. Reviewers in their sample seeking out other age groups did not exhibit the same strong preference (TGG Group, 2016). Since minor victims are often advertised as 18-20 years old, regardless of the poster (Bouché 2018; TGG Group, 2016), it might be inferred that these reviewers understand coded language in ads, given that online sex buyer forums also forbid explicit mentions of sex with minors (Bounds et al., 2020).

Bounds et al. (2020) examined USASexGuide, which was a free online forum divided into topic-specific discussion boards described as a site for heterosexual men seeking sex with women. Users were anonymous and categorized as "members" or "senior members." Senior members applied for senior status, held memberships for at least six months, posted at least twenty-five times, and were approved by an administrator. Guests were allowed on the website but not permitted to post. Bounds et al. (2020) used indicators previously identified in the literature as warning signs of sex trafficking to examine reviews, including buyers' descriptions of *providers' youth, impairment, survival needs, presence of pimps*, and *communication with the provider*.

Bounds et al. (2020) were careful to mention that they used previously identified indicators of sex trafficking to avoid confusing sex trafficking with commercial sex. However, as discussed more thoroughly in the next section of this literature review, some of the indicators used by Bounds et al. still confuse or equate the two. The dataset they used was also small, with 666 total posts analyzed and only 68 unique instances of language that indicated potential sex trafficking identified. Their analyses are explored below:

- *Youth.* Desirability of *youth*, criticism of older providers, young appearance, sexual inexperience, fear, or reluctance (41% of unique language instances identified).
- *Impairment or Survival Needs.* Indicators of vulnerability. *Impairment* language included descriptions of intoxication by drugs or alcohol or symptoms of mental illness. *Survival needs* covered descriptions of malnourishment, poor hygiene, lack of education, or lack of family involvement/support system. Reviews containing these indicators demonstrated the buyer's general awareness of the provider's vulnerability and their use of it for their personal gain or pleasure (31%).
- *Presence of Pimps.* Descriptions of a trafficker's physical presence during the transaction, images featured in the ad did not match the provider at an appointment, groups of providers present at the appointment, and difficulty maintaining communication with a provider (28%). Controlled communication included descriptions of the provider not having a cell phone, inconsistent phone numbers, difficulty making contact, or the provider being unable to speak English.

While Bounds et al.'s (2020) study provides some initial insight into the existence of potential indicators in sex buyer reviews, the dataset was too small to draw any substantive conclusions about overall prevalence of indicators in such reviews. Further, some indicators such as youth or multiple providers conflate sex trafficking with non-coerced commercial sex. Indicators of fraud and coercion were also prevalent, with reviewers often acknowledging a provider's basic survival needs as their reason for engaging in commercial sex; even sometimes justifying buying sex as an act of charity (Bounds et al., 2020). Indicators of pimp presence in the brokering of transactions were also prevalent in the reviews (Bounds et al., 2020).

Analysis of sex buyer reviews has potential for increasing the ability to identify potential trafficking situations because information from a real interaction is available, often in detail. The identification of valid indicators in reviews still may not make it possible to verify a trafficking situation based on presence alone; however, in digging underneath the graphic language and buyers' jockeying for status in the narratives, descriptions of force, fraud, and coercion are much clearer in review posts on a moderated site with membership criteria than in the coded language of publicly posted escort ads.

Methodological Obstacles to Identifying Valid Indicators

Assumed trafficking indicators

Much of the field examining online escort ads has been dominated by computer scientists testing machine learning models to predict trafficking and assist law enforcement. However, Alvari et al. (2017) stated that while there are indicators of trafficking examined in research, there has been no analysis to determine whether the stated indicators demonstrate force, fraud, or coercion or are merely indicators of commercial sex activity generally (see also Tong et al., 2017; Nagpal et al., 2017; and Wang et al., 2020 for examples). For example, Skidmore et al. (2017) assumed that the presence of two sex workers operating ads with slightly different phone numbers, identified via SIM cards purchased simultaneously from the same location, was indicative of force. To date, there has been less engagement by social scientists to validate the true meanings of indicators to ensure that computational and technological solutions produce valid, real-world-applicable results—results that can have a real impact on identifying victims of human trafficking.

Classifying and coding for the presence of sex trafficking

The lack of grounding of past research in the real-life experiences of providers in the online sex marketplace is an obstacle for studies focused on interpreting the meanings of indicators in ads. Law enforcement officers, academics, and trafficking victim service providers are generally considered the subject matter experts in this area and are often tasked with hand-coding escort ads for researchers. Survivors are consulted as well, but less frequently. The identities of these data coders are not revealed to preserve their anonymity (Tong et al., 2017; Whitney et al., 2018; Alvari et al., 2016; Alvari et al., 2017); however, variations in industry, role, geographic area, training, experience, and personal biases are also not addressed or discussed. Furthermore, non-trafficked sex workers are typically left out of the conversation altogether. While interrater reliability (IRR) is usually carried out to assess consistency between coders (e.g., Cafarella et al., 2021; Tong et al., 2017), biases at the stakeholder group level can fundamentally change how indicators are classified and, ultimately, study results. This lack of specificity makes it difficult to fully understand how these factors may have affected various datasets and the validity of study results.

Alvari et al. (2016) used a law enforcement officer and a survivor to code the same 150 ads as positive or negative for trafficking based on their expertise (Alvari et al., 2016). Expert #1 labeled 38 ads as "positive" and Expert #2 labeled 139 ads as "positive," with only 31 positive and 4 negative cases in agreement (Alvari et al., 2016). This represents extremely low interrater reliability that would cast doubt on study results (Alvari et al., 2016); typical IRR standards require a kappa of at least 0.61. Alvari and colleagues broadened the scope of analysis of trafficking indicators in their 2017 follow-up study, but they attempt to address the inconsistency problem in the 2016 paper by having only one ad coder (law enforcement expert) code multiple samples of trafficking and non-trafficking related ads along a scale of risk. Using subject matter experts to make determinations of trafficking without corroborating information (acknowledged by Alvari et al., 2017) is inherently flawed and no information is provided about the level of experience of either subject matter expert in these two studies.

Tong et al. (2017) used "expert annotators" to increase the validity of their coding for a set of 10,000 ads from across the U.S. and Canada and went to great lengths to demonstrate the depth of their coders' experience. IRR was calculated by having the annotators code the same set of 1000 ads for the presence of trafficking, resulting in an 83 percent pairwise agreement (Tong et al., 2017). These law enforcement coders did not have ground truth case outcome information to corroborate actual case status, instead merely assigned levels of risk, and neither survivors nor non-trafficked sex workers were consulted in the research design. Interrater reliability alone was described as sufficient basis for accepting determinations of trafficking (Tong et al., 2017).

Nevertheless, the "Trafficking 10K" dataset has been used for at least two other machine learning studies of trafficking indicators in escort ads (Zhu et al., 2019; Wang et al, 2020). This can result in datasets being used to attempt machine learning studies where case outcome determination is based on subjective opinions, and when multiple authors continue to publish from the same datasets, potential errors may become entrenched.

Focus Group Concerns About the Research and Its Use

Given the considerations identified from previous literature that can affect not only the validity of research but can cause unintended consequences or harm when findings are applied to real investigations, we now present additional concerns from our focus group members about how the present research would be conducted and used. Development of a tool to guide investigators and researchers in interpreting indicators of trafficking in escort ads has the potential to impact the lives of trafficking victims and non-trafficked sex workers in both positive and negative ways. The project team incorporated their input on these issues, described below, into our research and our recommendations.

Criminal justice and victim advocate participants expressed several concerns about how results from this study would be presented. Practitioners advised that we frame our results carefully, recognizing that this research is examining an opaque, not well-understood area with measures that are difficult to define. In the 2018 meeting, they cautioned that this study may not result in the identification of definitive indicators of sex trafficking that can then be targeted in ads, which was a possibility also recognized by the project team. Nevertheless, the project team hopes to develop greater understanding of these phenomena than has been available so far, even with the shutdown of Backpage and the passage of SESTA/FOSTA.

Practitioner participants also voiced concern over the determination between positive, negative, and undetermined cases of trafficking. They suggested that cases be coded as either positive or undetermined, considering the ambiguity around cases of prostitution and levels of evidence rather than definitively asserting that a case is negative. There is always missing information in law enforcement and prosecutorial case files and facts not uncovered in an investigation. We later decided on a three-category coding scheme, described below in the methods section, of Yes, No, or Unknown for trafficking.

Furthermore, practitioners advised to make it clear that this project is not covering the entire sex marketplace, but is examining a small sample, which we readily acknowledge. Billions of ads are posted across the country and this study takes a comparatively small sample of ads from a few cities because of its focus on cases in which outcomes are known independently of rating an ad on perceived risk, no matter how educated the guess. Results should thus be presented carefully and not over-generalized to the entire sex market. There is much to learn examining this study's sample; however, larger conversations around sex marketplaces in reviews, ads, social media, and other places on the web should be recognized. Additionally, practitioners asserted that prevalence rates could not be determined from examination of these data. We do not attempt to do this.

Survivor participants expressed a belief that law enforcement struggle with how to use online ads following SESTA/FOSTA. Survivors wanted to ensure that the research articulated that the same advertising strategies and ad elements used when Backpage was active are still being used today in different fora. Additionally, survivors asserted that pimps and traffickers are already "five steps ahead" of law enforcement, and therefore it will take time to identify the new tactics they have developed to adapt to the changing commercial sex marketplace.

Trafficking survivors expressed concern over how law enforcement will use the information from this research to enforce the law. Survivors cautioned that law enforcement cannot simply take a formula of, for example, not investigating a suspicious ad unless eight indicators of trafficking are present. Furthermore, survivors were insistent that this research will not change the reality of how trafficking manifests and its emotional, mental, and physical effects on victims. Using an ad as the basis for conducting a sting and then telling an individual that they are a trafficking victim does not acknowledge the journey of victims in understanding their victimization before they cry out for help. In their application of the proposed guidebook, survivors expressed that law enforcement must continue to do their due diligence by fully investigating while being trauma-informed and victim-centered. The availability of a guidebook to help interpret online evidence may provide direction but cannot and should not replace comprehensive investigations.

Non-trafficked sex worker participants voiced many concerns, including a desire for this research to help trafficking victims. One participant expressed that this research felt important to helping victims, having been a trafficking survivor herself before she became a consensual sex worker without a trafficker or controller. However, another participant felt that dissemination of this research might prove dangerous for non-trafficked sex workers because it may give law enforcement another tool to target them. This participant in the 2018 focus group asserted that almost all indicators currently used by law enforcement can also be used against a non-trafficked sex worker in court, regardless of whether this research is framed to prevent harm. This was a point of major concern for all sex worker group participants, and they hope that the present research could change this.

Non-trafficked sex workers also expressed frustration over the criminalization of those voluntarily choosing sex work to make a living. One participant described how she pays taxes on the money she earns, but fears being arrested for doing work that is requested and voluntary. Sex workers described constant worry and the need to keep lawyers available due to the risks they face. While participants recognized that law enforcement does desire to help trafficking victims, sex workers who are not being trafficked are frequently arrested in these cases—especially in sting operations—and face criminal charges that impact their livelihoods.

Literature Review and Expert Background Conclusion

Conceptions of online sex trafficking in media and culture have been rife with myths and errors. These misconceptions are often injected into the public narrative with the intention of scaring or shocking the public into caring about the issue for a variety of advocacy purposes. This same mindset has often seeped into academic inquiry. A perspective grounded in a realistic reflection of online sex marketplaces is particularly important to jurisdictions and researchers who recognize the difference between consensual sex work and sex trafficking and the vulnerabilities faced by members of both provider groups. Additionally, understanding the methodological pitfalls of many of the studies in this review is important for moving forward with impactful research.

More research on the manifestation of sex trafficking in online escort ads that interrogates biases and assumptions must be conducted to better understand how trafficking fits into the overall online commercial sex industry. A solid foundation involving input from the necessary stakeholders on the nuances of online exploitation is required before identifying solutions and introducing technology solutions for victim identification.

For most studies focusing on escort ads, the purpose of identifying predictive trafficking indicators is to enable the focus of scarce police resources when scouring high volumes of escort ads to identify potential victims (Tong et al., 2017)—whether this scouring is done manually or with the help of algorithms and a web scraper. For this reason, much of the literature is heavily focused on technologies and computational methods that may provide efficiency in sifting through large datasets rather than the validity of the indicators themselves. This is a noticeable gap in the literature.

Most indicators identified in previous research were selected by investigators, developed anecdotally by government bodies and law enforcement officers in the field, and then subsequently used by researchers and technology developers without testing predictive power against a counterfactual. Technologies and computational methods built to scour for these indicators include natural language processing (Tong et al., 2017), artificial intelligence, textual analysis, semi-supervised learning, and machine learning.

TGG Group (2016) stressed that collecting a larger dataset is essential to future research and the ability to draw stronger conclusions about the differences between ads featuring trafficking victims and the general populations of ads, ideally consisting of known non-trafficked sex workers. TGG Group also recommended cooperation with sex buyers and non-trafficked sex workers, who can provide more context on interacting with potential trafficking victims and the wider commercial sex industry. The perspective of non-trafficked sex workers is necessary to understand the online commercial sex industry at large, which in turn provides insight into how and why traffickers can harness that environment for exploitation (TGG Group, 2016).

The present study is intended to be one step in building that knowledge base. In our research design, focus groups with law enforcement officers and victim advocates, sex trafficking survivors, and non-trafficked sex workers prior to our data collection play a heavy part in establishing grounding for our data collection, ad coding, and analysis, and in making sure the results pass the “sniff test” afterward. While our sample is still small compared to several of the computational method studies, we created a dataset using detailed case information to make our determinations of trafficking (our dependent variable) rather than the simple presence of indicators (our independent variables). Given that solid theoretical and practical grounding, our results can be used to refine algorithms for future research with larger datasets as well as to inform the field today.

Methods

Research Design

The present study is composed of three main parts. Prior to the main data collection, we held focus groups with three groups of stakeholders: law enforcement and victim advocates, sex trafficking survivors, and non-trafficked sex workers. We used the results, alongside the literature review, to further refine the data collection instruments used during fieldwork conducted at four locations in three U.S. states. These visits consisted of criminal investigator interviews about the use of ads in investigations and manual reviews of closed case files. We supplemented these data with remote data collection from other sources that provided data on cases with known trafficking outcomes in four additional states. These data expanded our geographic sample and provided a larger number of ads from massage parlor cases. Next, we used phone numbers identified in the case data to request extraction of missing and additional related ads from separate copies of the MEMEX/TellFinder database and from HTI Labs' proprietary scraper.

After compiling and coding the data from these sources, case-level and ad-level datasets were constructed for quantitative and qualitative analysis. We held follow up focus groups with the three original stakeholder groups during the final stages of analysis to gain their reactions to initial results, guidance on interpretation, and further input as to how these results should be framed for use to target potential trafficking cases.

Site Selection

A total of eight jurisdictions in seven states across the United States were selected for data collection to achieve geographical diversity and to collect ad and case data about multiple sex trafficking types. Most data collected on cases during onsite fieldwork were in the general domestic sex trafficking or sex work categories; further data were collected from other sources to gain a larger sample of massage venue cases.

We collected data via fieldwork between 2018 and 2021 from the following criminal justice and affiliated organizations: the Georgia Bureau of Investigation (GBI), the San Diego County District Attorney's Office (SDCDA), the San Francisco District Attorney's Office (SFDA), and the Texas Department of Public Safety (TXDPS). Data collection occurred via secure virtual file transfers from HTI Labs, a university-affiliated nonprofit that works closely with law enforcement and state prosecutors on active casework in Nebraska, and two law enforcement agencies with which they are affiliated.

Sites were selected based on the extensive work they have done related to trafficking cases, heterogeneity in geographic region and types of trafficking, and their willingness to share their data and expertise with the research team. Selection, recruitment, and data sharing memoranda of understanding (MOU) processes were lengthy, thorough,

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and challenging given the sensitive nature of the data.[19] Strong data security and protection measures were implemented and exercised throughout the project in accordance with these agreements. Our five fieldwork sites (four in-person and one virtual) are described below.

Georgia Bureau of Investigation (GBI). The GBI's Child Exploitation and Computer Crimes Unit (CEACC) is the host agency for the Internet Crimes Against Children Task Force (ICAC TF) for the state of Georgia. The investigation of child sex trafficking cases is an initiative of the nationwide ICAC TF and the Georgia ICAC TF, which consists of over 200 affiliate agencies. In addition to partnering with Georgia ICAC affiliates, CEACC has developed working relationships with the FBI and Homeland Security Investigations (HSI). The GBI CEACC unit is also an active member of the FBI's Metro Atlanta Child Exploitation (MATCH) Task Force, a multi-agency task force that conducts child sex trafficking investigations and proactive undercover vice operations. The GBI CEACC unit also dedicates one agent to HSI on a full-time basis as a task force officer. These relationships are key for information sharing and case deconfliction on active and former child sex trafficking cases.

San Diego County District Attorney's Office (SDCDA). International land borders are a primary point of entry used by international traffickers, making San Diego a distribution site for imported contraband of all types, including humans being trafficked into the United States. San Diego is also a well-known location for domestic and international gang trafficking (Carpenter & Gates 2016). As a result, San Diego has been identified as one of the FBI's High-Intensity Child Prostitution Areas. In 2009, the San Diego County District Attorney's Office prosecuted 9 cases under sex trafficking statutes. By 2013 that number had increased to 46. The District Attorney's Office has established a Sex Crimes and Human Trafficking Division with specialized prosecutors, investigators, and victim advocates to prosecute perpetrators and provide needed services for victims. The Office co-chairs the Human Trafficking and Child Sexual Exploitation Council and is part of the area's Regional Human Trafficking Task Force, working together with law enforcement agencies and other community stakeholders to investigate and prosecute complex sex trafficking cases throughout San Diego County.

San Francisco District Attorney's Office (SFDA). The San Francisco District Attorney's Office and its Crime Strategies Unit (CSU) use a multi-disciplinary, data-driven approach to resourcefully address chronic crime and complex crime problems, along with community engagement and a wide range of other initiatives that have made them recognized leaders against human trafficking. All San Francisco District Attorney's offices are members of the *No Traffick Ahead* Coalition, and the SFDA victim services staff is heavily involved with trafficking cases and community engagement in the Bay Area.

[19] Recruitment processes with additional agencies in Washington, Oregon, New York, Massachusetts, Florida, Louisiana, and Contra Costa County, California were also undertaken but ultimately not successful due to various state data privacy laws, other privacy concerns, or lack of bandwidth to participate in the research.

Texas Department of Public Safety (TXDPS). TXDPS is the state police agency that works closely with and provides support to local and federal law enforcement partners and other government agencies across Texas and the United States to combat child sex trafficking and human trafficking. TXDPS is strongly committed, with agencies across the state, to share information, intelligence, and capabilities to effectively address public safety threats across all jurisdictions and disciplines at all levels. A few of their partners include the Austin Police Department; the Houston Police Department; the Office of Attorney General; the Federal Bureau of Investigation; Immigration and Customs Enforcement; Customs and Border Protection; the U.S. Departments of Homeland Security, Justice, and State; the Human Smuggling and Trafficking Center, and the National Center for Missing and Exploited Children. TXDPS also collects case file data from all local law enforcement agencies in Texas and stores it electronically in a central data repository.

HTI Labs, Omaha, Nebraska. The Human Trafficking Initiative (HTI) at Creighton University employs a novel approach using online advertisements, data science and network analysis to identify potential trafficking networks within the industry that is closely integrated with on-the-ground anti-trafficking efforts in Nebraska, working closely with the Nebraska Attorney General's Office, the Omaha Police Department, the Nebraska State Police, Homeland Security Investigations, and other criminal justice agencies pursuing trafficking cases in Nebraska and the Midwestern U.S. Their work also involves a web scraper they built to collect and archive escort ads from various sex advertising sites to support their work; HTI Labs shared ads from that scraper to complete the Nebraska case data and to help the research team fill in remaining gaps for case-related ads in other study locations.

Additional ad data were sampled from a "ground truth set" compiled by Greg DeAngelo and colleagues (Cafarella et al., 2021). Through research agreements with law enforcement agencies across the U.S., DeAngelo collected a ground truth dataset consisting of phone numbers associated with over 41,000 confirmed sex trafficking victims, as well as a small sample of ads representing "negative" cases, over a period of two years. These phone numbers were then used to pull the associated escort ads from the MEMEX web scraper archive, described below, for machine learning analysis.

DeAngelo and colleagues collected these data after conducting a survey of subject matter experts to determine their ability to identify human trafficking victims from online ads, given how previous research has shown that victim identification by law enforcement is not always reliable (see also Farrell et al., 2008; Farrell et al., 2018). DeAngelo and colleagues confirmed their positive or negative determinations by obtaining the prosecution charges for each case before collecting their ads from the MEMEX archive. DeAngelo shared a sample of ads from this dataset with the research team for all states where the ground truth dataset also contained at least one usable ad associated with a negative/unknown case. This resulted in additional ad data for cases in three more states: Oregon, New York, and New Mexico. Our sampling of these data, and how they were treated in our analyses given the different data collection process employed by DeAngelo and colleagues, are described below.

Web Scraper Archives: MEMEX/TellFinder and HTI Labs' *LEADS* Tool

Ads associated with cases for which outcomes were confirmed were pulled via phone number queries from the MEMEX database. The active MEMEX scraper is now called TellFinder and is administered by Uncharted Software, Inc. When the MEMEX project began in 2014, the Defense Advanced Research Projects Agency (DARPA) in the U.S. Department of Defense funded IST Research to design and run the scraper, and IST Research had committed to making the database available to JRSA for this research. The MEMEX project (MEMEX is short for "memory indexing") used IST's proprietary "Pulse" platform to crawl the internet, including "dark web" platforms like TOR, to "scrape" escort ads posted each day on hundreds of internet sites and store them on IST's infrastructure for use in investigations. These stored ads could be searched using key fields, such as phone numbers, for specific investigations as requested by law enforcement, or proactively analyzed for indicators or larger patterns among ads that can be used to map whole networks or human trafficking market flows.[20] It also uses natural language processing and cross-source correlation, among other tools, and can incorporate feedback from law enforcement or research like this to maximize machine learning and increase the reliability of its algorithms. Currently, the MEMEX data index contains over 110 million advertisements for sex and escort services, over 500 million images associated with these ads, and content from over 98 different domains (Hall et al., 2015).

In 2018, very soon after the beginning of this project, administration of the MEMEX project was transferred to Uncharted Software, who incorporated the scraper into their data visualization tool, called "TellFinder," (Hall et al., 2015) and a new data sharing MOU was signed with Uncharted to access the data. Data were provided for the California and Georgia cases. Dr. DeAngelo, who provided the "ground truth set" data described above, possesses an archived copy of MEMEX from his previous work on that project. He was able to provide pre-2018 ads associated with our Texas fieldwork cases in addition to the ads for his own ground truth set sample. Finally, HTI Labs generously used their proprietary ad scraper to provide us with ads associated with phone numbers belonging to any remaining 2018 and newer cases for which we were missing ads to complete our ad-level dataset.

Data received from the various ad scrapers were delivered in several formats. Uncharted provided data pre-coded for several variables, with photos where available delivered in separate files that we matched to each ad by a shared identification number. For ads received from Dr. DeAngelo's copy of MEMEX or from HTI Labs' scraper, full HTML files for each ad were provided. Regardless of source, photos and emojis were not available for all ads, though it

[20] See http://www.darpa.mil/program/MEMEX, https://www.scientificamerican.com/article/human-traffickers-caught-on-hidden-internet/, and https://www.forbes.com/sites/thomasbrewster/2015/04/17/darpa-nasa-and-partners-show-off-MEMEX/#6c64471d378d for more on the original MEMEX Project.

was possible to see where photos or emojis should be if the original poster had used them (squares were present in the files to mark the places where photos and emojis would be if the scraper had captured all that data). Due to their lack of availability for all ads, analyses involving photo or emoji characteristics were handled separately.

Sampling

Two levels of sampling were employed for this study: selection of cases, and selection of ads within cases. On both levels, if selecting all available cases from fieldwork sites or all ads associated with each confirmed case was a possibility, this option was chosen. In instances where this was not possible, a process as close to random sampling as possible was employed, with some purposive oversampling as needed to ensure representation of important subcategories. These procedures are described below.

Case Sampling

Closed cases in each fieldwork site were eligible to be sampled based on several criteria:

1. Case year (year the investigation began) was 2013 or later. For cases between 2013 and 2015, which pre-date the MEMEX project, at least one ad must be present in the case file itself for coding (electronically saved or a printout).
2. Case must fall into the categories of human trafficking or sex trafficking-adjacent activities (prostitution, promoting prostitution).
3. Case must involve online escort ads.
4. Ads associated with the case were not ads for recruitment of victims.
5. Some level of case detail must be available, such as a police report(s), prosecutorial files, indictments, interview transcripts, or similar.

These details were used to identify elements of trafficking that comport with our selected definition (described earlier) so that determination of positive and negative case status did not rely solely on final charging decisions, which can be impacted by many factors outside of case characteristics such as the terms of a plea agreement. Case file records were also used to identify multiple phone numbers related to the same case. For our purposes, a case may contain multiple related perpetrators and/or victims, even if they were prosecuted separately.

After training and preparation with the research team, these sampling criteria were applied by fieldwork sites to pull case files for our coding and analysis, resulting in the case sample sizes for each site shown in Table 2 below. The capacity to spend time pulling case files, and in some cases redact portions to protect privacy, varied with each site.

Ground Truth Set. Data for Dr. DeAngelo's ground truth set was collected and structured using a somewhat different methodology than our own fieldwork. Dr. DeAngelo collected phone numbers and charge outcomes for trafficking cases from law enforcement and prosecutors but did not collect additional case file details concerning the circumstances of each case because the purpose of his project was different from ours. However, by not collecting the additional details, it is not possible for us to confirm for certain whether

different phone numbers may be related to the same case in his data (in our fieldwork, we were able to match phone numbers to cases from the case file records). This allows us to statistically account for non-independence between ads belonging to the same case in the fieldwork data, which is not possible with the ground truth set data. Therefore, the ground truth data were analyzed separately.

Table 2: Fieldwork Site Final Case Samples

Fieldwork Site	Case Sample Size	Notes
SFDA	6	Files for all closed cases that met the above criteria and that were not privileged at the time of fieldwork (e.g., not in appeals) were pulled by SFDA staff and provided. The number of cases with ads available at the time of fieldwork was small (*n*=6), so these cases were combined with cases from the SDCDA for state-level analysis.
SDCDA	28	A random sample of 30 potential cases meeting the above criteria were pulled and provided by the SDCDA. After examination, 28 met the criteria for inclusion.
GBI	9	GBI staff pulled files for a random sample of 15 potential cases. After examination, 9 met the criteria for inclusion.
TXDPS	52	TXDPS allowed the research team to search and select cases for inclusion via secure, supervised, in-person access to their case management system. All cases meeting criterion 2 were examined to see if they met all the others; in the end, 67 cases met all criteria. Of these, we were able to access ads for 52 cases either through the local case file or MEMEX; these were included in the final dataset.
Nebraska	19	HTI Labs provided case and ad data for all 19 closed cases in their system that met our study criteria.

Stratified random sampling was necessary for the ground truth set, given its large size and our process of hand-coding all ads. We selected this sample from the three additional states wherein the ground truth set has at least one negative ad: NM, NY, and OR. Dr. DeAngelo provided all the negative ads for each state, which were few (one to two negative ads per state) and ads associated with a random sample of a further 100 phone numbers per state were included in our final sample. These data allowed for an oversampling of massage ads, which were underrepresented in our fieldwork sites. Given the limited case-level information available in the ground truth set (phone number, state, and positive/negative for trafficking per Dr. DeAngelo's criteria), each phone number was treated as a separate case, and the inability to link related phone numbers based on case details limits our analyses. However, rich detail from descriptive statistics, analysis of covariance (ANCOVA), and qualitative analysis are still an important contribution. Descriptive comparisons between massage ads and the rest of our sample are also fruitful and important. While some phone numbers did not return usable ads from the MEMEX archive, usually because the scraper captured a post ID but not the ad content, we netted a total of 70 cases for the state of New York, 68 cases from Oregon, and 66 cases from New Mexico from our sample of 100 phone numbers per state.

We collected data from 318 cases in total: 114 from fieldwork locations (36%) and 204 cases provided to us by Dr. DeAngelo (64%) from his ground truth set. These 318 cases spanned seven states: California, Georgia, Nebraska, New Mexico, New York, Oregon, and Texas.

Table 3 illustrates a variety of case characteristics from all cases from which we collected data during fieldwork. Due to the reasons discussed earlier, we separated our correlational case and ad analyses between non-massage cases from the fieldwork sites (California, Georgia, Nebraska, and Texas) and the massage ad data, which consists of the "ground truth" data provided by Dr. DeAngelo (ads in New Mexico, New York, and Oregon) *plus* 67 massage ads from 19 cases from the fieldwork sites. Case-level information in the "ground truth" set is limited to the state in which the case was identified, the phone number, and the trafficking outcome, so those cases are not presented in the table below.

We present in Table 3 summary descriptive information about the 114 fieldwork cases on which sufficient detail was available. Of these, 30% were from California (n=34), 8% from Georgia (n=9), 17% from Nebraska (n=19), and 46% from Texas (n=52). Some information was not available for every case; for example, files provided did not always include the arresting agency type. For these reasons, the numbers and/or percentages in the table will not always sum to 100%.

The fieldwork case records contained varying levels of information, with available levels of detail in some agencies' records being more expansive than others. The overall findings in terms of variety in cases between jurisdictions were:

- In cases across jurisdictions, sex trafficking overwhelmingly took place in hotels, with street-based work coming in a distant second.
- Cases from California and Georgia in our sample tended to involve single victims with one or two associated perpetrators. Cases available from Nebraska and Texas were often highly complex and involved networks of ads associated with numerous providers and perpetrators. However, it was not possible to discern which providers in each network were trafficked versus non-trafficked sex workers; many networks can involve both.
- California, Nebraska, and Texas also had examples of complex, interconnected network cases that were often transferred to federal courts for prosecution because the cases crossed state lines or intersected with other criminal activity (e.g., gangs and/or drugs).

Table 3: Case Sample Characteristics for Fieldwork Cases

Fieldwork Case Characteristic	State				Total
	California (N=34; 30%)	Georgia (N=9; 8%)	Nebraska (N=19; 17%)	Texas (N=52; 46%)	(N=114; 100%)
Number of identified perpetrators in dataset (multiple possible per case)					
Trafficking	42	8	20	58	128
Not trafficking	1	0	0	1	2
Unknown	3	0	4	3	10
Total	46	8	24	62	140
Number of identified victims in dataset (multiple possible per case)					
Trafficking	47	3	85	46	181
Not trafficking	0	1	0	0	1
Unknown	2	6	20	0	28
Total	49	10	105	46	210
Number of identified sex workers in dataset (multiple possible per case)					
Trafficking	0	0	2	6	8
Not trafficking	2	2	16	21	41
Unknown	1	0	9	17	27
Total	3	2	27	44	76
Arresting agency (where available in file)					
Local police	100%	0%	67%	11%	**43%**
Sheriff	0%	100%	33%	3%	**5%**
State police	0%	0%	0%	82%	**50%**
Federal	0%	0%	0%	3%	**2%**
Total	100%	100%	100%	100%	**100%**
Missing	*0%*	***86%***	*85%*	*9%*	***26%***
Arrest part of human trafficking task force (where available in file)					
No	33%	100%	33%	33%	50%
Yes	67%	0%	67%	67%	50%
Total	100%	100%	100%	100%	100%
Missing	*65%*	*64%*	*85%*	*3%*	54%
Incident Location (where available in file)					
Hotel	**45%**	**76%**	**25%**	**58%**	670%
Residence	**0%**	**6%**	**25%**	**0%**	627%
Street	**24%**	**0%**	**0**	**0**	6%
Brothel	**0%**	**6%**	**0**	**5**	127%
Hotel and Street	**3%**	**0%**	**0**	**0%**	1%
Residential Brothel	**3%**	**0%**	**0**	**0%**	1%
Hotel and Other	**3%**	**2%**	**0**	**5%**	3%
Other	**21%**	**8%**	**0**	**0%**	7%
Missing	*0%*	*2%*	*50%*	*32%*	21%

This resource was prepared by the author(s) using Federal funds provided by the U.S. Department of Justice. Opinions or points of view expressed are those of the author(s) and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

Jurisdictions used several approaches to investigate human trafficking. Proactive sting operations were most prevalent among sampled cases in California (local agencies) and Texas (state agency supporting local agencies). GBI (Georgia's state agency) initiated cases based mainly on referrals from external sources such as the National Center for Missing and Exploited Children and Georgia's Department of Family and Children Services. GBI cases are mostly investigated by their Internet Crimes Against Children (ICAC) task force, which takes referrals and then supports local law enforcement.

Ad Sampling within Cases

In our final case sample, we often ended up with fewer usable cases in each of our fieldwork sites once the selection criteria were applied to the files provided. However, while we secured an average of ten or fewer ads for most cases, a few cases returned hundreds or even over 1,000 related ads once the supplementary web scraper data were added. These outlier cases could potentially skew the dataset due to the non-independence of the ads within them.

Therefore, after case sampling was completed, sampling of ads within cases was undertaken next to reduce any potential skew caused by those cases with an outsized number of ads. First, we conducted a manual deduplication process in which identical ads that had simply been copied and reposted with minimal changes were removed from the dataset. A "minimal change" would involve altering an element such as a single emoji, word, photo, or punctuation mark that did not fall into to one of the indicator categories being analyzed.

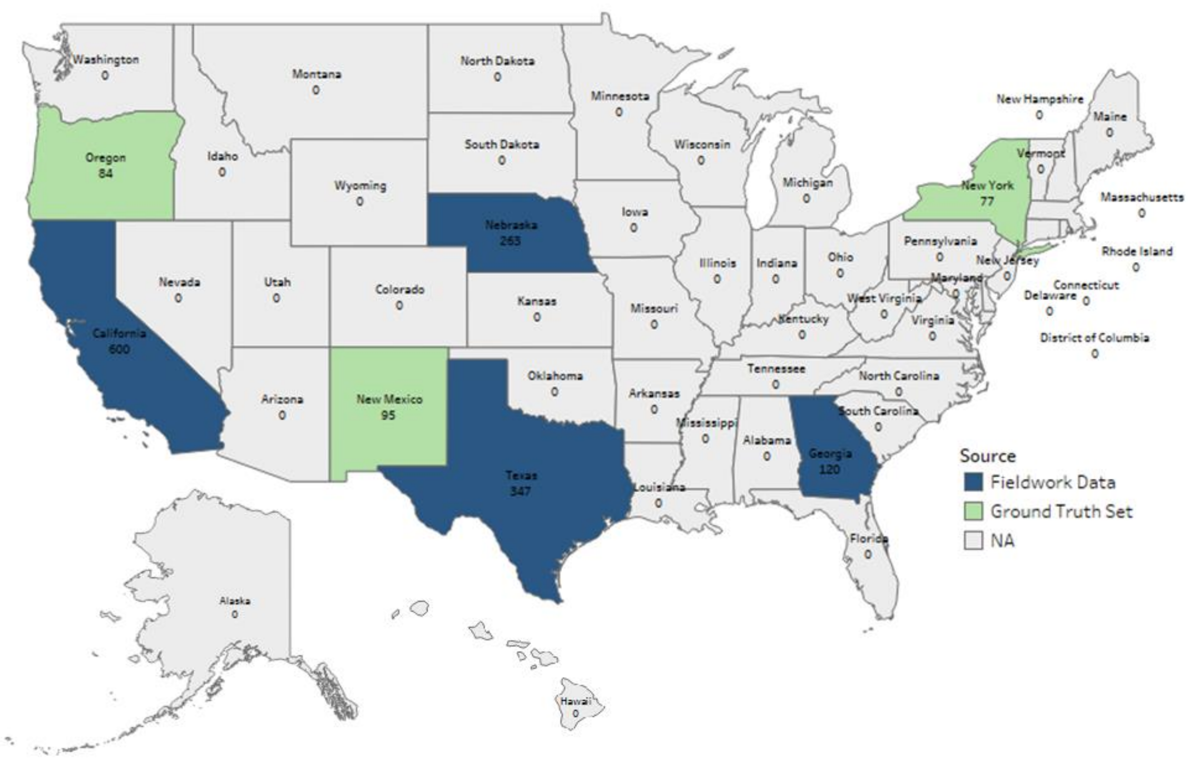
Next, a power analysis was conducted to ascertain how many of the remaining ads we should select per case for appropriate statistical power while reducing potential skew. Power analyses were conducted in R-4.0.5 using the package *pwr* (Champely et al., 2020). Based on results from a general linear model, which includes our analyses with logistic regressions, we selected a random sample of 30 ads for each case where there were 31 or more ads available in non-massage cases. The power analysis for ANCOVAs with the massage data revealed that a total number of 12 ads per case was necessary to reach a power of 0.8. Another point of consideration with the final dataset was possible skew and kurtosis. However, since the variables used in the analyses were all binary, they are not from a normal distribution. Normality measures of skewness and kurtosis are therefore not required (Seltman, 2018).

In special cases where it was possible to distinguish ads belonging to different parties (e.g., ads for a bottom vs. ads for a victim within the same case), the random sampling target based on the power analyses was split between ads for each party to ensure both parties were equally represented in the final sample for that case. This was often not possible without photos of individuals in the case file that could be matched to ads; the presence of such photos was rare. However, the procedure was employed for the few cases where it was possible. Table 4 shows the case and ad counts for the final sample, while Figures 1 and 2 show the geographic distribution of the ads in our sample by the state the case was identified in (Figure 1) and state in which the ad was posted (Figure 2). Several cases involved ads posted in multiple states.

Table 4: Final Samples by Data Source

Fieldwork Cases			**Ground Truth Cases**		
State	**Cases**	**Ads**	**State**	**Cases**	**Ads**
California	34	600	New York	70	77
Georgia	9	120	Oregon	68	84
Texas	52	347	New Mexico	66	95
Nebraska	20	263			
TOTAL	**114**	**1,330**	**TOTAL**	**204**	**256**

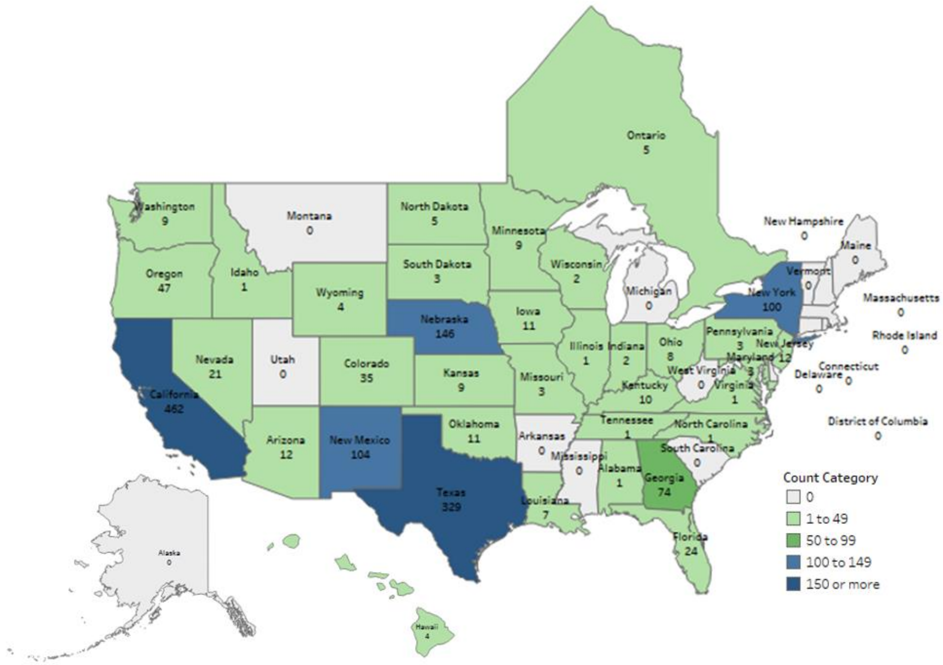
Figure 1: Final Sample by Case State



Through this combination of data sources, we amassed our final sample of 1,586 unduplicated ads, which met our targeted size of between 1000 to 2000 ads across the seven states for which we have cases with confirmed outcomes that also include one or more negatives. It provides sufficient power and geographic spread to support most of our analyses. Our final sample covers at least one state in each geographic region of the U.S. and allows for further descriptive or correlational analyses by subgroup (e.g., ads for minors vs. adults, non-massage vs. massage, or by state).

Further subgroup analyses were conducted for two indicator categories: photos and emojis. However, the availability of data for these analyses was more limited due to web scraper limitations. These groups were therefore analyzed separately with a focus on descriptive analysis, qualitative analysis, and more conservative analysis of covariance (ANCOVA) of potential predictors.

Figure 2: Final Sample by State in Which Ad was Posted



Missing Data and Corrections for Sampling Bias

While imputation for missing values is not valid with these data due to nonrandom missingness, weighting at the state level was employed to correct for potential bias between cases from different states, along with clustering the standard errors on case number to account for non-independence among ads within cases.

Creating appropriate weights was challenging, given the diversity of our data sources. While numbers of cases reported to law enforcement are notoriously low compared to numbers of cases identified by victim services organizations, and certainly low compared to the total number of cases in the U.S. believed to go unreported altogether, one commonly used source of statistics on cases that come to the attention of authorities is the National Human Trafficking Hotline (NHTH) run by Polaris. The NHTH's publicly available, aggregate hotline data includes potential sex and labor trafficking cases they received by state for each year from 2014-2019. While there are known faults with these data (based on self-report, potential errors differentiating trafficking subtypes in complex cases), they are the most complete source of statistics to date on cases that come to the attention of authorities in every state for each year included in our project.

Therefore, we used these data to weight our cases so that, along with the geographic dispersion of our data sources, we can improve the national representativeness of conclusions drawn based on our sample. We attempt to control for under- or over-representation of individual states by calculating state weights using a raking procedure based on the sum of potential sex trafficking cases received by the NHTH for each state-year for which we were able to collect data (see Table 5).

Table 5: NHTH Hotline Statistics Used to Calculate State Weights[21]

State	**Year** *Numbers in bold are state-years for which we have cases in our sample. The bold numbers are summed to the right get the totals to calculate the state weights.* 2014	2015	2016	2017	2018	2019	**NHTH State-Year Totals** *Case totals by state for state-years for which we have data*	**Our Case Totals by State**
GA		160	**195**	**198**	254	309	393	9
TX	**346**	**355**	**482**	**563**	**722**	805	2468	55
NY	**205**	**231**	**254**	243	358	312	690	70
NM	**21**	**30**	**27**	**28**	50	45	106	66
CA	**685**	**817**	**1068**	**1036**	1229	1118	3606	36
NE		14	**34**	**55**	**54**	**41**	184	20
OR	**45**	**48**	**56**	**56**	100	94	205	68
TOTALS	**1302**	**1481**	**2116**	**1936**	**776**	**41**	**7652**	**324**

One important bias that the NHTH data do not help us overcome is the natural skew of criminal justice agency data, in that the portion of ads in our sample that do *not* represent potential trafficking cases (the counterfactual) is almost certainly far below the proportion of non-trafficking ads on escort sites generally. Police data are known to be a source of tautological bias; police may focus on certain individuals over others due to departmental initiatives, pre-existing biases, or because individuals may have significant and ongoing contact with law enforcement anyway; this can lead to over-representation of some individuals or groups in the data (Rostami & Mondani, 2015; Lugo, 2016).

While the sampling biases of relying on criminal justice agency data remain, we attempt to reduce the bias toward assuming that a case is trafficking in our fieldwork data. We do this by relying on the evidence in the case details, such as police report narratives, which supports classification of the case as trafficking based on federal definition instead of relying on the arrest or prosecution charges. Furthermore, if the evidence is inconclusive or insufficient to establish trafficking by the federal definition, the case was classified as either No (confirmed negative) or

[21] Raw NHTH statistics taken from *https://humantraffickinghotline.org/states*.

Unknown (inconclusive) depending on the case details.

Our non-trafficked sex worker focus group expressed strong concerns about the underrepresentation of negative/unknown cases in our data, along with concerns about the potential overrepresentation of trafficking prevalence in some states by the larger case and ad numbers in our sample. While the bias caused by the small number of negative ads was unavoidable in our research design, given that a key eligibility requirement for inclusion was that trafficking status could be confirmed, we acknowledge this limitation.

We analyze the ground truth set sample separately due to the reliance on final prosecutorial charges to determine trafficking without access to full case files to confirm the details. For conceptual clarity, since the ground truth set consists of massage ads, we also moved the 67 massage ads collected from fieldwork sites to the massage dataset and analyze all massage ads together as a distinct subgroup.

Variable Coding

As this research is exploratory, and many of our variables have not been coded at this level of detail in previous research, developing our final coding scheme was an iterative process. We designed our initial coding instrument based on our focus groups, specific research team members' prior experience as practitioners in the human trafficking field, and previous research wherever available. In cases where an indicator was interpreted differently by different sources, we coded the variable using law enforcement's interpretation of the variable so that we could test whether the assumptions used by the investigators we interviewed hold up to empirical testing.

The project team coded ads for the presence or absence of each indicator and recorded qualitative detail for further analysis or use in interpretation. As fieldwork progressed, we further refined our categories using a grounded theory approach involving inductive identification of themes and patterns for which we did not have other sources to assist (Glaser, 1992). Given these natural revisions to the coding instrument as more data were collected, interrater reliability testing was conducted using the final instrument and all necessary corrections made before the dataset was finalized for analysis. The next section presents the interrater reliability testing, followed by the final variable coding scheme.

Interrater reliability

Three separate coders (the original coder and two additional) coded a sample of ten ads from each of three states: New Mexico, New York, and Oregon. The data from the

original coders and the IRR coders were merged. Variables that were not included in quantitative analysis, which reproduced free text, or that contained objective information only (e.g., phone number, post id, website) were not assessed for IRR.

Landis and Koch (1977) suggest that a kappa coefficient of .61 or higher is considered sufficient agreement for IRR. Each variable coded by the original coder (X) and the second coder (Y) were used to calculate Cohen's Kappa using Stata (Cohen, 1992; Statacorp, 2021). Variables that were coded identically by all coders across the states were not discussed further by the group. Variables where the .61 threshold for Cohen's Kappa was not reached were discussed with the full group of coders to determine the reason for the discrepancy.

This resulted in the decision to consolidate two variables (decisions later confirmed via latent class analysis, or LCA). The Movement variable was created by collapsing "New Arrival," "Just Arrived," and "Brand New." Also included within "Movement" is language related to being available for a limited time, including phrases such as: "limited time," "weekend only," "in town for the weekend," "gone," "leaving," or "tour."

For each state, the variables where the discrepancy between coders resulted in a kappa of less than .6, and for the newly created/collapsed variables, each coder coded an additional 20 ads on the discrepant variables. Cohen's kappa was calculated for the recoded variables. After the second round of coding, the kappa values showed sufficient agreement between coders required for interrater reliability. The detailed results for each state can be found in Tables C1, C2, and C3 in Appendix C. Below, we present a summary of our major indicators.

Dependent Variable

The dependent variable for our predictive analyses is whether the case was determined to be human trafficking. Previous research has generally assumed that all escort ads represented trafficking cases or used machine learning to identify predictors without a counterfactual against which to compare. Cafarella and colleagues (2021), in their ongoing machine learning study, have so far constructed their analyses of the full MEMEX database to treat all ads not confirmed positive with law enforcement in DeAngelo's ground truth set as negative cases, when in actuality the status for these ads is unknown; hence our inclusion of only confirmed positive and negative ads in our sample from that dataset.

Our process for determining positive and negative status for the fieldwork cases was a subject of some debate in the first round of focus groups. On one side was the view that consensual sex work does not truly exist, and on the other side was the view that sex trafficking represents a small subset of the larger commercial sex economy. Furthermore, some prosecutors posited that one can never really know, in an apparent negative case, whether there are elements of trafficking present, but not enough available evidence to conduct an informed assessment.

Based on these considerations and the data available in case files, we erred on the side of not assuming any facts the available data could not support and based our determinations first on our adaptation of the federal definition of sex trafficking described above: that an individual is made by a third party, via force, fraud, or coercion, to engage in the sale of commercial sex *or* that an individual is made by a third party to engage in the sale of commercial sex and is under the age of 18 (and thus unable, legally, to consent). Based on this definition, the research team examined case documentation including police reports, interview transcripts, and the like to determine whether force, fraud, or coercion were involved (or the individual was under 18) regardless of the charges at arrest, prosecution, or adjudication. If there was not enough information in the available files to make that determination, the case was coded as "Unknown." If the files showed that trafficking was not present according to these criteria, then the case was coded as "No."

We use the No/Unknown designations to allow for the possibility that trafficking may be present even if the investigative information in the files does not support it. Similarly, basing the determination on whether the files shared with us support that determination removes some bias that, in previous studies, resulted from assuming that all cases are trafficking. We make no such assumptions. We do acknowledge the potential tautological bias of using law enforcement files as our primary data source and that doing so may result in a larger number of positives than may be present in the universe of sex work ads.

Independent Variables

Coding the language, emoji, and photo characteristic indicators in our ads was a lengthy process. At one point, over 250 separate indicators had been coded. To make these lists of indicators manageable, it was necessary to combine them into groups. These grouping decisions were made based on previous literature and in consultation with our focus groups and the investigator interviews during site visits. As mentioned above, in cases where there were conflicting interpretations that could affect a coding decision, we made the choice based on the assumptions used by trafficking investigators so that we could test whether those assumptions were supported by the empirical data.

Latent Class Analyses

Latent class analyses (LCAs) were then carried out to measure the underlying concepts (latent constructs) in our independent variables and provide quantitative support to confirm our grouping decisions. For example, "movement" includes language indicating that the provider is in town for a limited time, new to the area/"new in town," or "back in town," and phone numbers with out-of-state area codes. To simplify our models and reduce multicollinearity, we created composite variables and tested them to ensure they were statistically sound, and our groupings justified. LCA is suitable for binary indicators; assumes the latent constructs are manifested in measurable, observed outcomes (Bollen, 2002); and computes the probabilities of class membership based upon patterns of responses in the observed variables.

For each composite category created, we analyzed the component indicators for class membership. Using the AIC and BIC goodness-of-fit metrics to select the best fit model, we tested one-, two-, and three-class models. In most instances, two- and three-classes failed to converge. Failure to converge occurs when the estimation of the classes cannot be achieved, indicating that only one underlying class (concept) provides a complete solution (Wurpts & Geiser, 2014). This means that all indicators included in the group do indeed belong to the same category and grouping them into that category is justified.

Using the AIC and BIC for each main category shown in Table 6, a single class provided the best fit for all final categorizations, supporting our composite categories as appropriate and sound for use in analysis.

Table 6: Summary of Latent Class Analysis Results for Main Composite Categories

Composite group	Probability of class membership	Std. Error	95% Confidence Interval
Client screening based on client ethnicity (N=225)			
No AA (n=160)	0.127	0.009	[0.110, 0.146]
White (n=20)	0.016	0.004	[0.010, 0.024]
No pimps (n=46)	0.036	0.005	[0.027, 0.048]
No thugs (n=20)	0.016	0.004	[0.010, 0.024]
Client screening excluding ethnicity (N=441)			
No law enforcement (n=68)	0.054	0.006	[0.043, 0.068]
Verification required (n=50)	0.040	0.005	[0.031, 0.052]
Call specifications (e.g., no blocked calls) (n=235)	0.186	0.011	[0.166, 0.209]
Age (n=78)	0.062	0.007	[0.050, 0.077]
Upscale (n=179)	0.142	0.010	[0.124, 0.162]
No explicit language (n=149)	0.118	0.009	[0.101, 0.137]
Movement (N=521)			
Out of state (n=343)	0.274	0.013	[0.250, 0.299]
Limited time (n=138)	0.695	0.013	[0.669, 0.720]
New language (n=70)	0.641	0.013	[0.615, 0.667]
"New in town" (n=68)	0.055	0.006	[0.043, 0.069]
Back in town (n=39)	0.032	0.005	[0.023, 0.043]
Payment language (N=437)			
Donation (n=71)	0.056	0.006	[0.045, 0.700]
Price (n=216)	0.171	0.011	[0.151, 0.193]
Roses (n=28)	0.022	0.004	[0.015, 0.319]
Specials (n=245)	0.194	0.011	[0.173, 0.217]

Since these are dichotomous variables, they can be interpreted as percentages. For example, out-of-state references or phone numbers have a 27% likelihood of belonging to the "movement" category. One important note is that some class probabilities appear rather low. This is, in part, due to fewer instances of these indicators in the data (Nylund-Gibson & Choi, 2018). While this may cause some concern, there is no rule-of-thumb consistently upheld on required class probabilities, and conceptual interpretability along with the AIC/BIC scores are justifiable for retaining them (Weller et al., 2020). The "movement" category is intended to capture general movement of a provider between locations. This category also includes language such as "in town for the weekend" and including a phone number with an out-of-state area code. Within this composite category, most indicators load well on one class except for "new in town" and "back in town." For these two to be coded as present, the exact language had to appear in the ad, so the number of ads in which this occurs is small. Additionally, "new" language may capture some language related to "new in town" and "back in town" without those exact words. One class provided the best fit (AIC=3,504.12; BIC=3,530.02).

We also coded for multiple indicators of client screening. An initial LCA estimated that client ethnicity indicators loaded on their own class, so client screening was separated from client ethnicity preferences. Client screening included specifications prohibiting law enforcement, official verification provided on some ad posting sites such as ECCIE, rules for contacting the provider such as no blocked calls and no texts, age minimums or maximums, requests for only upscale clients, and prohibitions on explicit language. These indicators loaded on one class, supporting the use of the composite group as a measure of client screening (AIC=5,699.98; BIC=5,741.81). Lower class probabilities can be explained largely due to less frequent occurrences in ads.

The client ethnicity screening variable refers to whether restrictions or preferences about the ethnicity or race of clients are specified in the ad. This variable is comprised of four indicators, the most common of which was language specifying "No African Americans" or "No Blacks," and preferences for white men. Some focus group members indicated that these race preferences were "code" for discouraging rival pimps, while others felt it was simply manifestation of racism. Less common terms were "no thugs" and "no pimps;" it should be noted that there was debate in the focus groups about whether "no thugs" or "no pimps" belonged in client ethnicity or the non-ethnicity-based client screening category, with spirited arguments on both sides of that debate. We tested the inclusion of "no pimps" and "no thugs" in both client screening categories, and the LCA results showed that, statistically, they fit in the client ethnicity category. They also showed that the client ethnicity category loaded on a separate underlying construct than the rest of the client screening concepts. Therefore, we included them in the client ethnicity category for these analyses regardless of the actual intent of the ad poster for including the language. One overarching class provided the best fit for client ethnicity preferences (AIC=1,911.60; BIC=1,932.47).

While payment language is common in massage ads, it was less commonly seen in non-massage escort ads. The most common reference to payment were mentions of specials, such as discounts or two-girl specials. The second most common reference to payment were actual price listings. One class provided the best fit for payment indicators (AIC=3,304.54; BIC=3,325.26).

Final Indicator List

Table 7 thus shows our final indicator variables for the quantitative analyses. Except for the website variables that are categorical, all indicators below are binary and selected values shown are examples of language that fall into each category. Qualitative, textual analysis of complete ad text that follows alongside and throughout our quantitative results explores the fuller range of values possible for various indicators and sheds light on their potential interpretations. For the quantitative analysis, each binary variable is coded as “1” if one of the possible values for the indicator is present.

Analysis Plan

Analyses of our final datasets begin with case-level and ad-level descriptive statistics since our ads are nested within cases. These descriptive statistics describe our final samples and give a preliminary picture of the distribution of ads and their characteristics across states for which we have data, and across subgroups (e.g., ads for minors vs. ads for adults). Case characteristics are examined separately via descriptive and qualitative analysis to understand more about the dynamics at play in the cases represented in our fieldwork data.

Correlation analyses were conducted in preparation for the regressions and analyses of covariance (ANCOVAs) that show which indicators are either predictive or highly correlated with potential sex trafficking. ANCOVAs were employed for subsets of the data where more conservative analyses were more appropriate: the emoji, photo, and massage subsets of the data. This choice was made due to the limitations described earlier with those ad groups (non-random missingness of photo or emoji data in the non-massage dataset and the inability to account for non-independence between the sampled massage ads in a regression). All ads are weighted by state and standard errors are clustered on case number. Only cases with definitive “yes” or “no” coding on the trafficking outcome were used in the non-massage ad regressions. All three trafficking outcome categories (“yes,” “no,” and “unknown”) were included for the ANCOVAs.

More on Provider Movement

Qualitative analyses were conducted on 1,097 ads, of which 985 (90%) were associated with trafficking and 112 (10%) were not. The analyses did not include ads for which the case outcome was unknown to enable us to assess whether there are any clear differences in language usage in trafficking vs non-trafficking ads.

Of the 1,097 trafficking ads analyzed, there were 257 instances of movement language in trafficking ads and 75 instances of movement language in the non-trafficking ads. The three most frequently used phrases for both groups were “new in town,” “back in town,” and language describing travel across multiple locations. However, while references to travel across multiple locations occurred more frequently in non-trafficking ads (40%, n=75) compared to trafficking ads (17%, n=257), references to being new in town occurred more than twice as often in trafficking ads (25%) than in non-trafficking ads (11%).

In the regressions, we first identified individual indicators that exhibited the greatest likelihood of predicting a positive case of trafficking and then added interaction terms reflecting the hypothesized indicator combinations that had significant Chi-squared tests; our focus groups suggested that interaction terms may provide more fruitful information for identifying potential

Table 7: Escort Ad Language Indicators

Ad Indicator	Description/Examples
Under 23	Stated age in ad is 23 or under
Young	Young lady, giggly innocence of a teen, sweet and tiny, cutie, beautiful and sweet, sweetheart, young woman, playful, playmate, petite, sweet, tite/tight, bubbly, fun, petite doll, Barbie doll, ball of energy, spinner, lil sweet treat, lil secret, sweet like honey, sweet like sugar, anything with the word "young"
Provider Ethnicity	Persian princess, Indian Princess, or a description of the skin color of the person: "carmel" tone, yellowbone/redbone, chocolate skin, chocolate doll.
Phone Obscured	Any obscuration of the number, such as letters spelling out numbers or emojis as separators, to evade web scrapers and police detection
Movement	Phone number has out of state area code or ad has language such as: limited time/availability, new in town, new arrival, back in town
Client Ethnicity	No AA (African Americans), I love white men, no pimps, no thugs
Client Screening	• Anything that the client must do to become a customer (e.g., provide three references – client verification) • Restrictions on method of contact (texting okay, no blocked numbers) • A group or type of person NOT wanted as a customer ("no women") • No law enforcement • Client behavior (no explicit talk, serious callers only)
Controlled Movement	Incalls, outcalls, both incalls and outcalls, brothel
Provider Trustworthy	100% professional, photos 100% me, discreet, 100% independent
Payment Language	Donations, sponsor, tips; Prices given (often a number for hh [half hour], hr [hour], or 15 min/QV [quick visit] or pitstop; Roses; Specials
Multiple Providers	More than one individual advertised; includes brothels/spas. Can indicate shared management.
Available (24/7)	Available 24/7, any time, Available ALL DAY & READY TO PlAY All NiGHT, ALWAYS available, etc.
Website	Backpage Escorts, Backpage Dating, Backpage Massage, Escorts in College, Erotic Mugshots, City X Guide, Other

trafficking cases than any indicator by itself. However, it should be noted that our hypotheses concern specific values of each indicator as possible predictors rather than the interaction of the two variables generally. Therefore, it is more accurate to consider these terms to be derived variables rather than true interaction terms. Of several indicator combinations that were of interest, two had statistically significant Chi-squared tests and were included in our analyses:

- *Movement without Screening* (Movement language is present, but Client Screening language is not). The idea is that if someone is being moved between locations but has no client screening requests (a safety measure), that individual might be trafficked.

- *Multiple Providers + Movement* might indicate that trafficking is present.

This first term was selected as part of a field-generated hypothesis to add some nuance to simply looking at movement alone as a predictor and the second term was selected to empirically test one of the combinations suggested by the law enforcement focus group. Other indicator combinations that were hypothesized included *Shared phone + Movement* and *Movement + Available 24/7*; the latter could indicate the involvement of force, potentially to meet quotas. However, since neither of these had statistically significant test statistics, they were not included in our models.

Some more complex groups of five or more indicators combined with other, non-ad case evidence were suggested by the survivor and non-trafficked sex worker groups. While these were not possible to test statistically due to the nature of our dataset and failure of the models to converge, they are discussed later in our final recommendations.

The hypotheses we tested via descriptive and inferential statistics in our non-massage and massage ad data are listed below in Table 8, along with the source for each hypothesis.

Table 8: Indicator Hypotheses for Non-Massage and Massage Ad Data

Age of individual advertised	
H_1	Trafficking victims are typically 3 years younger than the age stated in the ad (TGG Group, 2016).
H_2	A stated age of under 23 years old is more likely to predict trafficking (LE Focus Group + Fieldwork Interviews)
Young language in ad	
H_3	Controlling for other variables, young language in an ad is predictive of trafficking (Bouche, 2015, 2018; LE focus groups + fieldwork interviews; Hultgren, 2016)
Provider ethnicity	
H_4	Controlling for other variables, indicators of provider ethnicity are predictive of trafficking (TGG Group, 2016; Ibanez & Suthers, 2014, 2016; Ibanez, 2016; Hultgren, 2016)
Phone numbers	
H_5	Controlling for other variables, an obscured phone number in an ad is predictive of trafficking (TGG Group, 2016; Hultgren, 2016; LE focus groups)
Provider movement	
H_6	Controlling for other variables, provider movement language is predictive of trafficking (Ibanez & Suthers, 2014, 2016; Ibanez, 2016; Hultgren, 2016)
Client Ethnicity	
H_7	Stated preference for the ethnicity of the client is predictive of trafficking (TGG Group, 2016, LE + survivor focus groups)
Client Screening (non-ethnicity)	
H_8	Screening requirements for clients other than ethnicity are more likely to be predictive of trafficking (Focus groups)
Controlled Movement (incall, outcall, brothel)	
H_9	Controlled movement indicators are predictive of trafficking (Ibanez & Suthers, 2014, 2016; Ibanez, 2016; Hultgren, 2016; LE + survivor focus groups)
Provider trustworthy	
H_{10}	Controlling for other variables, language assuring potential customers of provider trustworthiness are predictive of trafficking (Field-generated hypothesis)
Additional Hypothesized Relationships	
H_{11}	**Payment language** more likely to be associated with a trafficking case, controlling for other variables (Whitney et al., 2018; Focus groups)
H_{12}	**Provider available 24/7** is more likely to predict a trafficking case, controlling for other variables (Field-generated hypothesis)
H_{13}	**Multiple providers** represented in an ad is more likely to predict trafficking, controlling for other variables (Ibanez & Suthers, 2014, 2016; Ibanez, 2016)
Interaction Terms	
H_{14}	The combination of **Movement** present, but **no client screening**, is more likely to predict trafficking than the presence of a movement indicator alone (Field-generated hypothesis)
H_{15}	The combination of **multiple providers and movement** is more likely to predict a trafficking case than the presence of either of these indicators alone (Focus groups)

Results

Use of Ads in Investigations: Fieldwork Interviews

During in-person fieldwork, we interviewed 27 investigators about how they use ads in investigations: seven in Georgia, seven in San Diego, two in San Francisco, and 11 in Texas. We present a summary of these interviews, followed by three case studies that illustrate how advertising practices fit into sex trafficking activity and investigations as context for our analytical results.

At the time of the fieldwork site visits, the investigators and prosecutors we interviewed stated that their agencies received minimal training on human trafficking. Most training received was "hands on," on the job training. One interviewee stated that their task force trains other law enforcement agencies and conducts outreach and education to assist in identifying human trafficking and making referral decisions. Training topics mentioned included social media, long-term effects of human trafficking, "Going Beyond the Traffic Stop" (a program that trains officers to spot signs of trafficking during traffic stops), interviewing and report writing, trauma care for officers, and coping with burnout. However, one supervisor stated that a challenge for smaller agencies was related to staffing issues. One respondent stated, "we don't have the manpower to let my guys off for training even if it's free." Training for prosecutors was also mentioned as lacking, but important because "if they had more education, they wouldn't be so quick to reject more cases" (Prosecutor interviewee).

In current practice, as depicted in Figure 3, law enforcement generally used four types of websites in their investigations. This is an important distinction because their investigative process and use of ads differed somewhat by source.

Category 1 websites refer to those that were well known for highly sexual content. Most frequently mentioned by interviewees were: Backpage, ECCIE, Skip the Games, Adult Look, Adult Search, Mega Personals, and Onlyfans.com. These websites were specifically targeted because law enforcement perceived them to be unlikely choices for advertising by legitimate businesses (e.g., "If it's a true masseuse, why would you be advertising on Backpage?").

Category 1 websites were most often used by task forces in sting operations. Two examples of sting operations are described below.

- **Example 1: "John" Stings**
  Investigators/analysts started by randomly searching profiles on websites and selected ads that "stood out" for closer examination based on the presence of certain indicators. Investigators then posed as 'Johns' (i.e., sex buyers) to initiate

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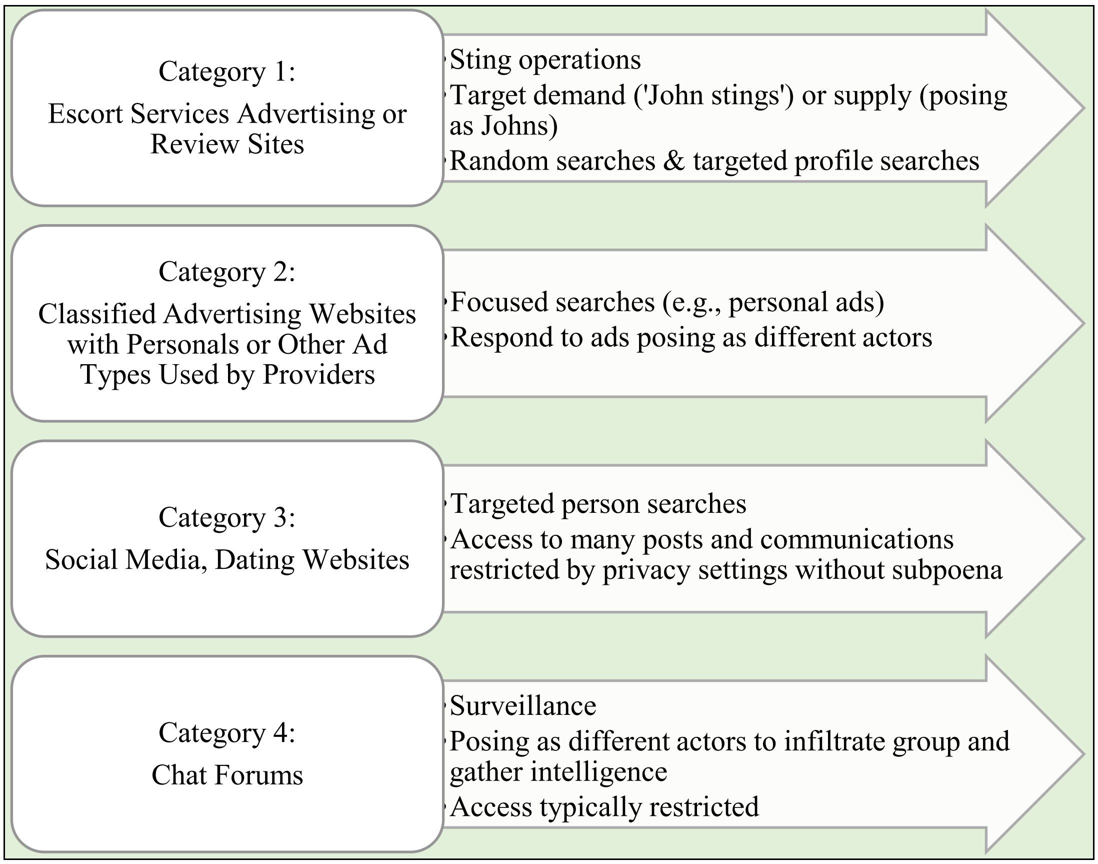
conversation with providers. Initial communication with providers was almost always via text messages using the phone numbers listed in the ads.

- **Example 2: Demand Operations**
  Law enforcement posted ads posing as underage providers and targeted Johns to obtain information about victims. The information gleaned would then be used to search for ads of these victims.

Figure 3. Website and Ad Types and Roles in Investigative Processes



Category 2 refers to classified advertisement websites that contained personal ads or massage sections (e.g., Craigslist). Law enforcement selected ads that appeared to be selling services and responded to them by posing as different actors, depending on what the advertiser was seeking. In one instance, an interviewee described a situation in which investigators posed as a minor in response to an online ad that was seeking a "father-son roleplay."

Category 3 refers to social media sites (e.g., Facebook, Instagram) used for targeted searches, such as to locate pimps who were under investigation and search their contacts to identify and contact victims. In addition, sometimes, law enforcement came across potential human trafficking during other types of investigations (e.g., narcotics raids). Investigators then searched social media to gather intelligence and ran the information through technology (e.g., scrapers like Spotlight) to identify the suspect's and/or victim's location and movement. Post-Backpage and post-SESTA/FOSTA, a significant amount of solicitation activity has moved from advertising sites to social media and dating websites, where pimps and providers create profiles to entice potential buyers to contact them by private message or in private chat rooms.

Lastly, Category 4 refers to chat forums/groups that were known to be where pimps and sex workers communicate with each other to discuss Johns or share intelligence on how to evade law enforcement, among other things. Infiltrating these groups was often unsuccessful because gaining access to them is often highly restricted and requires several layers of screening.

Challenges in Investigations

Law enforcement and prosecutors experienced several challenges using websites and ads during investigations and prosecutions.

1) It was difficult to identify all the platforms/websites on which ads were posted. However, one interviewee stated that posting on multiple platforms was "helpful in a way because there are more avenues to pursue the case." Finding posts on multiple sites also facilitated construction of the suspect's *modus operandi*. This suggests that there may be some common features across ads posted in a case.

2) Investigators sifted through a lot of "garbage ads" to determine which were relevant to the case they were pursuing. This was time and resource intensive.

3) Identifying trafficking ads was an arduous task because there were "no obvious indicators in an ad to determine whether it is coercive or voluntary."

4) Identifying juveniles was difficult because interviewees recognized that "sometimes they won't put the juvenile in the ad and use stock photos or other women."

5) Some websites had a vetting process to thwart law enforcement. For example, ECCIE required a user history or ad posters would not respond. Other review sites charged joining fees, which was problematic for law enforcement because they were not authorized to charge such fees to a government credit card.

6) Lack of cooperation from certain websites, especially those based outside of the U.S., hindered investigations (e.g., "it's hard to subpoena sites outside of the U.S. You can get a judge's order and they technically don't have to abide it.").

7) Finally, due to the sheer number of referrals some agencies receive, their use of websites and ads was focused on specific individuals rather than proactive searches for victims—which they believe means many victims likely "fall through the cracks."

It is in this context that investigators are pursuing cases and attempting to identify potential victims and traffickers using online escort ads.

Three Case Studies

To provide some examples of the types of cases within which ads occur in our sample, we now present three case studies that make use of the detailed case descriptions available in the case files we analyzed to gather the context for our ads. Examples depicting small, medium, and large travel patterns were selected. Each case crossed state lines, making them more jurisdictionally complex to investigate. All ads collected from fieldwork for each case were included in the analyses (i.e., these case studies use *all* ads available for each case prior to applying the sampling procedure described above for the regression and ANCOVA analyses). If an ad had either no ad text or no location, it was excluded from the case study analysis.

The map in each case study depicts the location (city) and density of ads for each case. States with any ads are displayed in blue. The green lines depict the network of ads and appear thicker the more ads there are in that location. It is important to note that the green lines in the maps do not depict temporal travel patterns. This could not be demonstrated because ads did not appear in a consistent temporal path (i.e., ads in the case may have been posted on the same date in two different cities). Instead, the green line illustrates the reach of ad activity.

The key findings from these case studies are:

- Cases with more identified victims had more ads posted in more locations.
- In all three case studies, ad text related to young language and provider trustworthiness were the most prevalent words or phrases featured, which corresponds to predictors found to be statistically significant in the quantitative analyses below.

- In all three cases, the Backpage Adult Section was among the most frequently used sites.
- The case studies highlight diverse ways in which investigations are initiated (i.e., task force sting operation, family member notifying police, and victim outcry).
- Although case study 3 was more expansive geographically than case study 2, only one perpetrator was identified and apprehended by law enforcement. However, given the perpetrator's gang involvement and the number of jurisdictions crossed, there were likely more perpetrators and victims involved than were identified in the case file.
- Only one case was prosecuted federally despite all three crossing multiple jurisdictions.
- The perpetrators in case studies 1 and 3 were convicted of lesser charges (i.e., promotion of prostitution and pimping and pandering). However, case study 2 was federally

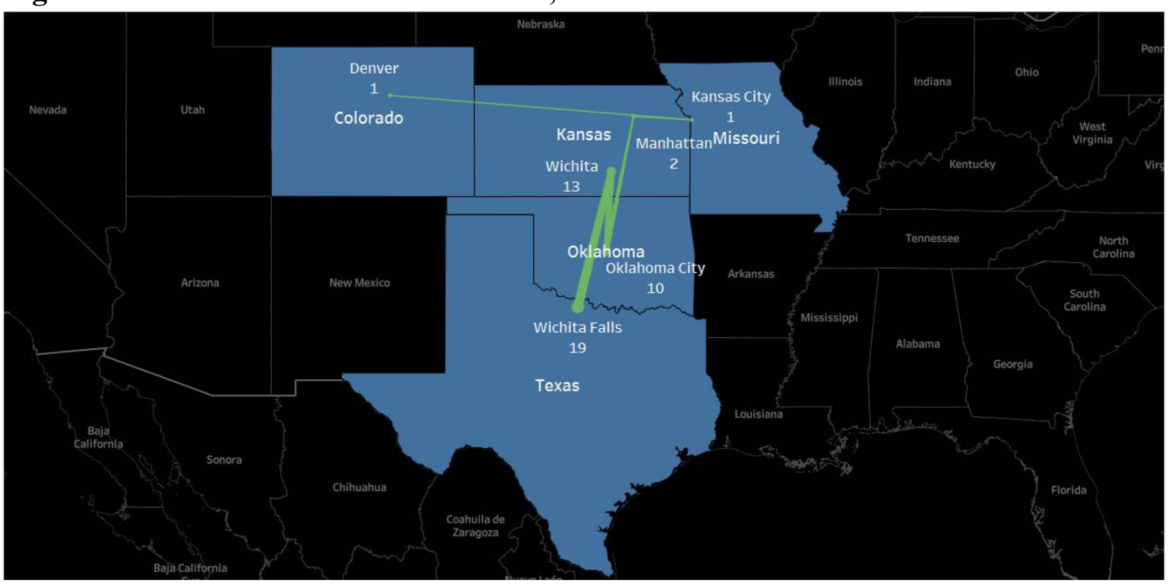
prosecuted and two of the identified perpetrators were convicted of human trafficking.

Case Study 1: Small Network, Southern U.S.

Case Details. The case depicted in Figure 4 occurred between September 2014 and February 2016. Law enforcement identified four people in the case: one Caucasian female victim, two female non-trafficked sex workers, and one male perpetrator (pimp). The case originated from an interview with the victim while she was in jail for a separate offense because law enforcement had suspicions that she was a victim of human trafficking. Based on the victim's testimony, she was initially living and working independently in Dallas, Texas when she was recruited by the perpetrator who had seen her ads online. Both non-trafficked sex workers in this case also worked for the same perpetrator. The victim traveled with the perpetrator to New Orleans, Louisiana. Following this trip, the victim returned to working independently for around nine months but then rejoined the perpetrator and the pair eventually traveled through Kansas, Missouri, and Texas. The perpetrator withheld all the money that the victim earned from sex and became physically violent toward her.

State police handled this case. Law enforcement subpoenaed Backpage.com to obtain the ads related to the case. They also gathered hotel receipts as corroborating evidence to link the perpetrator to the events. The perpetrator was initially arrested on a charge of Trafficking of Persons. He later plead guilty to Aggravated Promotion of Prostitution and was sentenced in February 2016 to two years in prison.

Figure 4. Small Network Travel Pattern, Southern U.S.



Use of Ads. Forty-six ads dated from September 2014 to December 2015 were associated with this case (note, however, that ads related to the non-trafficked sex workers could not be distinguished from ads for the victim using available data). The ads were posted in six cities across five states (Colorado, Kansas, Missouri, Oklahoma, Texas). These locations only partially overlap with those mentioned in the victim's testimony (the victim did not mention travelling to

Colorado or Oklahoma). The highest proportion of ads was posted in Wichita Falls, Texas (41%, n=19), followed by Wichita, Kansas (28%, n=13) and Oklahoma City, Oklahoma (22%, n=10). Ads in this case were posted on six different websites: Backpage Adult Services (most common), myproviderguide, EscortsInTheUs, Escortads.xxx, EscortsInCollege, and EscortPhoneList. The ads in Wichita and Wichita Falls were posted across all six websites, whereas in the other locations, ads were found on only one or two websites.

A qualitative content analysis of the ads revealed that there were 12 unique ad 'types' (i.e., sets of ads for which the text was mostly similar). Out of the 12 ad types, two appeared in multiple locations (Ad 3 was posted in both cities in Kansas, and Ad 5 was posted in Oklahoma City and Wichita Falls). The remaining ads were posted in only one location.

The 46 ads were associated with three different phone numbers, one of which belonged to the victim. The case information revealed that both the victim and the perpetrator had posted ads. In 23 instances, the provider's name (likely an alias) was listed. A simple tally of the names suggested that there were eight providers. However, this does not match the case details which identified only three providers (i.e., the victim and two sex workers). Possible explanations for this discrepancy are that perhaps there were more people involved in this case than law enforcement were able to identify or the three providers were using various aliases in their ads.

In terms of ad text related to the indicators examined in the quantitative analyses, provider ethnicity was most frequently featured. Seventy-two percent (n=33) of the ads used the following words or phrases that referred to the providers' ethnicity or physical features: A.A., blue eyes, chocolate, ebony, exotic, and natural blonde. However, it should be cautioned that while certain descriptions (e.g., A.A., ebony) could be accurate portrayals of the providers, other elements such as hair and eye color may be less reliable given that these physical features can easily be altered.

Young language also appeared in more than two-thirds (n=30) of the ads. Common words or phrases used included: bubble butt, girl, I'm young, petite, soft (e.g., soft booty, soft curves), and sweet (e.g., simply sweet, sweet companion, sweet personality).

Ad text suggestive of the providers' trustworthiness appeared in 39% (n18) of the ads. Examples of phrases used were: 100% accurate photos, pictures are 100% real, what you see is what you get, 100% independent, 100% real and discrete, no bait and switch (tattoos don't lie), safe atmosphere; and safe upscale incall. Movement language only appeared in six ads, which all referred to the provider being "new in town."

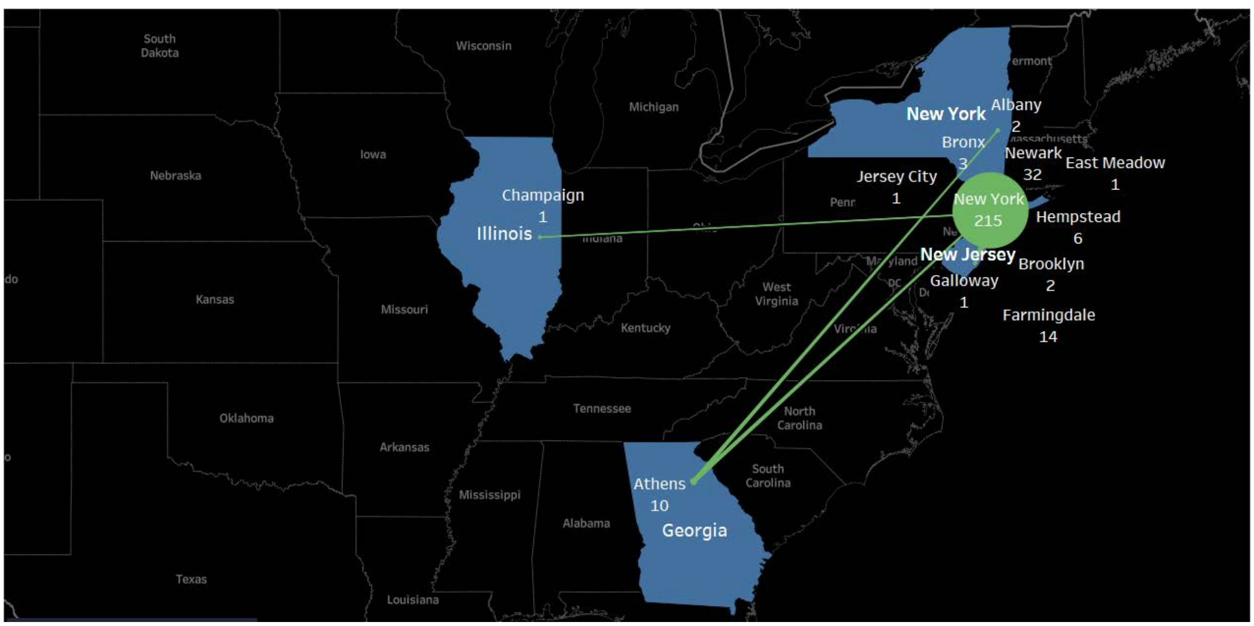
A comparison across all ads revealed some commonalities. References to dreams/fantasy appeared in 65% (n=30), references to royalty (e.g., king, queen) appeared in 57% (n=22), and sexual language (e.g., submissive, love to dominate) was used in 15% (n=7) of the ads.

Case Study 2: Medium-Sized Network, Eastern Seaboard

*Case Details***.** The case depicted in Figure 5 occurred between March 2016 and May 2018. Law enforcement identified two juvenile victims who were both African American and eight perpetrators comprised of seven pimps and one bottom. This case came to the attention of law enforcement when a family member called to report a missing juvenile in New York. The family member disclosed that the victim had been kidnapped by a gang and transported from New York to Georgia to be sold for sex work. Most of the activity occurred at a hotel and the perpetrators controlled the money the victims earned. Following an investigation, five of the perpetrators were arrested in Florida after they fled from Georgia and the case was then transferred to the Federal Bureau of Investigation (FBI) and prosecuted federally. It was later revealed that the gang had plans to recruit additional victims. Two of the perpetrators pled guilty to human trafficking crimes in May 2018. One perpetrator was sentenced to 10 years in prison. The sentence for the second perpetrator is unknown. It was not possible to determine from the available case records whether other perpetrators were convicted in separate prosecutions.

Use of Ads. Two hundred and eighty-eight ads dating from February 2015 to January 2020 were associated with this case. The ads were posted in 10 different cities across four states (Georgia, Illinois, New Jersey, New York). Most ads were posted in New York (n=215, 75%)

Figure 5. Medium Network Travel Pattern, Eastern Seaboard

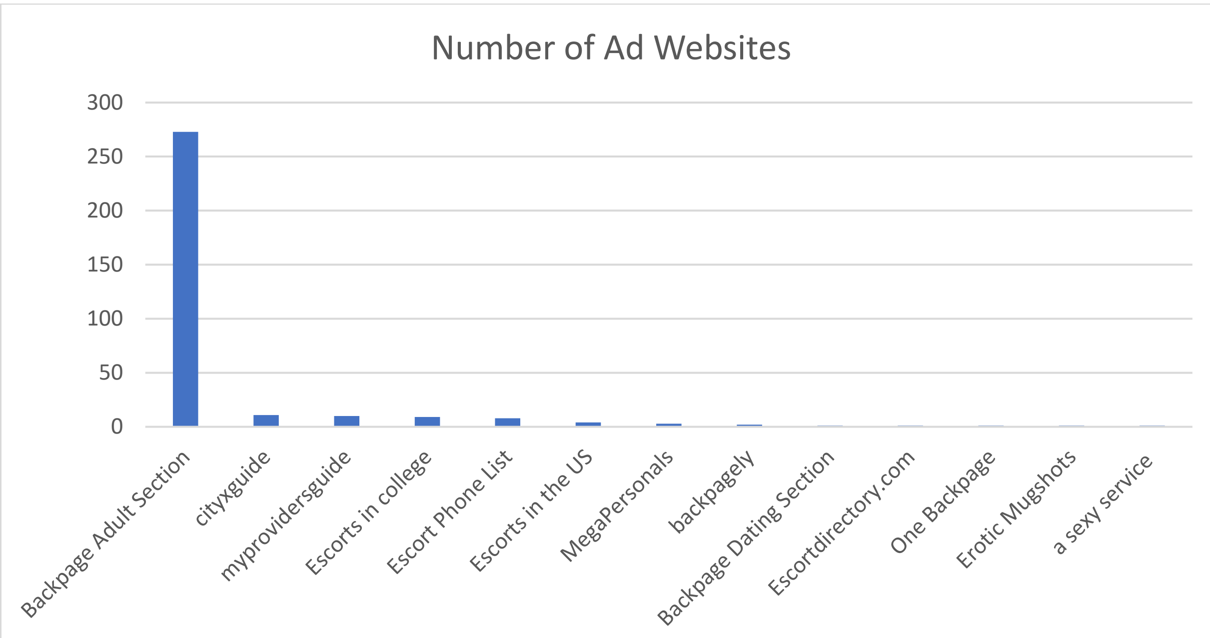


and New Jersey (especially Newark, n=32, 11%, and Farmingdale, n=14, 5%). As shown in Figure 6, the ads were posted on 13 different websites, with the vast majority (n=237, 82%) posted on Backpage Adult Services. Per the case information, the victims stated that they did not use their own photos in the ads.

A content analysis revealed that there were 58 unique ad 'types' for which the text was mostly similar. Out of the 58 types, 35 (60%) appeared in multiple locations, whereas the remaining ads were posted in only one location.

The 288 ads were associated with 13 different phone numbers. The case information revealed that the victims had posted their own ads to Backpage.com. In 257 instances, the provider's name (likely an alias) was listed. A simple tally of the names suggested that there were at least 50 provider names used. The fact that only two victims were identified in the case details means that the victims were likely posted under multiple names in ads and/or there were also additional, unnamed victims.

Figure 6. Case Study 2 Ad Websites



Of the indicators we examine in the quantitative analyses, language related to trustworthiness was featured most often in the ads. Eighty-three percent (n=239) of the ads used a variety of words or phrases that referred to the providers' trustworthiness: always discreet; 100% drama free; guaranteed 100% really me; 100% independent; 100% independent business; my recent pictures; no bait and switch; no games or hassles; professional; 100% real; 100% real females; 100% real and recent pictures; the real deal; 100% us; and what you see is what you get.

Young language appeared in more than three-quarters (n=221) of the ads. Common words or phrases included: adorable; bubble butt; bubbly; cub; cute; doll; flirty; fun; funsize; girl (e.g., girl next door, your girl); loveable; peachy clean; perky; petite package; perfect playmate; play (e.g., I want to play, playful); pretty; sweet (e.g., sweet and stunning, sinfully sweet, sweet goddess); soft (e.g., soft skin); tender innocence; tight and tiny; and young (e.g., young college student, young woman).

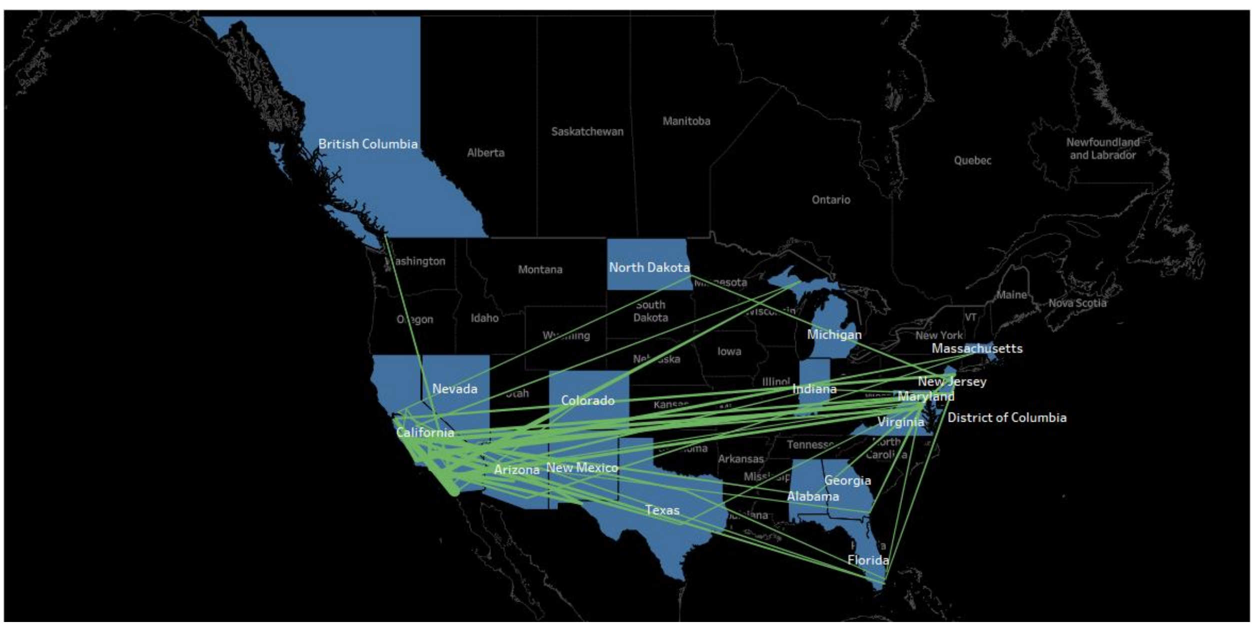
Client restrictions appeared in 32% (n=92) of the ads. Examples of phrases used included: no black men under 35; no law enforcement; no pimps; no thugs; and no young guys. Other indicators that appeared in less than one quarter of ads were related to provider ethnicity (n = 69, 24%), available 24/7 (n=59, 20%), movement (n=44, 15%), and payment (n=33, 11%).

An additional common theme across these ads was references to services provided (e.g., body rubs, domination, fetish friendly, mouth skilled, squirter, two-girl special); this appeared in 23% (n=67) of the ads.

Case Study 3: Large, Nationwide Network (California-based)

Case Details. The case depicted in Figure 7 occurred between July 2017 and February 2018. Law enforcement identified three victims and one perpetrator in this case. The case originated as a hotel sting operation conducted by the vice unit of a local police department with assistance from a Human Trafficking Task Force. The sting was the result of a tip from hotel staff who were suspicious that a guest was being trafficked. This victim was recovered during the hotel sting. Additional victims were identified through ads posted with one of the perpetrator's email accounts. This person was a gang member and was known to circle the hotel parking lot in his vehicle while his victims worked. The perpetrator controlled the victims' money and enforced rules with violence. The perpetrator posted ads using various phone numbers and photos which the investigator did not believe belonged to the victims.

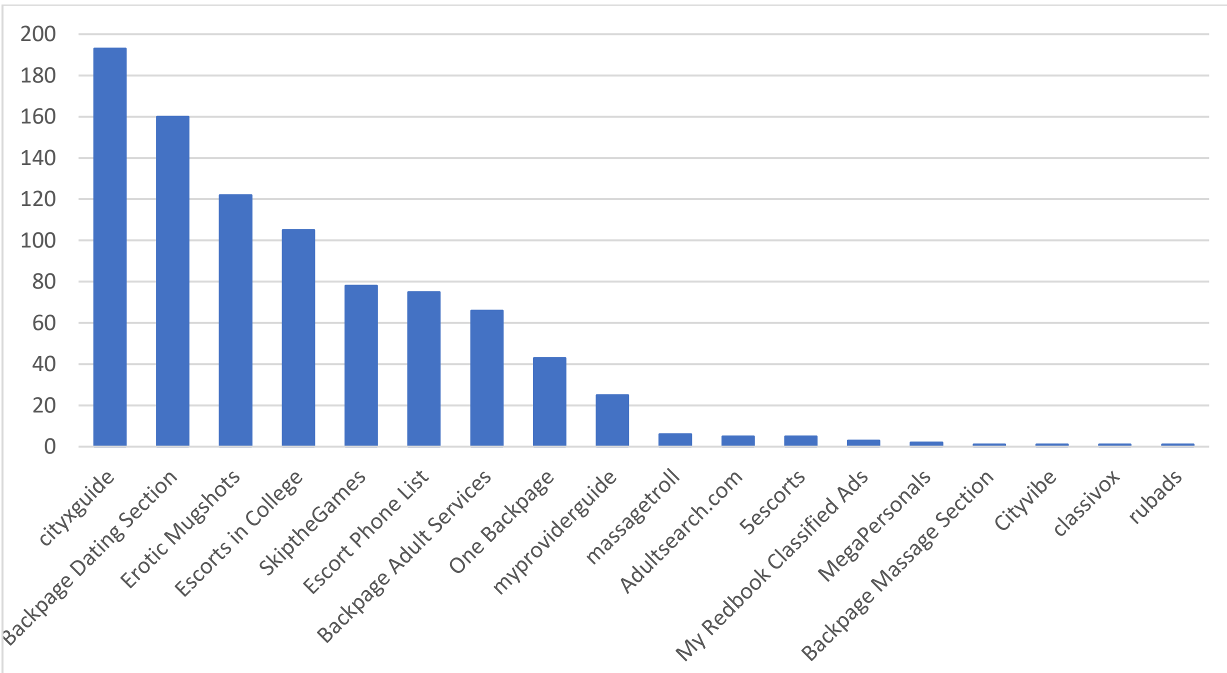
Figure 7. Large, Nationwide Network Travel Pattern



The perpetrator would showcase victims on his Snapchat account. Investigators followed the perpetrator's Snapchat and then searched Backpage.com for ads in each Snapchat location shown. Facebook evidence was gathered as well, including photos of branded women on the perpetrator's page, posts about how to pimp, what to do and look out for, and requirements for prostitutes. The perpetrator plead guilty to pimping and pandering charges and was sentenced in February 2018 to eight years and nine months in prison.

Use of Ads. Eight hundred and ninety-six ads dating from May 2014 to September 2019 were associated with this case. The ads were posted in 52 cities across 16 states in the U.S. and one province in Canada. Nearly three-quarters of all ads were posted in cities in California, particularly San Diego (n=135, 15%), Los Angeles (n=67, 7%) and Bakersfield (n=67, 7%). As shown in Figure 8, the ads were posted to 18 different websites, with the top three being cityxguide (n=193), Backpage Adult Section (n=160) and Erotic Mugshots (n=122).

Figure 8. Case Study 3 Ad Websites



A qualitative content analysis of the ads revealed that there were 238 unique ad 'types.' The ads were associated with 12 different phone numbers, and in 676 instances, the provider's name (likely an alias) was listed in the ads.

Of the indicators examined in the quantitative analyses, young language was most frequently featured in the ads. Four hundred and twenty-three of the ads used language referring to the providers' innocence and youthfulness: all American girl; all natural beauty; angel; bubble booty/butt; cute; doll; flirty; funsize; girl (e.g., good girl, girl next door, college girl); loveable; perfect playmate; petite; playful; play toy; princess; soft skin; sweet (e.g., sweet like honey, sweeter than sugar, sweet treat, total sweetheart); and young.

Ad text conveying provider trustworthiness was the next most frequently appearing indicator (334 ads). Examples of such words or phrases included were: current pics guaranteed; discreet; drama free; I'm 100% real; independent; no fakes; and 100% real and recent pics.

Provider ethnicity was the third most frequently appearing indicator and the most used words or phrases made direct reference to the victims' ethnicity (i.e., African American, Cambodian, Caucasian, Creole, Egyptian, Latin, Persian), or characteristics suggestive of ethnicity such as blonde, chocolate, caramel, exotic, foreign, mixed, and Spanish speaking. However, many of the latter characteristics (such as references to hair color, skin tone and language) may not be reliable portrayals given that these features can easily be altered.

A comparison across all ads revealed some case-specific commonalities. Specifically, references to being the "total package" and "one-stop shop" were featured in 10% (n=92) of the ads, sexual language (e.g., cum) was used in 8% (n=72) of the ads, and dreams/fantasy/escape from reality appeared in 7% (n=65) of ads.

Descriptive Statistics

Table 9 provides a summary of the presence of our primary indicators of interest in online escort ads by case outcome. There was a total of 1,263 ads associated with non-massage cases collected during fieldwork, 76% of which belonged to trafficking cases (n=964) and 9% of which were not part of a trafficking case (n=108). Fifteen percent of ads in the fieldwork sample belonged to cases for which the presence of trafficking could not be determined with the evidence available (n=191).

Ads for massage services from both individual providers and parlors/establishments with multiple providers were grouped into a separate dataset, as described earlier. This subset contained 323 ads: 21% from fieldwork sites (n=67) and 79% from the ground truth dataset (n=256). Human trafficking ads accounted for 87% (n=282), 11% were not trafficking ads (n=36), and for 2% of massage ads, information was not available to determine trafficking (n=5 ads). A slight majority of massage ads (54%) were posted for individual providers advertising massage services (n=176) and 46% were ads for massage businesses (n=147). Eighty-eight percent of individual provider ads were part of a human trafficking case (n=155) and 86% of massage parlor/brothel ads were from trafficking cases (n=127).

Presented in Table 9 are the descriptive statistics for both massage and non-massage ads. Because there are only five ads with an unknown outcome in the massage data, these were combined with "not trafficking" in this table. Due to rounding and/or missing data, the totals provided for each trafficking outcome do not always equal 100%.

This information provides insight into differences in the presence of various indicators between ad types. Most non-massage cases included commercial sex activity occurring in hotels. Human trafficking ads were more likely to contain an *obscured phone number* (20%) than non-trafficking ads (4%) in non-massage data, but massage ads had a slightly higher proportion of *non*-trafficking ads (10%) than trafficking ads (9%) with phone number obfuscation. *Provider ethnicity* was present in 33% of trafficking ads compared to 11% of non-trafficking ads in non-massage data, but in massage ads, provider ethnicity was specified in more *non*-trafficking ads than trafficking ads.

Table 9: Summary of Potential Human Trafficking Indicators by Case Outcome for Non-Massage and Massage Ads

Indicator	Non-massage escort ads from fieldwork sites				Massage escort ads		
	Human trafficking (N=964; 76%)	Not human trafficking (N=108; 9%)	Outcome unknown (N=191; 15%)	Total (N=1,263; 100%)	Human Trafficking (n=282; 87%)	No/unknown Outcome (n=41; 13%)	Total (n=323; 100%)
Obscured phone number	20.4%	3.7%	21.5%	19.1%	8.9%	9.8%	9.0%
Ethnicity of provider	33.3%	11.1%	23.9%	30.0%	44.0%	48.8%	44.6%
Client screening, excluding ethnicity	35.4%	35.2%	32.5%	34.9%	29.8%	14.6%	27.9%
Client ethnicity screening	15.9%	20.4%	26.2%	17.8%	2.5%	17.1%	4.3%
Preference for upscale clients	11.7%	23.1%	21.6%	14.2%	1.8%	0.0%	1.5%
Provider movement	34.3%	61.1%	65.8%	41.3%	33.3%	36.6%	33.7%
Controlled movement	45.2%	27.1%	44.2%	43.5%	77.0%	51.2%	73.7%
Provider available 24/7	10.9%	15.7%	13.3%	11.7%	3.9%	7.3%	4.3%
Young language	42.6%	34.3%	36.3%	41.0%	31.6%	29.3%	31.3%
Payment language	33.7%	23.1%	45.8%	34.6%	60.6%	17.1%	55.1%
Provider trustworthy	25.9%	18.5%	22.2%	24.7%	30.9%	2.4%	27.2%
Ad posted in different locations	22.3%	12.6%	10.8%	19.8%	N/A	N/A	N/A
Multiple providers in ad	11.8%	11.1%	11.8%	11.8%	47.9%	41.5%	47.1%
Provider's stated age is under 23	62.5%	75.0%	55.2%	62.5%	16.6%	33.3%	18.7%
Movement + no screening	15.7%	24.1%	29.5%	18.5%	24.5%	36.6%	26.0%
Multiple providers + movement	5.2%	9.3%	7.0%	5.8%	16.7%	24.4%	17.6%

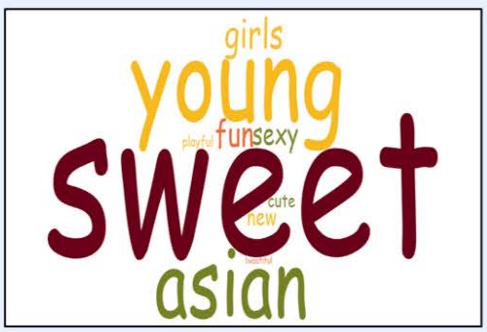
Language Style in Massage and Non-Massage Ads

There were some notable differences in the way language was used in trafficking-related ads for massage and non-massage.

Pricing. Massage ads tended to provide specific dollar amounts while non-massage ads often disguised payment information using words like "donations" and "roses."

Provider Trustworthiness. Massage ads often described professional staff and privacy (e.g., private room, private parking lot), whereas non-massage ads more frequently stated that the providers were "independent," "discreet," and that the photos were "100% real and recent" to convey trustworthiness.

Language suggesting youth. Massage ads tended to describe staff (e.g., "new young staff," "sweet young Asians"). However, non-massage ads contained a wide variety of language throughout an ad that described the providers' physical appearance (e.g., pretty, soft, petite) as well as personality (e.g., sweet, bubbly, playful).



Massage Ads

Non-Massage Ads

The same ad being posted in *multiple locations* was more common among trafficking ads (22%) than non-trafficking ads (13%) in non-massage data. This variable was not possible to code routinely for the massage ads, as we usually just had one ad per case, so was not included.

Several indicators occurred more often in trafficking ads than in non-trafficking ads in both datasets. For both massage and non-massage ads, *client screening (non-ethnicity)* was more likely to be present in trafficking ads (30% and 35%, respectively). However, in the massage data, client screening was present almost twice as often in trafficking ads as in non- trafficking ads; in fieldwork data, the difference was much smaller (<1%). Client screening requirements were also included in almost 35% of ads from non-massage cases with unknown outcomes.

For both massage and fieldwork ads, *movement language* was more common in *non*-trafficking ads than in trafficking ads (37% vs. 33% and 61% vs. 34%, respectively). *Controlled movement language* was more prevalent in trafficking ads than non-trafficking ads for both fieldwork and massage (45% vs. 27% and 77% vs. 51%, respectively). *Provider trustworthiness* language occurred in 26% of trafficking ads vs. 19% of non-trafficking ads in fieldwork data and 31% of trafficking ads vs. 2% of non-trafficking ads in massage data. For both fieldwork and massage ads, the proportion of ads with *multiple providers* was higher for trafficking ads than non-trafficking ads, but the differences were small. Similarly, *payment language* was more likely to be present in trafficking ads in fieldwork ads (34%) and massage ads (61%) than in non-trafficking ads, although in fieldwork data, it was present in the highest proportion in cases with an unknown outcome.

The prevalence of *24/7 availability* was higher in *non*-trafficking ads (7% and 16%) than in trafficking ads for fieldwork and massage ads, respectively. In both fieldwork and massage ads, *client ethnicity screening* was also more commonly seen in *non*-trafficking ads than in trafficking ads, which is opposite of the expected pattern hypothesized based on focus group discussions.

Our two interaction variables occurred in similar frequencies in both massage and non-massage ads. We explored the interaction between provider movement and client screening, specifically when there was provider movement but no client screening present. In non-massage ads, more non-trafficking ads had this interaction (24%) than trafficking (16%), but not as frequently as ads with unknown outcomes (30%). The presence of both multiple providers and provider movement was seen more often in massage ads (18%) than fieldwork ads (6%). However, in both fieldwork and massage data, this interaction appeared more frequently in *non*-trafficking than trafficking ads: 9% vs. 5% and 24% vs. 17%, respectively.

Next, we examined whether there were any substantial differences in the presence of various indicators based on state. Table 10 shows the breakdown of indicator prevalence by case state. When considering these statistics, remember that all ads included for

Ad Structure in Massage and Non-Massage Ads

Ad structure also varied between non-massage and massage ads. Non-massage ads tended to be more free form, especially on Backpage. Massage ads were more likely to feature several of the following elements:

- multiple providers;
- state "spa" or "parlor" and/or provide the name of the business;
- provide a specific address *and* state that they do incalls (e.g., "walk-ins welcome" or "come see us" (ad must not also mention outcalls);
- provide business hours (must be less than 24 hours);
- list specific services (e.g., shiatsu, reflexology, deep tissue massage); and
- accept credit cards for payment.

The frequency with which these elements occur in trafficking-related massage ads is shown in Figure 9. Language related to having multiple providers, types of services, and business hours was found in 80% or more of the massage ads.

Figure 9: Percentage of Trafficking Massage Ads Containing Structured Ad Text

New York, New Mexico, and Oregon are from the “ground truth” set and are massage ads. Additionally, case details were not available for the massage cases, which precluded much analysis to ascertain whether the same ad may have been posted in different locations using different phone numbers.

That said, obscured phone numbers were found in far fewer Georgia, New York, and Oregon ads than California, Texas, or Nebraska ads. Provider ethnicity was specified in far more ads in New York and Oregon than the other states (over 50%). Of non-massage ads, Texas and California ads specified provider ethnicity most often (34%).

Client screening appeared most often in ads from Nebraska (40%), followed by New York and California. Client ethnicity preferences were specified most often in Georgia (33%) and least often in massage cases (less than 5%). Provider movement language appeared most often in Nebraska (over 60%) and least often in New Mexico (26%). Eighty-seven percent of Oregon massage cases contained potential controlled movement language, likely because they were massage parlor cases, while only 40% of Georgia cases contained this language. “Provider available 24/7” was used far less often overall, but most often in Texas (21%).

Language suggesting youth was used about 37% of the time, which was surprising in a law enforcement sample given how often this was mentioned in interviews and in the literature. It appeared most often in Texas (55%) and least often in New Mexico (26%). Payment language appeared most often in Georgia (61%) and least often in Nebraska (29%). Language indicating provider trustworthiness occurred in about 28% of all ads.

In states where the information was possible to collect, Georgia and California had the greatest number of cases where the same ads were posted in multiple locations. Ads featuring multiple providers occurred most often in the states where our sample consisted of massage ads (New York, New Mexico, and Oregon). Ads featuring a stated age under 23 years old occurred most often in the states where most cases were non-massage cases, and far less often in states where data consisted exclusively of massage cases.

Finally, as a bit of a check on potential sample bias, 57% of the ads in our sample were posted on Backpage. One hundred percent of Oregon’s ads came from Backpage, while only 2.3% of New Mexico’s did. The proportions of ads from Backpage for rest of our seven states ranged between 38% and 92%.

Age and Human Trafficking

As hypothesized, language suggesting youth was more prevalent in trafficking than non-trafficking ads for both fieldwork (42% vs. 33%) and massage ads (32% vs. 29%). This difference is greater for fieldwork ads (9%) than massage ads (3%). However, this difference in prevalence rates may at least partially be an effect of our use of law enforcement data; investigators typically select ads with young language to pursue. We acknowledge this potential source of selection bias when the proportions in the larger universe of sex work ads may be

Table 10: Ad Indicator Breakdown by State

Indicator in ad	California (N=593; 37%)	Georgia (N=120; 8%)	Nebraska (N=248; 16%)	Texas (N=302; 13%)	New Mexico (n=95; 6%)	New York (n=77; 3%)	Oregon (n=84; 5%)	Total (n=1,586; 100%)
Phone number obscured	23.6%	9.2%	19.4%	14.0%	14.0%	7.9%	7.2%	13.6%
Ethnicity of Provider	33.9%	11.8%	22.3%	35.9%	35.8%	59.7%	48.8%	35.4%
Client Screening (not ethnicity)	34.1%	29.2%	42.7%	32.5%	33.7%	36.4%	25.0%	33.4%
Client Ethnicity Preferences	9.8%	33.3%	19.4%	26.2%	4.2%	0.0%	1.2%	13.4%
Upscale Client Preference	11.1%	16.8%	23.8%	11.3%	1.1%	2.6%	0.0%	9.5%
Provider Movement language	31.5%	55.5%	60.9%	39.0%	26.3%	27.3%	44.0%	40.6%
Controlled Movement	40.8%	39.8%	37.5%	55.3%	71.6%	80.5%	86.9%	58.9%
Provider Available 24/7	7.1%	5.9%	10.1%	20.9%	0.0%	7.8%	1.2%	7.6%
Young Language	36.8%	26.9%	54.4%	43.7%	26.3%	41.6%	32.1%	37.4%
Payment Language	31.9%	60.5%	28.6%	34.8%	57.9%	50.6%	76.2%	48.6%
Provider Trustworthy	25.6%	22.5%	28.6%	20.6%	37.9%	31.2%	29.8%	28.0%
Ad Posted in Different Locations	25.3%	26.7%	16.5%	8.1%	N/A[22]	N/A	N/A	19.2%
Multiple providers	8.3%	7.8%	21.8%	11.9%	43.2%	62.3%	50.0%	29.3%
Stated Age Under 23	55.9%	69.6%	60.1%	72.9%	8.3%	21.6%	17.1%	43.6%
Ad posted on Backpage	38.3%	68.3%	91.5%	52.3%	2.3%	46.7%	100.0%	57.1%

[22] Due to limited case information available for the "ground truth" set data, this indicator was not possible to code in ads for New Mexico, New York, or Oregon.

different. Conversely, and in the opposite direction of what we hypothesized, a stated age of 22 years old or younger was more common in *non*-trafficking ads than trafficking ads for both fieldwork and massage ads (70% vs. 63% and 33% vs. 17%, respectively).

Legally, any escort activity by a minor is automatically considered human trafficking. As a result, the ages stated in online ads are not likely to reflect the true age of the provider if they are a minor. Law enforcement focus group and interview respondents indicated that a common standard they use when looking at online escort ads for potential minors is whether the stated age is under 23 years old. However, non-trafficked sex worker focus group respondents reported using a stated age *younger* than their actual age in online ads as a marketing technique.

Table 9 above shows that there are slightly more *non*-trafficking ads with a stated age under 23 years old for both massage and fieldwork ads. It is hypothesized that human trafficking victims are, on average, 3 years younger than their stated age (TGG Group, 2016). While we did not have actual ages available for our massage cases, our results find that trafficking victims in our fieldwork cases were an average of 2.7 years younger than their stated age, while non-trafficked sex workers were a weighted average of 0.8 years older than the stated age in their ads. These results support both TGG's hypothesis and the statements from our sex worker focus group.

Table 11 provides the breakdown of the average actual age of the provider in the ad, the average stated age of the provider, and the average difference between the two. A *negative* average difference means the stated age is *younger* than the actual age, while a *positive* difference means the stated age is *older* than the actual age. A Chi-square test of association shows a significant association between the average difference in ages and trafficking outcome ($x^2(52, N = 748) = 242.8, p < 0.001$).

Table 11: Analysis of Average Actual and Stated Ages in Non-Massage Data

Age indicator	Trafficking outcome: Human trafficking (n=964; 76%)	Not human trafficking (n=108; 9%)	Outcome unknown (n=191; 15%)	Total (n=1,263; 100%)
Weighted average *actual* age	21.6	22.8	23.8	21.8
Weighted average *stated* age	24.0	22.0	22.4	23.8
Weighted average *difference* (Actual – Stated Age)	-2.7	0.9	1.4	-2.2

While classification of trafficking in our sample using the federal definition precludes examining differences in the effects of indicators for minors vs. adults (all minors are trafficking victims under the federal definition), Table 12 shows the differences in prevalence of different indicators for ads advertising minors and ads advertising adults in our sample.

Table 12: Differences in Indicator Prevalence in Ads for Minors vs. Ads for Adults in Non-Massage Ads *(based on the advertised person's actual age)*

Indicator in ad	Minors (n=256; 31%)	Adults (n=572; 69%)	Total (n=828; 100%)
Phone Number Obscured	11.0%	24.2%	20.1%
Ethnicity of Provider	32.4%	27.9%	29.3%
Client Screening (Not Ethnicity)	34.8%	36.2%	35.7%
Client Ethnicity Preferences	18.0%	18.0%	18.0%
Provider Movement Language	29.3%	44.4%	39.7%
Controlled Movement Language	32.9%	50.0%	44.7%
Provider Available 24/7	16.0%	12.3%	13.4%
Young Language	43.8%	40.4%	41.4%
Payment Language	24.6%	34.4%	31.4%
Provider Trustworthy	26.2%	21.9%	23.2%
Ad Posted in Different Locations	25.5%	16.4%	19.3%
Multiple Providers	10.3%	7.0%	8.0%
Provider's Stated Age Under 23	72.5%	49.2%	55.6%
Movement, No Screening	14.8%	20.3%	18.6%
Multiple Providers + Movement	4.0%	3.8%	3.9%

Most indicators were present at similar rates for ads advertising minors and ads advertising adults. However, obscured phone numbers were present in nearly twice as many ads for adults as for minors (24% vs. 11%, respectively). Similarly, both general movement and controlled movement indicators were present in about 15% more ads for adults than ads for minors. About 3.5% more ads for minors, however, featured language about 24/7 availability. Slightly more ads for minors (3%) featured language suggesting youth than ads for adults, and about 23% more ads for minors had stated ages under 23 as well. Payment language appeared in about 10% more ads for adults than ads for minors, but the same ad being posted in multiple locations occurred about 9% more often among ads for minors than for adults. Overall, however, the differences in indicator usage between ads for minors vs. adults were not stark.

Correlations

Correlation matrices were produced to explore the relatedness of the indicators in our various models to whether the ad was involved in a trafficking case. These matrices also assisted in identifying potential instances of multicollinearity among the independent variables. As the dependent and independent variables are dichotomous (e.g., yes/no or present/not present) standard Pearson correlations are inappropriate for computing correlations (El-Hashash & El-Absy, 2018). Pearson proposed tetrachoric correlations, a subset of polychoric correlation, in which it is assumed that the underlying latent construct of the binary variables follows a bivariate standard normal distribution and is continuous (Ekstrom, 2011).

Table 13: Tetrachoric Correlations between Ad Indicators and Sex Trafficking

Indicator	Trafficking Yes
Phone # Obscured	0.516*
Provider Ethnicity	0.358*
Client Screening (no ethnicity)	-0.046
Client Ethnicity	0.127
Client Upscale	-0.307*
Movement	-0.411*
Controlled Movement	0.292
Available 24/7	-0.106
Young language	0.224*
Payment language	0.099
Trustworthy	0.351*
Ad in different locations	0.138
Multi-provider	0.034
Under 23 years old	-0.134
Movement, no screening	-0.242*
Multiple providers and movement	-0.227*

About half of the independent variables are significantly correlated with trafficking. Significant positively correlated variables include: a phone number obscured in the ad; if the ethnicity of the provider is present; "client upscale" language (type of client screening), presence of language related to controlled movement, such as incalls and outcalls; presence of language in an ad identified as indicating the provider is young; presence of payment language; and presence of language indicating the provider is trustworthy. Significant variables that were negatively correlated with trafficking were: language in the ad requesting upscale clients, language in the ad indicating geographic movement of the provider, and a combination variable in which there is the presence of geographic movement but no indication of client screening. The full tetrachoric correlation matrix is provided in Table C5 in Appendix C.

Non-Massage Ads: Regression Analyses

For fieldwork ad predictive analysis, we used multivariate logistic regressions to determine the independent effects of indicators on trafficking outcomes, controlling for the effects of the other variables in each model. For clarity in the regressions, the fieldwork ads belonging to cases for which the outcome was unknown were excluded. Our logistic regressions used complete case analysis (i.e., listwise deletion), meaning that an ad with missing data on any variable in the model was removed, leaving 885 ads. Complete case analysis reduces potential bias in parameter estimation that may result from data missingness (Allison, 2002). Each model was run using the state weights and robust standard errors clustered on case number.

We present three models in Table 14: (1) a "base" model; (2) base model plus the provider movement/no client screening interaction term; and (3) base model plus the provider movement/multiple providers interaction term. We were unable to include both significant interaction variables in the same model due to multicollinearity. Multiple providers is also excluded from Model 3 due to multicollinearity with the interaction term.

Model 1: Base Model with No Interactions

In the base model (Model 1) four variables significantly increased the likelihood that the ad was part of a human trafficking case. When controlling for the other variables, an *obfuscated phone number* increased the likelihood of trafficking by almost 12 times ($p<0.01$). The presence of the *provider's ethnicity* increased the likelihood of trafficking by over 500% ($p<0.01$), and the presence of *young language* in the ad increased the likelihood of trafficking by over 400% ($p<0.01$). *Trustworthy* language also increased the likelihood of trafficking by almost 5 times ($p<.05$). These findings support the associated hypotheses for those variables presented in the analytical plan in Table 8 on page 54.

Conversely, two variables significantly *decreased* the likelihood of trafficking. The presence of *provider movement* decreased the likelihood that the ad was part of a trafficking case by 72% ($p<0.05$) and the presence of language indicating the provider is *available 24/7* decreased the likelihood of trafficking by over 90% ($p<0.01$) in this sample. These findings do not support the associated hypotheses on page 54. Controlled movement was also significant at the .05 level, but unlike the other predictors, this result was unstable when the model was subjected to robustness checks. This instability of the controlled movement variable remained across all three models in subsequent robustness tests, so its use as a predictor is not recommended.

Model 2: Base Model and Provider Movement without Client Screening

Model 2 adds the variable which indicates that there is provider movement, but no client screening measures in place. In this model, the same four variables significantly increased the likelihood of trafficking. Obfuscation of the phone number again increased the likelihood of trafficking by over 12 times ($p<0.01$), the presence of provider ethnicity

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increased the likelihood of trafficking by over five times ($p<0.01$), young language increased the likelihood of trafficking by over 400% ($p<0.01$), and trustworthy language increased the

Table 14: Regression Model Results for Non-Massage Ads[23]

Indicator	Model 1	Model 2	Model 3
Phone obscured	**12.666**** *(11.80)*	**12.723**** *(11.85)*	**11.35**** *(9.77)*
Ethnicity of provider	**6.539**** *(4.44)*	**6.634**** *(4.34)*	**6.197*** *(4.32)*
Client screening	2.400 *(1.65)*	2.244 *(1.77)*	2.566 *(1.75*
Client ethnicity	0.887 *(0.78)*	0.842 *(0.88)*	0.937 *(0.83)*
Client Upscale	0.323 *(0.36)*	0.323 *(0.36)*	0.351 *(0.37)*
Movement	**0.289*** *(0.15)*	0.315 *(0.20)*	**0.302*** *(0.16)*
Controlled movement	3.241* *(1.67)*	3.230* *(1.65)*	3.215* *(1.70)*
Available 24/7	**0.083**** *(0.07)*	**0.0834**** *(0.07)*	**0.096**** *(0.08)*
Young language	**5.809**** *(3.70)*	**5.842**** *(3.74)*	**5.233*** *(3.15)*
Payment language	0.908 *(0.51)*	0.909 *(0.51)*	0.957 *(0.53)*
Provider trustworthy	**5.712*** *(4.36)*	**5.704*** *(4.37)*	**5.043*** *(3.71)*
Ad in different locations	3.057 *(2.18)*	3.062 *(2.2)*	2.987 *(2.17)*
Multiple providers	3.102 *(2.37)*	3.036 *(2.26)*	-
Under 23 years of age	0.516 *(0.29)*	0.510 *(0.3)*	0.529 *(0.30)*
Movement, no screening	-	0.876 *(0.70)*	-
Multiple providers and movement	-	-	0.787 *(0.62)*
* Significant p< 0.05, ** Significant p< 0.01			
N	853	853	853
# of Clusters	75	75	75
Log-likelihood (Model)	-6,464.79	-6,464.06	-6,541.36
McFadden (adjusted) R^2	0.28	0.28	0.27
AIC	12,959.57	12,960.11	13,112.72
BIC	13,030.80	13,036.09	13,183.95

[23] Intercept not reported.

likelihood of trafficking over 4 times. *Provider movement* is no longer significant in Model 2. *24/7 availability* decreased it by 91% ($p<0.01$). Again, these findings do not support our hypotheses that provider movement and constant availability were predictive of trafficking. The interaction term itself of movement *without* client screening measures in place was not significant. *Model 3: Base Model and Provider Movement + Multiple Providers*

Finally, Model 3 adds the interaction variable to the base model in which there is provider movement *and* multiple providers. The single *multiple providers* variable is dropped from Model 3 due to multicollinearity with the interaction term. The same four variables in the previous two models significantly increased the likelihood of trafficking: *phone number obfuscation*, *provider ethnicity*, *young language,* and *trustworthy language*. The interaction term was not statistically significant in this model. *Available 24/7* language again decreased the likelihood of trafficking by 91% ($p<0.01$), controlling for the other variables.

The R^2 and AIC/BIC goodness of fit statistics indicate that Model 1, with no interaction terms, is a slightly better fit for these data than the other two models.

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Massage Ads: ANCOVA Models

Given the nature of the massage data, including our inability to cluster the standard errors appropriately since we do not know whether individual phone numbers might be linked, predictive analyses are inappropriate. It is still possible, however, to analyze whether there are statistical differences in the means of the various indicators between the three outcome groups. Analysis of variance (ANOVA) is the most common method for such analyses, but to allow us to control for the other variables in these means comparisons, we conducted an analysis of *co*variance (ANCOVA). Because each indicator is binary, the means can be interpreted as proportions.

Table 15 provides a summary of the ANCOVA results for our massage ads. As with the logistic regressions, ANCOVAs use complete cases for analysis and the frequencies in the table below will differ slightly from those in Table 9 above.

Table 15: Summary Results of ANCOVA for Massage Ads

	Trafficking Outcome		
Indicator	**Sex trafficking**	**Not trafficking**	**Unknown**
Phone obscured	6%	0%	60%
Ethnicity of provider	40%	58%	0%
Client screening	27%	4%	80%
Client Upscale	3%	0%	0%
Movement	35%	41%	20%
Controlled movement	73%	47%	20%
Available 24/7	6%	11%	0%
Young language	29%	24%	0%
Payment language**	**54%**	**8%**	**20%**
Provider trustworthy**	**20%**	**0.4%**	**0%**
Multiple providers	39%	44%	0%
Under 23 years of age*	**25%**	**20%**	**100%**
Movement, no screening	22%	41%	20%
Multiple providers + movement	14%	32%	0%

* Significant p< 0.05; ** Significant p< 0.01

N	152	F(16, 135)	
R-squared	0.71	P > F	0.00
Adjusted R-squared	0.68	Root MSE	0.38

In Table 15, we see statistically significant differences between outcomes when it comes to *payment* language (p<0.01), *provider trustworthy* language (p<0.01), and *stated age under 23 years old* (p<0.05). It is important to note that due to the small N for the "unknown" outcome category, some proportions are 0%, which will result in a statistically significant difference in the means between outcomes. With that in mind, 24% of the variation in the outcomes is explained by these variables, which is just slightly less than the amount of variance explained by the same variables in the non-massage regressions.

Payment language was present in 54% of trafficking ads, 8% of non-trafficking ads, and in 20% of ads with unknown case outcome. *Provider trustworthy* language appeared in 20% of trafficking ads in the massage data, less than 1% of non-trafficking ads, and not at all in ads with unknown outcomes. Trustworthy language was significantly higher in trafficking ads than other outcomes. *Stated age under 23* appeared in 25% of trafficking ads, 20% of non-trafficking ads, and all the unknowns.

From here, we move into ANCOVA analyses for two further subsets of data: non-massage ads for which the emojis in the ads were available, and non-massage ads for which the photos were available. Unlike the massage ads, which comprised a separate dataset entirely from the non-massage fieldwork ads, these analyses represent true subsets of the 1,286 total non-massage ads in our data. Emojis and photos were available for so few of our massage ads that we could not validly include them in the below analysis, so we restrict these subset analyses to non-massage ads that contain emojis and/or photos.

Trafficking and Non-Trafficking Massage Ads

A content analysis of massage ad text revealed that the average prices listed in trafficking massage ads was higher than non-trafficking massage ads ($66 per half hour and $112 per hour compared to $40 per half hour and either $10 or $60 per hour, respectively).

Moreover, only one non-trafficking massage ad used provider trustworthy language (“Private Place, Independent and Pictures 100% Authentic”) compared to 20% of trafficking massage ads that used additional phrases such as “professionally trained,” “private upscale” and “very discreet.”

Lastly, as an indication of young language, phrases using the word “sweet” (e.g., “super-sweet”) were equally common in both trafficking and non-trafficking massage ads; however, trafficking massage ads also included more variety in this category, such as “100% young girls” and “cuties.”

Ads for Individual Massage Providers and Brothels

A qualitative comparison of trafficking ads for individuals advertising massage services (n=155) and trafficking ads for brothels (i.e., spas and massage parlors, n=127) revealed interesting differences. Ads for brothels tended to list services typical of spas/massage parlors (e.g., deep tissue massage, shiatsu massage), potentially to appear as legitimate businesses. On the other hand, ads for individual providers tended to be more explicit in the types of services provided (e.g., bikini body slide, mutual touch, prostate massage, and fetish friendly). Although payment language appeared with similar frequency in ads for individual massage and for brothels (58%, n=90 and 61%, n=78, respectively), prices listed in individual massage ads were more than double those of brothels ($89 per half hour and $152 per hour vs. $44 per half hour and $61 per hour, respectively).

Ads with Emojis: ANCOVA Model

For emojis, we first present LCAs that provide quantitative support to our emoji groupings, followed by descriptive frequencies, the subset-specific hypotheses, and the ANCOVA results. We chose ANCOVA methods for the emoji and photo analyses because the patterns of missingness of these data points due to ad scraper limitations were not necessarily random.

We analyzed the subset of ads in which emojis were present and visible/available in the title, ad text, or both. The resulting subset has 476 ads, 63% of which are trafficking (n=303), 13% are not trafficking (n=61), and 24% are of unknown outcome (n=112). The subset of ads for which emojis were available represents 35% of total non-massage ads. Table 16 provides the background information on variables of interest for these ads.

Table 16: Emoji Indicators

Emoji Indicator	Examples
Letter Emojis	A letter or number in a circle or a square. Include upper and lowercase. Could be used to obfuscate or evade a scraper.
Money Emojis	Rose, rosette, dollar sign, money, money with wings, or money bag
Young Emojis	Cherry, cherry blossom, candy, bow, or honey pot
Services Offered Emojis	Water drops, tongue, open or closed umbrellas, or playboy. Stars, checkmarks, arrows, and "thumbs up" emojis are also often used as bullet points in front of lists of services.
Pimp/The Game Emojis	Crown, bee, diamond
Provider Characteristic Emojis	Emojis meant to evoke provider characteristics: clothes and accessories, chocolate, faces, animals, peaches, etc.

Emojis: Latent Class Analysis and Variable Categories

We coded for 41 specific emojis and collapsed most of them into five composite groups: (1) emojis related to *money or payment* such as roses, money bags, and dollar signs; (2) emojis indicating the provider is *young* such as cherries, candy, and bows; (3) emojis about *services provided* such as water drops and tongues; (4) emojis the indicate the provider has a *pimp* such as crowns, bees, or diamonds; and (5) emojis related to *provider characteristics* such as chocolates, faces, peaches, and animals. Included in services provided emojis are checkmarks, stars, and arrows. These are often used as a list of services, almost akin to bullet points. A sixth category encompasses letters or numerals in emoji form.

Table C4 in Appendix C provides the results of the latent class analyses for the emoji categories. As previously discussed, scarce data can lead to lower LCA loadings; there are only 451 ads with emojis and not all emojis were visible in the data archived in each scraper. For each composite group, the best fit was one class as opposed to models that may have indicated multiple underlying concepts at play.

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Table 17 shows the frequency with which each emoji category appeared in our sample. There were 82 ads in which *money emojis* were present, the most common being dollar note emojis. *Young emojis* appeared in 110 ads, with the most common being ribbon bow emojis. Two-hundred and fifty-six ads had *provider services emojis,* with the most common one being water drops. The *pimp emojis* appeared in 122 ads, and *provider characteristic emojis* occurred in 302 ads, with lips and kissing faces being the most common. Emojis of Latin letters and numbers that could be used in place of regular text to evade scrapers appeared in 39 ads. Interestingly, the highest proportions for most emoji categories appeared in ads belonging to cases with unknown outcomes. Among those with known trafficking statuses, the greatest differences were seen for young emojis and services provided emojis, which each occurred two to four times more often in trafficking cases.

Table 17: Presence of Emoji Groups in Non-Massage Ads

Emoji Group	**Trafficking Outcome**			**Total**
	Human Trafficking (n=292; 65%)	**Not human Trafficking (n=57; 13%)**	**Outcome Unknown (n=102; 23%)**	**(n=451; 100%)**
Money emojis (n=82)	13.36%	21.05%	30.39%	18.18%
Young emojis (n=110)	27.74%	7.02%	24.51%	24.39%
Emojis for services provided (n=248)	57.19%	17.54%	69.61%	54.99%
Emojis indicating a pimp (n=122)	28.77%	22.81%	24.51%	27.05%
Provider characteristic emojis (n=302)	66.78%	70.18%	65.69%	66.96%
Letter emojis (n=39)	7.88%	3.51%	13.73%	8.65%

Table 18: Emoji Hypotheses

H_{16}	Ads with **money emojis** are more likely to be associated with trafficking (LE + Survivor focus groups; Whitney et al., 2018)
H_{17}	Ads with **youth emojis** are more likely to be associated with trafficking (LE + Survivor focus groups; Whitney et al., 2018)
H_{18}	Emojis representing **provider services** are more likely to be associated with trafficking (LE + Survivor focus groups; Whitney et al., 2018)
H_{19}	**Pimp/The Game** emojis are more likely be associated with trafficking (LE + Survivor focus groups; Whitney et al., 2018)
H_{20}	Emojis communicating **provider characteristics** are more likely be associated with trafficking (LE + Survivor focus groups; Whitney et al., 2018)
H_{21}	**Letter emojis** are more likely be associated with trafficking (method of obfuscation) (LE + Survivor focus groups; Whitney et al., 2018)

For both the emoji and photo ad subsets, separate sets of hypotheses were generated. Table 18 shows our hypotheses regarding emoji groups associated with potential trafficking, along with the sources for each hypothesis.

ANCOVA Analysis for Ads with Emojis

Given the nature of the emoji data and issues discussed earlier, predictive analyses are

Table 19: Summary of ANCOVA Results for Subset of Ads with Emojis Available

Indicator	Trafficking outcome: Human trafficking	Trafficking outcome: Not human trafficking	Trafficking outcome: Outcome unknown
Phone obscured	22%	5%	24%
Ethnicity of provider**	**43%**	**5%**	**19%**
Client screening	42%	47%	34%
Client ethnicity	24%	12%	34%
Movement**	**33%**	**81%**	**80%**
Controlled movement	40%	39%	45%
Available 24/7	20%	9%	19%
Young language	45%	44%	51%
Payment language	30%	26%	43%
Provider trustworthy	34%	16%	28%
Ad in different locations	20%	15%	15%
Multiple providers	14%	12%	13%
Under 23 years of age	69%	75%	47%
Money emojis*	**13%**	**21%**	**30%**
Young emojis	28%	7%	25%
Emojis for services*	**57%**	**18%**	**70%**
Pimp emojis	29%	23%	25%
Provider characteristic emojis	67%	70%	66%
Letter emojis	8%	4%	14%
Movement, no screening	12%	30%	29%
Multiple providers + movement	6%	12%	10%

* Significant p< 0.05, ** Significant p< 0.01

N	386	F(19, 366)	9.19
R-squared	0.32	P > F	0
Adjusted R-squared	0.29	Root MSE	0.71

inappropriate. It is still possible, however, to analyze whether there are statistically significant differences in means between the three trafficking outcome groups: trafficking, not trafficking, and unknown outcome. Table 19 provides a summary of the ANCOVA results for ads with emojis; we include our linguistic indicators in this analysis along with the emojis since our base model indicators and emojis appear in ads together, not in isolation.

The results of the ANCOVA indicate that, when controlling for other variables, there were significant differences in means for three indicators across trafficking outcomes in non-massage ads when emojis are available and included in the model. *Provider ethnicity* was present in 43% of trafficking cases in the emoji subset of ads, compared to only 5% of non-trafficking and 19% of unknown outcomes ($p<0.01$). *Provider movement* appeared in only 33% of trafficking ads compared to 81% of non-trafficking and 80% of unknown outcome ads, ($p<0.01$).

Money emojis appeared in 13% of trafficking ads, 21% of non-trafficking ads, and 30% of outcome unknown ads ($p<.05$). The last significant difference in means was found with the presence of *services emojis* ($p<0.05$). These emojis were present in 57% of trafficking ads, 18% of non-trafficking ads, and 70% of ads with unknown case outcomes. The variables in this model account for about 29% of the variation in the outcome (Adjusted $R^2=0.29$).

Given that the highest percentage of ads containing the *money* and services *provided* emojis were the cases where outcome is unknown, definitive conclusions about whether these emojis are truly more associated with trafficking cases (H_{18}) should not be drawn based on this analysis, but further research may be warranted to test this hypothesis with a larger dataset of cases that also have known outcomes and a counterfactual for comparison.

Ads with Photos: ANCOVA Model

Scraper limitations also prevented us from accessing and coding photographs for all ads. Our subset of non-massage ads with photos available contained 572 ads, which represents 43% of the total non-massage dataset. Of these ads, 89% belonged to trafficking cases (n=507), 3% were not trafficking ads (n=19), and 8% of ads belonged to cases with unknown outcomes (n=46). Presented in Table 20 are summaries of the photo indicators we used in our analysis.

Photos in which the provider's *face is obscured* were the most common (n=130); 23% of ads with photos had the face cut out or otherwise obscured. Face obscuration occurred more often in *non*-trafficking ads (42%), followed by cases with unknown outcomes (30%); it only occurred in 21% of trafficking ads. This is opposite of the hypothesized relationship described below in Table 21. *Hotel settings* were the second most common photo indicator (18%) in our dataset. None of the 19 non-trafficking ads with

Table 20: Presence of Photo Indicators in Non-Massage Ads

Photo Indicator	**Trafficking outcome** **Human trafficking (n=507; 89%)**	**Not human trafficking (n=19; 3%)**	**Outcome unknown (n=46; 8%)**	**Total (n=572; 100%)**
Photo: Face obscured (n=130 ads)	21.3%	42.1%	30.4%	22.7%
Photo: Professional (n=16)	2.8%	5.3%	2.2%	2.8%
Photo: Multiple people (n=10)	1.4%	0.0%	6.5%	1.7%
Photo: Young (n=65)	8.9%	26.3%	32.6%	11.4%
Photo: Not willing (n=4)	0.0%	0.0%	8.7%	0.7%
Photo: Tattoo (n=127)	23.5%	0.0%	17.4%	22.2%
Photo: Third party (n=70)	11.8%	5.3%	19.6%	12.2%
Photo: Hotel (n=101)	18.3%	0.0%	17.4%	17.7%

photos contained images that were identifiable as taken in a hotel. Trafficking ads had slightly more hotel room photos (18%) than ads with unknown outcomes (17%). Photos of individuals that looked noticeably *young* were far more common in non-trafficking ads and ads from cases with unknown outcomes rather than in trafficking cases, which suggests an opposite relationship to what would be expected based on law enforcement interviews.

Professionally taken photos were rare, but more common in non-trafficking ads, which is expected as they are expensive. Photos containing *multiple individuals* were most common in ads where the case outcome was unknown. Photos in which the subject looked *unwilling* were rare and occurred exclusively in one case with little information and an unknown outcome in our dataset. Twenty-four percent of trafficking ads contained photos in which the subjects had

Table 21: Photo Hypotheses

H_{22}	An **obscured face** in a photo is more likely to be associated with trafficking (Bouché, 2018; Focus groups)
H_{23}	A photo taken in a **hotel room** is more likely to be associated with trafficking (Bouché, 2018; Tong et al., 2017; Anthony, 2018; Stylianor et al., 2019; Couch, 2016)
H_{24}	**Professionally taken** photos are *less* likely to be associated with trafficking (Sex worker focus group)
H_{25}	Photos taken by a **third party** are more likely to be associated with trafficking (Focus groups)
H_{26}	Photos with subjects that **appear young** are more likely to be associated with victims of human trafficking (Focus groups; fieldwork interviews)
H_{27}	Photo subjects with **visible tattoos** are more likely to be associated with trafficking (Focus groups)

tattoos; visible tattoos are often examined further to assess whether there are any that might be a brand from a pimp. Twelve percent of ads with photos available contained only photos taken by a third party (no selfies). These proportions were lowest in non-trafficking ads, but ads with unknown outcomes contained these indicators in similar proportions to trafficking ads.

Table 21 shows our hypotheses regarding photo indicators associated with potential trafficking, along with the sources for each hypothesis.

ANCOVA results for ads with photos from fieldwork data

Some indicators suggested by the literature and our focus groups were rarely present in our ad sample. This led to means for those indicators close to or equal to zero. ANCOVAs test for statistically significant differences in these means across trafficking outcomes, and any

Table 22: Summary of ANCOVA Results for Subset of Ads with Photos Available

Indicator	Trafficking Outcome Human trafficking	 Not human trafficking	 Outcome unknown
Phone obscured**	**23%**	**7%**	**0%**
Ethnicity of provider**	**38%**	**7%**	**23%**
Client screening	0%	0%	0%
Client ethnicity	11%	0%	29%
Movement**	**33%**	**42%**	**51%**
Controlled movement*	**41%**	**19%**	**19%**
Available 24/7	10%	4%	0%
Young language*	**34%**	**11%**	**11%**
Payment language**	**28%**	**20%**	**71%**
Provider trustworthy*	**26%**	**0%**	**25%**
Ad in different locations*	**27%**	**0%**	**10%**
Multiple providers	7%	0%	11%
Under 23 years of age	58%	78%	47%
Photo: Face obscured	20%	56%	30%
Photo: Professional	3%	7%	7%
Photo: Multiple people	1%	0%	5%
Photo: Young**	**9%**	**34%**	**27%**
Photo: Tattoo	22%	0%	14%
Photo: Only third party	10%	7%	16%
Photo: Hotel	18%	0%	29%
Movement, no screening	20%	40%	24%
Multiple providers + movement	4%	0%	8%

* Significant p< 0.05, ** Significant p< 0.01

N	432	F(21, 410)	7.97
R-squared	0.29	P > F	0.00
Adjusted R-squared	0.25	Root MSE	0.47

difference from zero will likely be significant. Therefore, it is important to exercise caution in interpreting the results for the model including our photo indicators shown in Table 22.

Among photo indicators, only the *Photo: Young* indicator was statistically significant—*but not in the expected direction*. Photos in which the provider appeared young occurred in greater proportions three to four times as large in *non-trafficking* and *outcome-unknown* cases than in trafficking ads ($p<0.01$). This again is the opposite of the hypothesized relationship, and is extremely important because law enforcement focus group and interview participants mentioned repeatedly that the first thing they look for in an ad is whether the provider appears young. Indeed, ads have been selected for investigation in sting operations based mainly on this criterion. This result finds an opposite relationship and indicates that the tactic of searching for individuals that "look young" in photos may not be an effective way to identify trafficking victims. This is likely due to photo manipulation and use of filters for desired effects (looking older if a minor or looking younger if an older sex worker is targeting a certain customer market, per sex worker focus group input). Further research is warranted on this issue.

Oddly, no ads for which photos were available in our sample contained client screening language. However, this is likely a sampling anomaly and not a pattern that should be taken seriously since photo missingness was due to web scraper limitations and not ad poster choice.

Several other indicators were significantly different across outcomes when photo indicators are included in the ANCOVA model. An *obscured phone number* ($p<0.01$), the *ethnicity of the provider* ($p<0.01$), *controlled movement* ($p<0.05$), *young language* ($p<0.05$), *trustworthy language* ($p<0.05$), and an *ad posted in different locations* ($p<0.05$) were all significantly associated with outcomes. For each of these indicators, the average proportions for trafficking ads were higher than those of non-trafficking ads. *Provider movement* was significantly different across outcomes ($p<0.01$) in the photo subset of ads. However, the means between all three outcomes are too similar in this model to confidently determine which difference(s) between non-photo indicators are driving the statistical significance; caution should be used in interpreting these results.

Potential Limitations

As with any research, this research had limitations. The practitioner focus groups contained the largest number of participants, but the sex worker and survivor focus groups were a little more challenging in that maintaining contact with participants from recruitment to completing the second wave of focus group calls was not always an easy process. Both groups suffered attrition between initial recruitment in 2018 and completion of the second focus group meetings, particularly in the sex worker group as many participants that we attempted to recruit were hesitant to participate in the project in the first place. Several expressed initial interest, but then changed their minds or stopped responding to communications. Others did not remain with the project between both waves of focus groups since they were three years apart. Nevertheless, those who did participate provided invaluable input that has provided critical direction for this study both on the front end and in the later stages of interpreting results and making informed recommendations for research and practice.

Limitations related to our data have been discussed throughout this report in terms of analytical decisions made to mitigate them, but we summarize them here. First, by using law enforcement and prosecutorial case data as our starting point, there is inevitably some bias in that some of the indicators we analyzed were used by law enforcement to select ads to investigate for trafficking prior to this research, which introduces some selection bias. However, for fieldwork cases, access to the case files themselves allowed us to make our own determinations of trafficking based on the federal definition, regardless of final charges, and the research team erred on the side of categorizing a case as "unknown" for trafficking if there was not enough evidence in the file to determine trafficking. Our inclusion of unknowns as well as negative cases (no force, fraud, or coercion or no minors involved) allowed some surprising conclusions to arise even with potential selection bias arising from our data sources.

For the massage ads sampled from DeAngelo's "ground truth" set, we relied on his confirmations of trafficking with the law enforcement and prosecutorial agencies he worked with. But, because we could not examine those files for ourselves and could not determine whether any ads using different phone numbers might have belonged to the same case (which prohibited valid clustering of standard errors by case), we used the more conservative ANCOVA method to measure associations between various indicators and trafficking in those data. Therefore, we do not make any claims about specific indicators' ability to predict trafficking in massage ads from this study. Relatedly, emojis and photos were available only for some ads extracted from the MEMEX/Tellfinder or HTI Labs web scraper archives, and these patterns of missingness due to technological limitations are not necessarily random. As such, the more conservative ANCOVA analyses of covariance method was used with these subsets of data as well, and the related conclusions are also more cautious in nature than those from the regressions. Photos and emojis were also rarely available for ads associated with the "ground truth" set, which precluded our ability to analyze those indicators for massage ads.

Two other limitations to our datasets are the small sizes and the fact that these ads mostly pre-date the Backpage shutdown. However, our sample uses cases with known outcomes and includes counterfactuals. The ability to test indicators of trafficking against ads that are not connected to a trafficking situation is the key contribution of this study. Interviews and focus groups were also used to capture at least some information about how the landscape of online sex advertisement has changed since SESTA/FOSTA and the shutdown of Backpage; while there was a significant amount of upheaval early on, a new (if shakier) equilibrium seems to have taken its place. Despite the shake-ups in platforms and the rise of activity taking place via social media (encrypted and public), advertising is still taking place even if the environment is more fragmented with more websites hosted offshore.

Finally, there were a few suggested indicators that were not possible to test with our final data. First, whether the ad poster appears educated in the business model of commercial sex was suggested by the sex worker focus group, as were a few more complex sets of interactions between multiple indicators within ads and combinations of ad indicators with other types of evidence. We tested those that were possible with these data, but we recommend studying these more complex combinations more thoroughly in future research. Several interviewees and focus group respondents also suggested that below-market prices listed in an ad might be an indicator; there was not enough price information available in our datasets to do much price analysis, but larger studies such as Cafarella, et al. (2021), Dank, et al. (2014), and others provide useful information on price analysis in escort ads.

Despite these limitations, several fruitful results have been generated that can be applied in the field right away by investigators working on active cases to improve victim identification, by web scraper programmers to refine their algorithms and test whether the adjustments recommended from this study improve their ability to identifying potential trafficking cases in their databases, and to generate new questions for future topical and machine learning research.

Summary

Using our various sources of case and ad data and breaking that data into various subsets, we tested hypotheses for a total of 27 potential indicators of sex trafficking in online escort ads. Table 23 provides a complete summary of these results.

All analyses were centered on cases with known trafficking outcomes and included negative ads representing the counterfactual (ads that are known *not* to be part of a trafficking case). This is the unique contribution of this study to the body of machine learning and other studies on this subject. Among fieldwork ads, 76% of the available ads were trafficking ads, 9% were negative for trafficking, and for 15% the outcome could not be fully determined with the information available in case file documentation. Among the massage ads, 87% belonged to a trafficking case while 13% belong to cases with negative or unknown outcomes. For the emoji and photo hypotheses, the appropriate subsets of fieldwork data for which these indicators were available for coding (N=451 and N=572, respectively) each contained ads falling into all three trafficking outcome categories (positive, negative, or unknown).

Different analytical methods were used to analyze massage and non-massage ads, so direct comparisons cannot be made. However, the general results provide useful insight into the similarities and differences between these ads and information either on which indicators are predictive of trafficking in our sample (non-massage ads) or significantly associated with trafficking or non-trafficking case outcomes, but for which we cannot claim predictive power (the massage ad dataset, or photo and emoji indicators within the non-massage ads).

Client screening and *controlled movement* were more common among trafficking ads generally, yet these differences were not reliably significant for either ad type. In non-massage cases, *obscured phone numbers* and *provider ethnicity* were higher among trafficking ads and were statistically significant predictors. Oppositely, in our sample of massage ads, these indicators were more commonly seen in *non*-trafficking ads, but the associations were not statistically significant. *Provider movement* was more common in *non*-trafficking ads in non-massage data and was significant in all regression models, indicating a decreased likelihood of trafficking if movement language is present. Provider movement was also more common in non-trafficking massage ads, but the association was not statistically significant. *24/7 availability* occurred more frequently in non-trafficking ads in both massage and non-massage ads, but while this indicator significantly predicted a *decreased* likelihood that an ad represented potential trafficking in the non-massage ads, the association was not statistically significant in the massage dataset.

Language suggesting youth appeared in trafficking ads more often than non-trafficking ads for both ad datasets. In the non-massage ads, this language was a significant predictor of trafficking, but it was not significantly associated with case outcomes for massage ads. Its strong predictive power in the non-massage regressions should be taken with caution, however, as ads containing such language may be over-represented in this dataset given law enforcement practice of targeting ads containing this language to investigate in the first place. *Stated age under 23* was not a significant predictor of outcome in non-massage data, but it was significantly associated with this outcome in the massage ads; this statistical significance, however, might be driven by the unknowns causing a statistically significant difference in the means.

Provider trustworthiness was more common in trafficking ads for both massage and non-massage cases and was a statistically significant predictor across models. For massage cases, the difference in proportions of ads containing *provider trustworthiness* language was statistically significantly across trafficking outcomes.

Among ads for which emojis were available, only the group of emojis representing *money* and various *provider services* were significantly associated with trafficking outcomes. These emojis were twice as prevalent in trafficking ads compared to non-trafficking ads but occurred in the highest proportion in ads belonging to cases with unknown outcomes. Many emojis described by our focus groups and in Whitney et al. (2018) also occurred in so few of our ads that our analyses would not have registered an impact.

Among ads for which photos were available, when controlling for the other variables, the only indicator significantly associated with trafficking was whether the subject in the photograph looked young—but in the opposite direction than we hypothesized based on law enforcement focus group and interview responses. The proportion of ads with photos where the subject appeared young was almost four times as large for *non-trafficking* cases than trafficking cases—the opposite of the pattern hypothesized ($p<0.01$).

This result has significant implications for the law enforcement strategy of frequently selecting ads for investigation based on whether the subject in the photo appears young—particularly sting operations that are constructed using that technique. It appears to bear out the statements by participants in our sex worker focus group that ad posters manipulate photos to appear younger or older depending on the desired effect, whether through lighting, angle, or the use of filters and other manipulation. Therefore, absent other case details discovered during investigation, whether the subject of a photo "looks young" is not sufficient for identifying a trafficking victim. Neither, as mentioned, is stated age—victims posted tend to be younger than their stated age, but non-trafficked sex workers may post a stated age younger than their actual age as a marketing technique.

That none of the other photo indicators—especially *face obscured*—was a statistically significant predictor of trafficking was surprising to the survivor focus group participants. Additionally, many other photo indicators described by our first wave of focus groups and in the literature occurred in so few of our ads that our analyses would not have registered an impact. For example, survivor focus group participants expressed that apparent unwillingness of a photo subject to be there would be easy for them to identify when looking at photos, but there were very few ads with photos in our dataset for which this unwillingness could be clearly seen—so few that this characteristic could not be analyzed in statistical models. This may also be due, at least in part, to filters and photo manipulation. We recommend this line of inquiry be pursued further with larger datasets, though these would also need to include non-trafficking ads for comparison.

As can be seen throughout Table 23, other indicators are more predictive of trafficking than signs that an individual posted online may be young. In our samples, these indicators included descriptions of the *provider's ethnicity*, an *obscured phone number,* and *provider trustworthy* language. *Young* language was also predictive, but further research is needed involving a sample with a larger number of negative ads to confirm that result. Other commonly discussed indicators actually resulted in a *decreased* likelihood of trafficking in the ads in our sample: *movement* language and *provider available 24/7.*

Table 23: Hypothesis Results Summary

Ad Indicator Hypothesis		Finding	Evidence
Age of individual advertised			
H_1	Trafficking victims are typically 3 years younger than the age stated in the ad.	**Supported in non-massage ads**	On average, the actual age in human trafficking cases is 2.7 years *younger* than their stated age (p<0.05). Non-trafficked sex workers represented in our non-massage sample were an average of 0.8 years *older* than the stated age. Actual ages not available for enough massage cases to analyze for that group.
H_2	A stated age of under 23 years old is more likely to predict trafficking	**Not Supported in non-massage ads, weakly supported in massage.**	When controlling for other variables, stated age under 23 is *not* a statistically significant predictor of trafficking in any model in non-massage ads. The difference in proportions for the presence of this indicator in massage ads was statistically significant, but small: stated age under 23 was present in 5% more trafficking than non-trafficking ads in that group (p<0.05).
Young language in ad			
H_3	Young language in an ad is predictive of trafficking	**Supported, with caution**	On average, when controlling for other variables, an ad containing young language is over four times as likely to be a trafficking case (p<0.01) in non-massage data. Proportions of massage ads containing young language were also slightly higher in trafficking cases than in No/Unknown (p<0.05). However, caution should be used when interpreting this result: law enforcement cases tend to focus on individuals that appear younger, so this result could be at least partially impacted by the data source used.
Provider ethnicity			
H_4	Indicators of provider ethnicity are predictive of trafficking	**Strongly supported in non-massage cases, not for massage**	On average, when controlling for other variables, the presence of provider ethnicity increases the likelihood of trafficking almost 5 times (p<0.01) in non-massage ads. This difference was not significant for massage.
Phone numbers			
H_5	An obscured phone number in an ad is predictive of trafficking	**Strongly supported in non-massage cases, not for massage**	For cases with known outcomes, when controlling for other variables, the presence of an obscured phone number increases the likelihood of the ad being part of a trafficking case by over 11 times across all models in in non-massage data (p<0.01). The difference in proportions of massage ads containing this indicator was not statistically significant.
Provider movement			
H_6	Provider movement language is predictive of trafficking	Not supported	When controlling for the effects of other variables, however, the presence of provider movement language *decreased* the likelihood of trafficking by 72% in the base model (p<0.01) and between 70% in one interaction model (p<0.05). This is opposite to the pattern expected. In massage ads, no statistically significant difference in proportions was found.

Ad Indicator Hypothesis		Finding	Evidence
Client Ethnicity			
H_7	Stated preference for the ethnicity of the client is predictive of trafficking	Not supported	When controlling for other variables, no statistically significant differences were found when client ethnicity screening variables were present between trafficking and non-trafficking ads. This variable includes the "No pimps" and "No thugs" language, per the LCA.
Client Screening (non-ethnicity)			
H_8	Screening requirements for clients other than ethnicity are more likely to be predictive of trafficking	Not supported	When controlling for other variables, no statistically significant differences were found between trafficking and non-trafficking ads when other client screening requirements were present.
Controlled movement (e.g., incall, outcall, brothel)			
H_9	Controlled movement indicators are predictive of trafficking	Not supported	When controlling for the effects of other variables, indicators of controlled movement were not *reliably* predictive of trafficking in the non-massage data, and the association between controlled movement indicators and trafficking in the massage data was not significant.
Provider trustworthy			
H_{10}	Indicators of provider trustworthiness are predictive of trafficking	**Supported**	When controlling for other variables, trustworthy language was shown to increase the likelihood of trafficking by over 4 times ($p<0.05$). Controlling for other variables, language indicating provider trustworthiness also occurred in 20% of trafficking ads. but less than 1% of non-trafficking ads in the massage data ($p<0.01$).
Additional Hypothesized Relationships			
H_{11}	**Payment language** more likely to be associated with a trafficking case, controlling for other variables	Not supported	Controlling for other variables, the effect of the presence of payment language on trafficking status was not statistically significant in non-massage or massage data.
H_{12}	Provider **available 24/7** is more likely to predict a trafficking case, controlling for other variables	**Not supported**	Controlling for other variables, the presence of language indicating the provider is available 24/7 indicated that an ad was 10% *less* likely to be a trafficking ad in non-massage data ($p<0.01$), which is the opposite of the hypothesized relationship. This association was statistically insignificant in the massage data.
H_{13}	**Multiple providers** represented in an ad is more likely to predict trafficking, controlling for other variables	Not supported	Controlling for other variables, the effect of multiple providers references in the same ad on trafficking status was not statistically significant in non-massage or massage data.
Interaction Terms			

Ad Indicator Hypothesis		Finding	Evidence
H_{14}	The combination of a **movement** indicator, but **no client screening**, is more likely to predict trafficking than the presence of movement alone	Not supported	The impact of this indicator combination, when controlling for other variables, was not statistically significant—nor did it change the negative effect of movement alone on trafficking in non-massage data. This relationship was not statistically significant in the massage data either.
H_{15}	The combination of **multiple providers + movement** is more likely to predict a trafficking case than the presence of either indicator alone	Not supported	The impact of this indicator combination, when controlling for other variables, was not statistically significant. This relationship was not statistically significant in the massage data either.
Emoji indicators (Non-massage data only)			
H_{16}	Ads with **money emojis** are more likely to be associated with trafficking	Not Supported	Controlling for other variables, money emojis appeared more often in non-trafficking ads than in trafficking ads, but though this difference in means was statistically significant, they appeared most often in ads where the outcome was unknown.
H_{17}	Ads with **youth emojis** are more likely to be associated with trafficking	Not supported	Controlling for other variables, youth emojis appeared more often in trafficking ads than in non-trafficking ads, but this difference was not statistically significant.
H_{18}	Emojis representing **provider services** are more likely to be associated with trafficking	Not Supported	Controlling for other variables, there were significant differences in proportions of ads containing these emojis between case outcomes ($p<0.05$), although they appeared in the highest proportion in ads where trafficking status could not be determined. In cases where trafficking status was determined, the proportion of ads containing services emojis was over twice as high for trafficking ads as for non-trafficking ads.
H_{19}	**Pimp/The Game** emojis are more likely be associated with trafficking.	Not supported	Controlling for other variables, Pimp/The Game emojis appeared more often in trafficking ads than in non-trafficking ads, but this difference was not statistically significant.
H_{20}	Emojis communicating **provider characteristics** are more likely be associated with trafficking.	Not supported	Controlling for other variables, Provider characteristic emojis appeared more often in trafficking ads than in non-trafficking ads, but this difference was not statistically significant. They also appeared in similar proportions in both trafficking cases and cases with unknown outcomes.
H_{21}	**Letter emojis** are more likely be associated with trafficking (method of obfuscation)	Not supported	Controlling for other variables, Letter emojis appeared more often in trafficking ads than in non-trafficking ads, but this difference was not statistically significant, and they appeared even more often in cases with unknown outcomes.

Ad Indicator Hypothesis		Finding	Evidence
Photo indicators (Non-Massage data only)			
H_{22}	An **obscured face** in a photo is more likely to be associated with trafficking	Not supported	Controlling for other variables, photos with obscured faces appeared more often in non-trafficking ads, but this difference was not statistically significant.
H_{23}	A photo taken in a **hotel room** is more likely to be associated with trafficking	Not supported	While there was a higher proportion of photos taken in hotel rooms in trafficking ads than non-trafficking ads, when controlling for other variables, this difference was not statistically significant.
H_{24}	**Professionally taken** photos are *less* likely to be associated with trafficking	Not supported	Ads associated with non-trafficking cases or cases with unknown outcome were more likely to contain professional photos, but when controlling for other variables, this difference was not statistically significant.
H_{25}	Photos taken by a **third party** are more likely to be associated with trafficking	Not supported	While there was a higher proportion of photos taken by a third party in trafficking ads than non-trafficking ads, when controlling for other variables, this difference is not statistically significant. Additionally, the cases with unknown outcomes had the highest proportion of third-party photos.
H_{26}	**Subjects in photos that appear young** are more likely to be associated with victims of human trafficking	**Not supported**	Controlling for other variables, the proportion of ads with photos where the subject appeared young was almost four times as large for *non-trafficking* and *outcome unknown* cases than trafficking cases—the opposite of the pattern hypothesized. This difference was statistically significant ($p<0.01$).
H_{27}	Photo subjects with **visible tattoos** are more likely to be associated with trafficking	Not supported	While there was a higher proportion of photos with visible tattoos in trafficking ads than non-trafficking ads, when controlling for other variables, this difference is not statistically significant.

Discussion and Implications

Answers to Research Questions

This project was guided by three research questions. We answer the first two here and the third a little later in this section.

Research Question 1 was simply whether there were indicators in escort ads that are more likely to represent a trafficking case if present. With the structure of our study and inclusion of a counterfactual option, we were open to the possibility that the answer to this question could be "no." Results showed that the answer is yes, there are indicators that are predictive or at least more likely to be associated with a trafficking case, controlling for the impacts of other indicators that may also be present in the ad.

This answer leads us to Research Question 2, which was "which indicators, or combinations of indicators, are most predictive of a 'true positive' case?" As shown, controlling for the effects of other indicators, the four most salient indicators were an *obscured phone number*, description of the *provider's ethnicity*, and language indicating *trustworthiness*. Language associated with *youth* was also statistically significant, but we urge caution related to that indicator given the nature of our sample and resulting potential tautology.

In massage ads, the obscured phone number and provider ethnicity indicators were not significantly associated with trafficking. Provider ethnicity and trustworthy language were more significantly associated, but the differences in proportions between trafficking ads and ads associated with no or unknown cases were small. Due to the small sample of massage ads in our data from the "ground truth" set, and the different methods used to collect that data compared to our fieldwork cases, we recommend interpreting those results for descriptive purposes only. More research is warranted with access to a larger number of massage case files to provide context before drawing conclusions about predictive indicators in massage ads.

Focus Group Reactions to Results

During our second wave of focus groups in July 2021, during which stakeholder groups reacted to our initial results, the practitioner group was surprised by some findings but not others. They expected, as the non-trafficked sex worker group also suggested, that interactions between various indicators would be more predictive of trafficking than any single indicator. For example, practitioners suggested that indicators might change based on provider ethnicity and age such as the significance of potential controlled movement language. However, chi-square tests for most hypothesized interactions were not statistically significant in our data. Nevertheless, three of the four statistically significant predictors in our non-massage cases were slightly more prevalent in cases involving minors except for the obscured phone number indicator which was more prevalent in adult ads. We do recommend testing indicator combinations again in future work with larger datasets constructed using similar methods to ours (i.e., also including a counterfactual verified against information external to the ads themselves).

The practitioner focus group was most surprised by the list of indicators that were *not* statistically significant or were even *negatively* associated with trafficking, given that several of those indicators have long been considered "red flags." The implications of this are discussed in more detail below.

Our survivor focus group was also surprised by the results. Several acknowledged that they have been out of their situations for a long time, however, and that they may have been sheltered from knowledge of ad posting practices more generally based on their individual experiences. This is especially true if posting and taking calls/scheduling was carried out by their specific trafficker or madam/bottom. Bouché (2015) noted that traffickers were more likely to control cell phone activity than victims, but by the time of her 2018 study, traffickers often gave victims more autonomy with their phones and in interacting with buyers. This illustrates a shift in trafficker practices during the intervening years that might separate some of our survivor participants from the time of their trafficking experiences. In terms of individual indicator meanings, our quantitative results would seem to bear out the interpretations provided by our non-trafficked sex worker focus group participants most of the time.

Changes in the Online Commercial Sex Marketplace since 2018

Our focus group respondents provided some additional context since our first wave of meetings on how the online marketplace in which ads occur has continued to change since the passage of SESTA/FOSTA and the shutdown of Backpage and other previously used websites such as MyRedbook and Rentboy, to name just two. This has implications for the utility of our recommendations in an ever-changing environment.

First, both sex workers and practitioners mentioned that much commercial sex activity initially moved to the street after Backpage was taken down, but activity slowly moved back online. One practitioner mentioned that there may have been at least a temporary move back to more street work when hotels and motels shut down due to the COVID-19 pandemic. Since then, online activity levels have returned whether these activities involve advertising in-person services or participating in webcam work, but levels of street work remain much higher than before according to focus group participants. Initially, non-trafficked sex workers migrated to Eros, but there are more regionally specific sites now. In our dataset, ECCIE might be an earlier such regional site (Southwestern U.S.).

Law enforcement mentioned that it was much easier to identify victims and tangible cases through Backpage than in the current environment. They stated that sex providers and traffickers are more likely to engage in stringent screening practices now.

They do still use web scraping tools to investigate leads. Spotlight was the platform mentioned most frequently by fieldwork interviewees and focus group members, but they also sift individually through sites such as Megapersonals and SkiptheGames to identify potential leads and victims. They note that the list of popular websites in use changes frequently, however, and that the move to using social media with encrypted privacy settings has also made investigations more difficult.

Additionally, posting now often involves websites hosted offshore because Section 230 regulations amended by SESTA/FOSTA are more difficult to enforce against sites outside of the U.S. Individuals may only post to such sites after payment/info is received electronically, often through Bitcoin and encrypted channels, especially since credit card companies are no longer allowing customers to use their cards to pay for ads (Portnoff et al., 2017). Ad posting costs are higher now for sites that are still active (Chamberlain, 2019; non-trafficked sex worker focus group) and using Bitcoin also results in up to 30% of the money deposited lost to cryptocurrency transaction fees and market fluctuations instead of remaining available to use for ad purchases. These circumstances have made ad posting more expensive for providers to reach fewer potential customers; many have decided that it is not cost effective and returned to street work.

This leads us to consider the applicability of this research to the present-day online commercial sex marketplace and the answer to Research Question 3: under what circumstances (stage of investigation, other evidence already collected, type of sex trafficking) is this information most useful for identifying a sex trafficking case? For non-massage cases, predictive indicators identified in this research may still be present in ads on websites active today, though they might be a little bit harder to identify if a site, for example, requires more use of check boxes to construct posts and provides less room for adding free text to ads. The balance between free text and more regimented posting structures varies from website to website. It is possible that lower-end traffickers may advertise on such sites less given the increase in posting costs and the resulting move to social media and dating sites like Plenty of Fish.

However, according to focus group members, many previously common ad constructions from Backpage and other websites appear to be used quite brazenly as of this writing on Instagram and other websites where an ad can be uploaded as an image. While much social media activity occurs through private messaging or in private groups, potential traffickers are still advertising on public pages as well. So, while the marketplace has changed and become much more fragmented than when Backpage, Craigslist, MyRedbook, and others dominated the space, the findings of this research are still useful for generating leads for investigation.

Finally, as all focus groups strongly emphasized, ads and ad indicators cannot be used as determinants of trafficking in isolation. Practitioners reiterated their concerns about how we define trafficking, specifically, “how can you ever really know?” This research therefore provides information and guidance that can potentially help increase precision in lead generation, but true presence of trafficking in any situation cannot be determined without thorough investigation and corroborating evidence. It cannot be applied as a formula and relied on in isolation.

Therefore, this information is most useful for front-end lead generation or when investigating ads in response to a lead, but multiple sources of evidence are required to prove whether sex trafficking is happening. This is even more true with massage cases, where few indicators showed statistically significant differences between trafficking and non-trafficking ads, possibly because those traffickers present as legitimate commercial businesses online.

Implications for Research

This research has several implications for theory and practicality in future research on indicators of sex trafficking in online escort ads. Some of these impacts come from how we assessed the presence of trafficking to ensure a counterfactual, and several of our specific indicator findings should be incorporated into the series of ongoing machine learning studies involving large datasets. These two sets of impacts may seem at cross-purposes, but we would suggest that both are important for continuing to increase precision in identifying potential victims in online escort ads, regardless of venue.

First, related to assessing the presence of trafficking, is our process of verifying case outcomes against information external to the ad itself. It was clear that reliance on expert opinion in assigning levels of risk (e.g., Tong et al., 2017; Whitney et al., 2018; Alvari et al., 2016, 2017) without access to external case information presented serious problems. It was critical for the validity of our study to separate the source of our independent variables (ad content) from the source of information on case outcome (case files). While this increases the validity of our work on a theoretical level, if also necessarily limits our sample size as the external case data we required for every ad in our dataset was difficult to get. It required access to detailed case files from law enforcement and prosecutorial agencies in several cities, which is challenging to accomplish. While cases in the ground truth set from which we drew our massage ad sample were also verified with criminal justice agencies (using a different method and less case detail), construction of that dataset was also labor intensive, expensive, and required travel to various agencies over several years to construct. Any future studies replicating the logic used here will require access to larger amounts of similar data using a similar process, which may continue to limit sample size.

Nevertheless, we do recommend that future work extend this process to create a larger dataset to analyze questions that even our sample of almost 1600 ads was not sufficient to examine. Particularly, we recommend adding partnerships with consensual sex workers' rights groups to gather a larger number of negative ads. There may be a way to construct a dataset for the next iteration of this research that relies less on law enforcement data, its access requirements, and the associated potential selection biases described earlier, and that is more representative of the online commercial sex marketplace as a whole (and a truer estimate of the proportion of ads within it that are associated with trafficking cases).

However, this study represents an important step forward in theoretically grounded research on this topic simply by virtue of testing various indicator hypotheses against verified counterfactuals. Indeed, several of our results related to specific indicators challenge conventional wisdom. Furthermore, as Moorman and Harrison (2016) discuss, analyzing the same indicators using different theoretical frameworks provides alternative perspectives on their meanings and connections to trafficking or to non-trafficked sex work. We certainly found that to be true when interpreting our results through the lenses of our different focus groups.

First, among the indicators in our dataset that were more predictive of sex trafficking, *language suggesting youth* is one of the most common discussed in previous research (e.g., TGG Group, 2016; Bouché et al., 2015, 2018; Tidball et al., 2016) and our focus groups. Due to our cases coming from law enforcement, we recommend testing this indicator with a larger dataset that incorporates more negative ads. *Provider ethnicity* was predictive of trafficking in our sample when controlling for the impacts of other indicators, but Whitney et al. (2018) and our non-trafficked sex worker focus group classified inclusion of this language as a mere marketing tactic; some exotic ethnicities “sell” better. Survivor participants, on the other hand, thought this might be a trafficking indicator. We suggest its inclusion in future research given its significance in multivariate models. *Provider trustworthiness language*, again, was a fieldwork derived indicator that we did not find in prior research; it was a significant predictor in non-massage ads. We recommend further exploration of this indicator in future research, as well as of the predictive power of an obscured phone number (see Tong et al., 2017 and subsequent machine learning studies).

Among the indicators that proved *not* to be statistically significant predictors of trafficking, but that were mentioned in previous research to be predictors, were *client ethnicity* preferences and requirements (TGG Group, 2016; Dank et al., 2014), *client screening* requirements (Moorman and Harrison, 2016), general *movement language* such as “limited time” or “new in town” (e.g., Whitney et al., 2018), *controlled movement* language such as “incalls,” “outcalls,” “my house” (e.g., Whitney et al., 2018), *shared management* indicators, *price indicators* (Cafarella et al., 2021; Whitney et al., 2018), and indicators of *multiple providers* (Skidmore et al., 2017). All of these proved not to be predictive of trafficking when compared against a counterfactual in multivariate models and should be explored more in future research, as the theoretical and practical implications of these results could be profound.

Several photo indicators previously identified in research were not significantly associated with trafficking in our sample such as *face obscured*/cut off, photo taken by *third party*, and *hotel characteristics* (contra Tong et al., 2017). These results were surprising to our practitioner and survivor focus group members as well, as was the finding that, in our sample, a provider “*looking young*” was more likely to be associated with a *non-trafficking* or *outcome unknown* case than a *trafficking* case. However, this does not contradict the literature so starkly. Bouché (2015) noted that photos of other people are often used when the advertised person is a minor and Cafarella et al. (2021) noted that judging youth is often unreliable and subjective.

Furthermore, the use of filters and makeup to make an individual look older or younger (as desired) makes identifying a subject's age from photos in an ad unreliable. Photos may be more useful when searching for a specific missing person than generating otherwise fresh leads. We recommend continued research to see whether this result holds with different samples.

Finally, while many emojis may indicate specific provider characteristics or services available, none were associated with trafficking outcomes specifically. Only roses were significant in Whitney et al.'s 2018 study, and only then when pricing and movement language indicators were also present. However, their study conflated trafficking and sex work and did not control for independent effects of the other indicators. This would indicate support for the non-trafficked sex worker group's perspective that emojis are used for marketing, and perhaps for phone number obfuscation, but that emojis are not indicators in and of themselves. While it is possible that use of emojis indicating involvement in "the game" (e.g., crowns, diamonds, bees) were once indicators, there were very few instances of these in our dataset. This may be an artifact of our sample, or it may reflect a trend away from using them once providers became aware that investigators were looking for them.

Implications for Practice

The purpose of this project was to generate knowledge that would advance precision in sex trafficking victim identification in investigations and that would provide empirical support for the use of ads in prosecutions of traffickers. This work ads to the body of knowledge on how ads are constructed and used when advertising a trafficking victim as opposed to non-trafficking sex work and provides some updates regarding changes in the online advertising marketplace since the passage of SESTA/FOSTA and the shutdown of Backpage. This knowledge may enable more focused investigations and better explanation of these phenomena at the case charging stage, when the ads are presented as evidence in court, and for jury instructions in trafficking cases that involve escort ads. Furthermore, law enforcement partners involved at the project design stage envisioned a use for this information in educational programs at "john schools," a diversion program wherein sex buyers are educated about the fact that some sex providers whose ads they respond to might be trafficking victims.

The primary goal of this research was to impact practice by helping investigators and prosecutors better focus their limited resources on cases more likely to involve a victim and a trafficker than on cases involving consensual sex work. Given our findings on statistically significant indicators of trafficking and on previously accepted indicators found to be statistically insignificant or to be associated with negative cases and not with trafficking, we have created a guide that law enforcement and other practitioners can use as a quick reference during case building and as a basis for training investigators, prosecutors, judges, and trafficking victim service providers on generating victim identification leads using escort ads. This guide can be found on the JRSA website at https://www.jrsa.org/projects/escorts.html.

During the design of this project, law enforcement partners expressed a desire for information with a scientific basis in several areas, which are covered by our research:

- photo indicators besides just "looking young." While our results showed no other photo indicators to be statistically significant, and that "looking young" itself was not actually associated with trafficking, that information is perhaps even more valuable to the field;
- language/content indicators, especially if there are any differences between ads for trafficked and non-trafficked sex workers; and
- contact information (phone number) indicators.

Of particular interest are the potential impacts on the field related to the "looking young" photo indicator: all of our fieldwork sites stated that they routinely did "john sting" operations in which they would scour ads and call any ad where the subject in the photo looked young in order to uncover sex trafficking victims. However, little trafficking was usually discovered during these stings and at least two of our fieldwork agencies have stopped doing them for this reason. Perhaps a re-focusing of efforts incorporating these findings would yield more fruit in the future, as long as it is considered that many victims may still not self-identify, or that they may not want help from law enforcement in order to avoid additional trauma or risk that may come with criminal justice system cooperation. A trauma-informed approach must accompany this work.

Implications for Policy

When FOSTA was passed in 2018, there was great expectation by those who passed it that this law would prevent trafficking and provide an avenue for websites that host escort ads to be held accountable for facilitating sex trafficking. While the passage of these laws and the shutdown of Backpage and other sites has had a chilling effect on the market, extraordinarily little enforcement using these laws has occurred. In fact, as of this writing, only one criminal case and one civil case have been brought using this legislation (GAO, 2021). The criminal case was still pending while the civil case was dropped. Prosecutors have continued to use earlier laws as FOSTA is still relatively new (GAO, 2021).

While SESTA/FOSTA and newer credit card company practices of no longer allowing their products to be used to pay for ads have resulted in a more fragmented market and greater difficulty for providers in posting ads and ensuring safety, participants in the non-trafficked focus group assert that the commercial sex marketplace remains largely unchanged in terms of numbers of providers and their ages. They do note that website shutdowns and other restrictions have made the identification of providers in bad situations much more difficult to do through ad analysis (less free text = fewer indicators). Plus, many providers have returned to street work. Law enforcement have also gotten much less cooperation for subpoenas post SESTA/FOSTA, especially from websites hosted offshore. This has resulted in fewer trafficking prosecutions according to focus group participants, given that investigations are now more difficult and resources for complex investigations are still in limited supply.

While the findings from this research may help provide more precision in victim identification to investigations, we recommend that impacts of legislation such as SESTA/

FOSTA on vulnerable communities and on the ability of investigators to collect evidence and find victims and missing persons that can result from these types of laws be considered in their drafting. Few websites have been held accountable, but many victims and non-trafficked sex workers alike have been negatively impacted by the disruptions. Law enforcement also had use of a key investigative tool complicated because of this legislation. Deeper consultation with multiple stakeholder groups in the field and consideration of evidence and research may result in more effective laws if the goal is to help more victims.

Conclusion

Mark Latonero (2011) offers guiding principles for technological interventions in human trafficking that we also hope to inform, including the adaptation of algorithms in web scraper and intelligence tools that screen large numbers of ads for potential signs of trafficking. Among these principles are that:

- the ultimate beneficiaries of any technological intervention should be the victims and survivors;
- continuous involvement is necessary to ensure that tools are user-centric and refined over time to respond most effectively to shifts in technology and trafficking; and
- technological interventions should account for the range of human rights potentially impacted by the use of advanced technologies (Latonero, 2011, pp. v-vi).

Our overall aim with this work is to support investigations to reach and provide help for victims and survivors. At the same time, we want to be sure that the voices of non-trafficked sex workers are also heard as these interventions can, at times, harm their communities with removal of tools that members of this community use to keep themselves safe, excessive surveillance, or misidentification of someone as a victim who is not one.

Lastly, the products of this research will only be as good as they are able to be adapted over time. The characteristics and tactics of sex trafficking and of commercial sex broadly via the internet are constantly changing, although we see that general marketing principles in ad content and format still hold even as the environment changes. We believe the methodology used for this project is replicable so that this process can be repeated at intervals to account for changes and keep practitioners in the field updated on the latest knowledge they need to do their jobs, and to ensure that the communities most affected continue to have their voices heard.

We believe this research provides practical and immediately actionable information for sex trafficking case building in the United States. We believe it can easily be put into practice for investigations, prosecutions, and algorithmic development for web scraping and analysis technologies. We recommend that these results be tested and replicated with larger datasets and that work in this area continues.

We strongly acknowledge, however, that increasing technological capabilities in this field does not change the reality of how trafficking manifests and its emotional, physical, and mental effects on victims. Any efforts to increase victim identification must be accompanied by a trauma-informed approach, readily available support services for victims that want them, and even the flexibility to allow victims to decline participation in the prosecutorial process if that is their choice. Nevertheless, we hope that this work will allow more victims the avenues and channels through which they can make that choice.

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Appendix A: Data Collection Protocols

Practitioners' Focus Group Protocols (Investigators/Victim Advocates)

Key elements for discussion: General questions about investigative practices using escort ads, general research design with most of the focus on the ad level indicators to be tested beginning on page 6. ***There is an important question here about how we should define whether a case is trafficking or not in the context of this research***. Last, we'll cover concerns you may have about the research as we start data collection.

Part I: General discussion of investigative practices using escort ads (2018 Meeting)

- Investigators: Please describe in detail how ads are used in the law enforcement investigative process by your agency
    - Is the use of ads helpful? In what ways? List and describe uses.
    - What indicators do investigators look for in an ad to identify or prove a trafficking case?
    - Which indicators do you find most useful for victim identification, and why/how so?
    - Do you find use of that indicator alone or in combination with others more reliable in practice?
    - Which other indicators do you use?
- Victim Advocates: what are your impressions of these procedures from the victim perspective? What recommendations for change might you make to improve prosecutions and/or to reduce harm?
- Investigators: What tools would be useful for investigators and prosecutors in maximizing their ability to use ads in investigations and/or prosecutions?
- Victim Advocates: what are your impressions of these suggestions from the victim perspective? What recommendations for change might you make to improve prosecutions and/or to reduce harm?
- Investigators: Would having this information about indicators be helpful to understanding the nature and connectivity of networks?
    - How would it increase your ability to identify potential trafficking cases via online ads?
- Victim Advocates: What thoughts do you have about how this would impact victims' safety and the effectiveness of victim-centered investigations and prosecutions?
- Investigators: What are your challenges in using ads to identify trafficking cases?
    - How do the challenges differ by point in the investigative process?
    - What challenges are faced when presenting an ad as an exhibit in court?
- Victim Advocates: What challenges are you aware of or what recommendations might you make to address these challenges?
    - What recommendations are being made to improve prosecutions under trafficking laws using escort ads that may in fact be harming victims?
    - What do you think should be done that is not being done to help victims with regard to these investigative practices?

Part II: Presentation of research design and proposed coding instrument for ads and cases for input (2018 meeting). Presentation of results and draft recommendations (2021 Meeting).

Here is the entire research design (meeting 1)/draft of results (meeting 2) for your reference. Discussion will focus on the indicators we propose to test for their predictive power, beginning on page 6.

(Meeting 1) We would like to walk through the indicators of trafficking that we will test, alone and in combination, to see which indicators or combinations of indicators are predictive in identifying a true case of trafficking. These indicators were identified based on the literature on the subject, so we need your practical input to help us identify any that may be missing, to correct any that may be mischaracterized, and to clarify how they may be interpreted. We are also interested in understanding which indicators listed may not mean anything at all as far as distinguishing a case of trafficking from a case of consensual sex work. This will help us formulate the concepts we will test after we have collected and coded all the case data and ads against the documented case outcomes.

For each variable, please let us know:

- Initial impressions about validity and whether/how they have used previously
- How to interpret/meaning of the indicator if present
- Missing values (for those with multiple examples/types given such as emojis)
- Incorrect values
- Cautions in interpretation, such as values that can be interpreted in multiple ways
- Values that, if their presence is taken as a lead, could result in a consensual sex worker becoming ensnared in a trafficking investigation

*Note regional differences and differences by trafficking subtype, such as domestic gang trafficking, international human trafficking by type, hotel-based trafficking, street-based human trafficking, home-based trafficking, outcalls, commercial front brothels, etc.

*Note differences reported between trafficking and consensual sex work for each indicator discussed.

*Note differences in responses between investigators and victim advocates.

Data Collection Plan Components (Meeting 1)

Data collection involving law enforcement and prosecutorial agencies for this project consists of three parts:

- Analysis of data in investigative case files during an onsite visit. All case data will be completely anonymized after all matching is completed and cleansed of all personally identifiable information.
- Participation of one member of your staff in a focus group with representatives from other research sites, and with victim advocates that JRSA is recruiting independently from around the United States.
- Staff participation in semi-structured interviews during our site visit about the investigative process.

Environmental Updates (Meeting 2)

- It's been 4 years since Backpage was taken down, in your work, what changes have you seen in your work?
- Have you seen any changes in venue? (hotel, street, residential brothel, commercial front brothel, etc.)
- Have you seen any changes in trafficker's tactics?
- Have you made changes to your investigative tactics?
- How have your proactive cases changed?
    - Are you readily finding cases from escort ads?
    - Have your cases shifted in nature? (getting away from escort ads and using other types of leads)
- In cases originating from sources other than ads, has your use of ads in changed since 2018? How?
    - Are there any indicators you rely on now that are different from when you predominantly used Backpage as your source of ads? (ex. Use of fake images,
    - What sites do you see most of your cases on now?
- How has training shifted for using escort ads in the investigative process? Have you increased training? Have you changed curriculum?
- Have your undercover operations changed? Do you see changes in screening from providers or traffickers?

Questions Around Specific Results

Interpreting Incalls vs Outcalls vs Incalls and Outcalls

- Providing more context around potential controlled movement indicators.
    - When are incalls and outcalls trafficking and when are they consensual sex?
    - What does providing both incalls and outcalls mean to you (all groups)?
    - What signifies the "controlled movement" portion of this indicator?

<u>Sex Trafficking Survivors Focus Group Protocol</u>

Part I: Presentation of research design and proposed coding instrument (Meeting 1)/results (Meeting 2) for input.

All of you were sent our research design and coding guide (meeting 1)/results (meeting 2) in advance of this meeting. We will be using/used this guide to analyze the ads and case files from each of our eight sites. Hopefully you have this document in front of you; we also emailed it again just before the start of this meeting.

We would like to walk through the indicators of trafficking that we will test/have tested, alone and in combination, to see which indicators or combinations of indicators are predictive in identifying a case of trafficking. These indicators were identified based on the literature on the subject, so we need your real-life input to help us identify any that may be missing, to correct any that may be wrong, and to clarify how they may be interpreted. We are also interested in understanding which indicators listed may not mean anything at all as far as distinguishing a case of trafficking from a case of sex work that doesn't involve trafficking. This will help us formulate the concepts we will test after we have collected the case data and ads against the documented case outcomes (those that resulted in discovery of a case of trafficking and those that did not).

This focus group will ask three types of questions. First, we'll go through the list of indicators we've compiled for analyzing escort ads for the purpose of seeing if any of them are useful for identifying trafficking vs. sex work that doesn't involve trafficking. Second, we'll ask about general practices involved with posting, managing, and using ads in a trafficking situation, as far as you know and as far as you feel comfortable sharing. If there are any questions you don't feel comfortable answering, you may leave them blank. In the third set of questions, we ask you to share any concerns you have about the research and how it may be used. It's very important to us to include your input and take your concerns into account both throughout the research and in the generation of any final reports or products.

Proposed jurisdictions where we will examine data from closed investigations:

- San Diego
- San Francisco
- Dallas
- New York City
- Louisiana SAFE
- Georgia (GBI)
- Location #7 (TBD)
- Location #8 (TBD)

Part I: List of Indicators in Escort Ads for Analysis (Meetings 1 and 2)

For each indicator or group of indicators, please specify:

- Initial impressions about whether they are important
- How to interpret/meaning of the indicator if present
- Is the list complete or are any missing? (for those with multiple examples/types given such as emojis)
- Any items incorrect or should be removed?
- Cautions, such as indicators that can mean more than one thing
- Values that, if their presence is taken as a lead, could result in a consensual sex worker becoming ensnared in a trafficking investigation

Part II: General questions about the use of online ads (Meeting 1):

REMINDER: These questions, while valuable for us, are voluntary. Any information you wish to provide is greatly appreciated, but you may leave any blank that you do not feel comfortable answering. You may also answer in general terms and leave specifics out that you don't feel comfortable sharing. The purpose is to help us understand the *context* for the ads we will analyze in data collection.

- How involved was your controller in supervising the posting process? If more than one person was involved, how was that usually organized and who did what?
- Who actually posted the ads (survivor or another party)?
- Who paid for the ads most of the time, and how?

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- How did you choose the contact information to put in the ad? What information was usually given? Were there any times that a different method was used?
- Who would typically answer the call/ text/ email/ social media message? What was the procedure?
- How long did a specific ad usually stay up?
    - Did you usually use the same ad, or did you change things up regularly?
    - If you changed things up regularly, can you describe what usually caused that and what types of changes were usually made?
- How did you select the website(s) for posting?
    - Did you use one or multiple?
    - Which ones?
    - People often migrate from site to site as different ones become popular. What time frames are you referring to with your answers?
    - If a site or a section of a site was shut down, where did you migrate to?
        - Can you provide examples and the way that decision was made?
        - What impact did those changes have on you?

Environmental Updates (Meeting 2)

- (If they are not actually working in the anti-trafficking field, this will not be applicable) It's been 4 years since Backpage was taken down, in your work, what changes have you seen with regard to ad posting among people you know?
- In the original focus group, this group mentioned that controllers typically posted ads. With movement to other escort ad sites and social media sites, do you see the same dynamic or are there more victims engaging with potential buyers online?

Part III: Concerns about the research and its use (Both Meetings)

As mentioned, the goal of this research is to create a guidebook that investigators can use to provide scientifically tested guidance on escort ad analysis. The purpose is to help them focus limited investigations resources on those ads more likely to identify cases of human trafficking in the larger world of sex work advertisements. It would also allow for the calling of expert witnesses when ads are introduced in evidence for prosecutions of human trafficking.

Naturally, you may have concerns about this type of research and about how the tool we develop may be used. Development of a tool to guide investigators in understanding escort ads and providing advice about what type of ads are more likely to represent trafficking has the potential to impact the lives of survivors in both positive and negative ways. We want to be sure to include the input of survivors regarding these concerns and in any recommendations we make.

- What concerns do you have about the conduct of this research that you want to be sure we address?
    - Concerns about our methods of analysis/how we get our results (describe)
    - Concerns about potential biases we may hear from law enforcement and prosecutors? What might they say that might be inaccurate, based on your experiences?
    - Concerns for trafficking survivors as a result of conducting this research?
        - Those out of the life

        - Those still in the life
- What concerns do you have about the guidebook for law enforcement that we plan to produce that you want to be sure we address? As a reminder, it will be used to guide law enforcement and prosecutors in looking for indicators and combinations of indicators that are most likely to predict whether the ad represents a true case of human trafficking as opposed to sex work that doesn't involve trafficking.
    - Concerns about how we frame the guidelines?
    - Concerns about how law enforcement might use or misuse the guidelines?
    - Concerns about how the use of these guidelines may impact survivors?

<u>Non-Trafficked Sex Workers Focus Group Protocol</u>

Part I: Presentation of research design and proposed coding instrument (Meeting 1)/results (Meeting 2) for input.

This focus group will ask three types of questions. First, we'll go through the list of indicators we've compiled for analyzing escort ads to see if any of them are useful, alone or combined with others, for identifying potential cases of trafficking vs. sex work that doesn't involve trafficking. Second, we'll ask about general practices involved with posting, managing, and using ads, as far as you know or feel comfortable sharing. If there are any questions you don't want to answer, you may leave them blank. Third, we ask you to share your concerns about the research and how it may be used. Our stated purpose for the research is to help investigators with some scientific backup for identifying cases via ads that may warrant further investigation into whether trafficking is occurring vs. those which are unlikely to lead to such a case, if that's possible to do. It's very important to us to include your (anonymous) input and concerns throughout the research and in any final reports.

You are helping provide some expertise that we as a research team do not have. This means we may also phrase a question below in an awkward way without realizing, so we want to say in advance that if we ask something below that may come across differently than we intended, please correct us so that we can approach this and the rest of the work in a more sensitive and informed way.

We would like first to walk through the indicators of trafficking that we will test/have tested to see which indicators or combinations of indicators may be predictive in identifying a trafficking case. This list was identified based on scholarly literature, so we need your real-life input to help us identify any that may be missing or incorrect and to clarify how they may be interpreted. We also want to understand which indicators may not mean anything at all as far as distinguishing trafficking from sex work that doesn't involve trafficking. This will help us formulate the concepts we will test after we collect the case data.

Proposed jurisdictions where we will examine data from closed investigations:

- San Diego
- San Francisco
- Dallas
- New York City
- Louisiana SAFE
- Georgia (GBI)

- Location #7 (TBD)
- Location #8 (TBD)

Part I: List of Indicators in Escort Ads (Meetings 1 and 2)

For each indicator or group of indicators, please specify:

- Initial impressions about whether they are important
- How to interpret/meaning of the indicator if present
- Is the list complete or are any missing? (for those with multiple examples/types given such as emojis)
- Any items incorrect or should be removed?
- Cautions, such as indicators that can mean more than one thing
- Values that, if their presence is taken as a lead, could result in a consensual sex worker becoming ensnared in a trafficking investigation

Ad-level data

IMPORTANT: We know things are changing with SESTA/FOSTA. We want to hear about that as well. Ads we analyze based on closed cases are not likely to reflect these changes because of timing, but we want to hear as much about how SESTA/FOSTA is impacting things, and what sorts of changes are happening as a result, as far as you feel comfortable sharing.

Part II: General questions about the use of online ads (Meeting 1). REMINDER: These questions, while valuable for us, are voluntary. Any information you wish to provide is greatly appreciated, but you may leave any blank that you do not feel comfortable answering. You may also answer in general terms and leave specifics out that you don't feel comfortable sharing. The purpose is to help us understand the *context* for the ads we will analyze in data collection.

- From what you know about trafficking, how involved do controllers tend to be in supervising the posting process? If more than one person is involved, how is that usually organized and who does what? We understand that there is variety here, so please simply answer about what you've seen.
- Who usually posts the ads (victim of trafficking or another party)?
- Who pays for the ads most of the time, and how?
- How is the contact information chosen for the ad? What information was usually given? Are there any times that a different method of contact is used?
- Who typically answers the call/ text/ email/ social media message? What is the procedure?
- How long does a specific ad usually stay up?
    - Is the same ad usually used, or are things changed up regularly?
    - If things are changed up regularly, can you describe what usually causes that and what types of changes are usually made?
- How is the website(s) selected for posting?
    - One or multiple sites?
    - Which ones?
    - People often migrate from site to site as different ones become popular or as circumstances change (i.e. SESTA/FOSTA or other changes in the area). What time frames are you referring to with your answers?

    - If a site or a section of a site was shut down, where have people you know migrated to?
        - Can you provide examples and the way that decision is made?
        - What impact did those changes have on people?

Environmental Updates (Meeting 2)

It's been 4 years since Backpage was taken down. How has this affected your work or the work of individuals you know?

- (if comfortable disclosing) Where do you or those you know post their ads now?
- Has the change affected how you or those you know interact with clientele?
    - Updates on verification methods and safety:
- Has screening and verification process of clients changed for you or people you know? Have you seen increased or decreased screening from pre-2018?
    - Are any changes because of differences in platform/environment or because of increased law enforcement presence?
- What safety concerns do you have or see in the current environment?
    - Do you think individuals feel more or less safe? Why?
    - Do you think individuals have the necessary tools to feel safe?
- Are there additional steps have you taken/seen taken to ensure safety? If yes, what are those steps?

Part III: Concerns about the research and its use (Meetings 1 and 2)

As mentioned, the goal of this research is to create a guidebook that investigators can use to provide scientifically tested guidance on escort ad analysis. The purpose is to help them focus limited investigations resources on those ads more likely to identify cases of human trafficking in the larger world of sex work advertisements. It would also allow for the calling of expert witnesses when ads are introduced in evidence for prosecutions of human trafficking.

Naturally, you may have concerns about this type of research and about how the tool we develop may be used. Development of a tool to guide investigators in understanding escort ads and providing advice about what type of ads are more likely to represent trafficking has the potential to impact the lives of both trafficking survivors and consensual sex workers in both positive and negative ways. We want to be sure to include the input of sex workers and survivors regarding these concerns and in any recommendations we make.

- What concerns do you have about the conduct of this research that you want to be sure we address?
    - Concerns about our methods of analysis/how we get our results (describe)
    - Concerns about potential biases we may hear from law enforcement and prosecutors? What might they say that might be inaccurate, based on your experiences?
    - Concerns for trafficking survivors and consensual sex workers as a result of conducting this research?
        - Those out of the life
        - Those still in the life

- What concerns do you have about the guidebook for law enforcement that we plan to produce that you want to be sure we address? As a reminder, it will be used to guide law enforcement and prosecutors in looking for indicators and combinations of indicators that are most likely to predict whether the ad represents human trafficking as opposed to sex work that does not involve trafficking.
  - Concerns about how we frame the guidelines?
  - Concerns about how law enforcement might use or misuse the guidelines?
  - Concerns about how the use of these guidelines may impact survivors and consensual sex workers?

Indicators of Sex Trafficking in Online Escort Ads: Case File Coding Form

INSTRUCTIONS: Use one form for each case. Save each as: SF####(Year of Case)###(case file number). E.g., SF2011001, where 2011 is case year and 001 is the number assigned by researchers to the case.

Code for as much information as is available in each case file; it is understood that not every field noted below will be made available to us. Please be as thorough as possible with the data provided.

If there is more than one perpetrator or victim: Please copy the cells and complete the data for each person. If there are enough individuals involved that there is more than one relationship to code between different perpetrators and victims in this case, please explain this in the response box.

Unique Case number	
Jurisdiction (city)	
Date investigation began	
Method of case identification:	
Proactive investigation	
Reactive to a tip or referral	
Trafficking (Y/N)	
Pimp Identified (Y/N)	
# of Perpetrators	
# of Victims	
# of Sex Workers	
Arresting Agency Type (Local police, sheriff, state police, or Federal LE)	
Prosecuting Agency Type (Local/County, State, or Federal)	
HT Task Force Arrest? (Y/N)	
Case charges (Arrest)	
Case charges (Prosecution)	
Case outcomes (Dismissed, Nolle Pros, Acquitted, or Convicted of something)	
Which Charges Convicted:	
Sentence type and length for each perpetrator	

Indicators of Sex Trafficking in Online Escort Ads: Case File Coding Form

Manual Case File Analysis (all PII will be excluded and replaced with Unique ID numbers). ***Unless marked as a free-text response, all variables are check marks or yes/no. Many of these, probably about half, will be possible to gather from the indictment*** or similar summary document, if available.

Incident type (Hotel, Residence, Street, Brothel, Other)	
Case Narrative (Free text)	
Victim Demographics	
Race (check one)	
Black	
White	
Asian	
Hispanic	
Mixed	
Other	
Gender (check one)	
Male	
Female	
Other	
Age (in years or description)	
Sex Worker Demographics	
Race (check one)	
Black	
White	
Asian	
Hispanic	
Mixed	
Other	
Gender (check one)	
Male	
Female	
Other	
Age (in years or description)	
Perpetrator Characteristics	
Role (Pimp, Bottom, Facilitator, John)	
If facilitator, function performed	
Race (check one)	
Black	
White	
Asian	
Hispanic	

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Indicators of Sex Trafficking in Online Escort Ads: Case File Coding Form	
Mixed	
Other	
Gender (check one)	
Male	
Female	
Other	
Age (in years or description)	
Case convicted with digital evidence? (Y/N)	
If yes:	
Website advertisements (Y/N)	
Site(s)? (free text)	
# of ads investigated	
Assign #s to each ad & list	
Subpoenas to advertiser websites (Y/N)	
Review site postings (Y/N)	
Site(s)? (free text)	
# of ads investigated	
Assign #s to each review post & list	

Indicators of Sex Trafficking in Online Escort Ads: Ad Coding Form	
Ads Investigated. Copy/Paste the below table and complete for each ad investigated in case. All indicators are checkboxes or Y/N answers unless otherwise indicated. While information is collected here on ads and review site postings for analysis (see 5th question), this form will refer to all as ads.	
Unique Ad ID (Assigned in case data above)	
Case # (Same as case # assigned above)	
Phone # (Dummy assigned after research complete)	
Phone number description	
Post ID# (Dummy assigned after research complete)	
Post ID# description	
Date/Time of Ad or Review Posting	
User ID	
Ad or review site posting? (Indicate one)	
Ad source (Case file or Memex search by researchers)	
Ad result: Trafficking? (Y/N) (Required)	
Website Posted: Select	
Adult Friendfinder	
Adultlook.com	

Indicators of Sex Trafficking in Online Escort Ads: Ad Coding Form	
Adultsearch.com	
Backpage Adult services	
Backpage Dating section	
Backpage Massage Section	
Bedpage	
Cityvibe	
Craigslist Adult services	
Craigslist Dating section	
Eros	
Eros-guide	
Escortdirectory.com	
Eurogirlescort.com	
Facebook	
Flixa.com	
GFEMonkey.com	
Instagram	
One Backpage	
Myredbook Classified Ads	
Rentboy	
Sexcompass.net	
Tsescorts.com	
Usa.topescortbabes.com	
Other (Indicate site and URL)	
Ad Content Indicators	
Young language (Y/N)	
Please describe/enter text	
Provider Stated age	
Provider Actual age	
Movement language (Y/N)	
"limited time" (Y/N)	
out of state area codes (Y/N)	
"new In town" (Y/N)	
"just arrived" (Y/N)	
"weekend only" (Y/N)	
"new arrival" (Y/N)	
"brand new" (Y/N)	
"in town for the weekend" (Y/N)	
"gone" (Y/N)	
"back" (Y/N)	

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Indicators of Sex Trafficking in Online Escort Ads: Ad Coding Form	
"leaving soon" (Y/N)	
"only for the weekend" (Y/N)	
Other (please describe/enter text)	
Ethnicity/Nationality of provider mentioned (Y/N)	
Please describe/enter text	
Ethnicity/Nationality/Race qualifiers for clients (Y/N)	
No AA language (Y/N)	
Please describe/enter text	
No Law Enforcement Allowed (Y/N)	
Photo Characteristics	
Photo present (Y/N)	
Photo appears young (Y/N)	
Individual appears bony/malnourished (Y/N)	
Hotel room features in photo (Y/N)	
If yes, describe	
Tattoos? (Y/N)	
If yes, describe	
Photo in multiple cities (Y/N)	
Photo in multiple ads/reviews (Y/N)	
Subject in photo does not appear willing (Y/N)	
BDSM (Sub) Ad (Y/N)	
Face obscured in photo (Y/N)	
Photos appear professional (Y/N)	
Other people in photo (Y/N)	
Provider is not the same as the person in photo/featured in ad (Y/N – check police narrative)	
Other photo characteristics (please describe)	
Poster noted “verified” by site (Y/N)	
Same ad in different locations (Y/N)	
Emojis (Y/N)	
Roses (Y/N)	
Rosettes (Y/N)	
Money bags (Y/N)	
Money with wings (Y/N)	
Dollar signs (Y/N)	
Dollar bank note (Y/N)	
Hundred points emoji (Y/N)	
Growing heart (Y/N)	
Cherry (Y/N)	

Indicators of Sex Trafficking in Online Escort Ads: Ad Coding Form	
Cherry blossom (Y/N)	
Airplane (Y/N)	
Small airplane (Y/N)	
Airplane departure (Y/N)	
Airplane arrival (Y/N)	
Crown (Y/N)	
Candy (Y/N)	
Umbrella opened (Y/N)	
Umbrella closed (Y/N)	
Water drops (Y/N)	
Sticking tongue out (Y/N)	
High heel shoe (Y/N)	
Bow (Y/N)	
Bikini (Y/N)	
Lipstick (Y/N)	
Lips (Y/N)	
Diamond (Y/N)	
Star (Y/N)	
Arrow (Y/N)	
Checkmark (Y/N)	
Thumbs up (Y/N)	
Key (Y/N)	
Flame (Y/N)	
Bomb (Y/N)	
Kiss face (Y/N)	
Wink face (Y/N)	
Heart eye face (Y/N)	
Devil face (Y/N)	
Playboy (Y/N)	
Peach (Y/N)	
Honey pot (Y/N)	
Other (please describe)	
Language about payment (Y/N)	
"Donations" (Y/N)	
"Price" (Y/N)	
"Roses" (Y/N)	
"Specials" (Y/N)	
Other (please describe)	
Shared management (Y/N)	

Indicators of Sex Trafficking in Online Escort Ads: Ad Coding Form	
Ad refs. multiple providers/friends (Y/N)	
Shared phone between providers(Y/N)	
Shared Post ID (Y/N)	
Gang control language (Y/N)	
If yes, describe	
Contact info for provider is for 3rd party (Y/N)	
3rd person language used (Y/N)	
Potential controlled movement (Y/N)	
"Incalls" (Y/N)	
"Outcalls" (Y/N)	
"Incalls and outcalls" (Y/N)	
Potential comm. front brothel (Y/N)	
If yes, describe	
Email provided (Y/N)	
Phone number provided (Y/N)	
Ad Metadata Indicators	
Credit card info (Y/N)	
Log-in info (Y/N)	
Please describe other metadata	
Other ad characteristics not mentioned (please describe)	

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Appendix B: Changes in Approach from Original Design

Some small changes occurred with our research design since the time of the proposal.

1. There were some changes in locations for our field work sites and in the web scrapers to which we had access over the project period. All were approved by NIJ via scope change GAMs/GANs as the project progressed.
2. We had hoped to analyze sex buyer reviews as well as escort ads, but our data collection did not net enough reviews to make this possible. This was discussed with our NIJ Science Advisor and Grant Monitor at the time our dataset was finalized.
3. Analysis of emoji and photo indicators had to be done separately as they were not available from our web scraper data sources for many ads. Ads for which we did have data for these categories of indicators were handled as subsets of data and causal/predictive claims were avoided due to the more conservative analytical methods chosen.
4. Because we used the federal definition of sex trafficking, in which all minors are considered trafficking victims for legal purposes, we could not conduct regression analyses on predictive indicators for ads featuring minors. However, we did provide descriptive statistics highlighting some differences in indicator prevalence between ads for minors vs. ads for adults.

Appendix C: Supplemental Figures and Tables

Table C1: Interrater Reliability: New Mexico

	New Mexico First Coding			New Mexico Second Coding		
	Kappa	**Z**	**Prob>Z**	**Kappa**	**Z**	**Prob>Z**
Age	0.6667	9.65	0	.	.	.
Young	0.6667	9.65	0			
Movement	0	.	.	0.8358	6.47	0
New arrival	0	0	0.5	0.7727	3.55	0.0002
Brand new	0	0	0.5	0.7727	3.55	0.0002
Provider ethnicity	0.7727	3.55	0.0002			
Screening	-0.0938	-0.67	0.7491	0.7	3.28	0.0005
Call screening	0.1781	1.4	0.081	0.6875	3.24	0.0006
Emoji	0.6226	3.41	0.0003			
Payment	0.798	3.57	0			
Price	1	4.47	0			
Specials	0	.	.	0.875	3.94	0
Shared management	0			1	4.47	0
Multiple providers	0			1	4.47	0
Control Movement	0	.	.	0.8571	3.87	0.0001
Incalls	0	.	.	0.8864	3.99	0
Outcalls	0	.	.	.	.	.
Brothel	-0.0526	-0.32	0.6265	1	4.47	0

Table C2: Interrater Reliability: New York

	New York First Coding			New York Second Coding		
	Kappa	**Z**	**Prob>Z**	**Kappa**	**Z**	**Prob>Z**
Age	0.886	11.15	0			
Young	0.898	4.04	0			
State	.	.	.			
Movement	0.4898	2.2	0.0138	0.7368	3.42	0.0003
Just arrived	.	.	.	1	7.75	0
New arrival	0	0	0.5			
Brand new	0.6341	3.05	0.0012			
Provider ethnicity	0.8571	3.87	0.0001			
Screening	0.7647	3.52	0.0002			
Call screening	0.875	3.94	0			
Emoji	1	4.47	0			
Payment	0.8	3.65	0.0001			
Price	0.8571	3.87	0.0001			
Specials	0.7368	3.42	0.0003			
Shared management	0.8936	4.02	0			
Multiple providers	1	4.47	0			

Control Movement	1	4.47	0
Incalls	1	4.47	0
Outcalls	1	4.47	0
Brothel	1	4.47	0

Table C3: Interrater Reliability: Oregon

	Oregon First Coding			**Oregon Second Coding**		
	Kappa	**Z**	**Prob>Z**	**Kappa**	**Z**	**Prob>Z**
Age	0.8895	12.57	0			
Young	1	3.16	0.0008			
State	1	4.47	0			
Movement	0.6341	3.05	0.0012			
Just arrived	0	.	.	0.7938	3.63	0.0001
New arrival	1	4.47	0			
Brand new	0.4898	2.2	0.0138	0.7938	3.63	0.0001
Provider ethnicity	0.898	4.04	0			
Screening	0.8571	3.87	0.0001			
Call screening	0.6875	3.07	0.001			
Emoji	0.7917	3.54	0.0002			
Payment	1	4.47	0			
Price	0.875	3.94	0			
Specials	1	4.47	0			
Shared management						
Multiple providers	1	4.47	0			
Control Movement	0.6154	2.98	0.0014			
Incalls	0.2941	1.98	0.024	0.8276	3.76	0.0001
Outcalls	-0.0526	-0.24	0.593	0.6429	3.08	0.001
Brothel	1	4.47	0			

Table C4: Results of Latent Class Analysis for Emoji Categories

Composite emoji group	Probability of class membership	Std. Error	95% Confidence Interval
Emojis – Money (N=91)			
Moneybag (n=8)	0.017	0.006	[0.008, 0.032]
Money with wings (n=3)	0.006	0.003	[0.002, 0.018]
Dollar sign (n=2)	0.004	0.003	[0.001, 0.016]
Dollar notes (n=30)	0.063	0.011	[0.043, 0.085]
Emojis – Young (N=117)			
Cherry (n=30)	0.063	0.011	[0.042, 0.085]
Cherry blossom (n=24)	0.051	0.010	[0.036, 0.075]
Candy (n=40)	0.084	0.012	[0.059, 0.107]
Bow (n=51)	0.107	0.014	[0.080, 0.134]
Honeypot (n=10)	0.021	0.006	[0.011, 0.037]
Emojis – Services (N=256)			
Water drops (n=130)	0.274	0.020	[0.224, 0.301]
Tongue (n=95)	0.200	0.018	[0.158, 0.227]
Star (n=95)	0.200	0.018	[0.173, 0.244]
Arrow (n=18)	0.038	0.008	[0.023, 0.057]
Checkmark (n=39)	0.082	0.012	[0.058, 0.105]
Thumbs up (n=26)	0.055	0.010	[0.036, 0.075]
Playboy (n=10)	0.021	0.006	[0.011, 0.037]
Emojis – Pimp (N=127)			
Diamond (n=89)	0.187	0.018	[0.155, 0.225]
Crown (n=56)	0.118	0.015	[0.092, 0.150]
Emojis - Provider characteristics (N=311)			
Chocolate (n=28)	0.059	0.011	[0.041, 0.084]
Bikini (n=22)	0.046	0.010	[0.031, 0.069]
Top hat (n=12)	0.025	0.007	[0.014, 0.044]
Lipstick (n=39)	0.082	0.013	[0.061, 0.110]
Lips (n=152)	0.320	0.021	[0.280, 0.363]
Key (n=16)	0.034	0.008	[0.021, 0.054]
Flame (n=45)	0.095	0.013	[0.071, 0.125]
Bomb (n=17)	0.036	0.009	[0.022, 0.057]
Kissing face (n=84)	0.177	0.018	[0.145, 0.214]
Winking face (n=28)	0.059	0.011	[0.041, 0.084]
Heart-eyed face (n=64)	0.135	0.016	[0.107, 0.168]
Devil face (n=27)	0.057	0.011	[0.039, 0.082]
Peach (n=44)	0.093	0.013	[0.070, 0.122]
Cat (n=33)	0.069	0.012	[0.050, 0.096]

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Table C5: Full Tetrachoric Weighted Correlations for Non-Massage Ads

	Trafficking	Phone # obscured	Ethnicity of provider	Client screening (excluding ethnicity)	Client ethnicity	Client upscale	Movement	Controlled movement	Available 24/7
Trafficking	1								
Phone # obscured	**0.516***	1							
Ethnicity of provider	**0.358***	-0.115	1						
Client screening (no eth)	-0.046	-0.048	0.099	1					
Client ethnicity	0.127	-0.094	0.101	**-1.00***	1				
Movement	**-0.307***	-0.127	-0.035	**0.353***	**0.488***	1			
Controlled movement	**-0.411***	**-0.139***	0.002	0.061	0.029	**0.235***	1		
Available 24/7	0.292	0.033	-0.008	**0.318***	-0.048	0.046	**-0.174***	1	
Young language	-0.106	-0.018	**0.380***	0.072	**0.216***	0.090	-0.140	0.050	1
Payment language	**0.224***	-0.062	0.109	0.076	0.099	**0.227***	**0.148***	-0.005	-0.088
Trustworthy	0.099	**0.153***	-0.076	**0.256***	-0.111	-0.061	0.028	**0.3747***	-0.053
Ad in different locations	**0.351***	-0.035	0.080	**0.254***	0.128	**0.291***	0.037	**0.172***	**0.321***
Multi-provider	0.138	**-0.196***	0.082	-0.106	-0.065	-0.008	0.080	**-0.163***	-0.004
Under 23 years old	0.034	-0.038	**0.195***	-0.002	0.032	0.072	**0.174***	0.044	0.136
Movement, no screening	-0.134	**0.142***	**0.256***	-0.006	**0.259***	0.055	-0.061	-0.016	**0.206***
Multiple providers + movement	**-0.242***	-0.034	-0.046	**-1.000***	**-1.000***	**-1.000***	**1.000***	**-0.390***	**-0.259***

Table C7: Tetrachoric Weighted Correlations (continued)

	Young language	Payment language	Trustworthy	Ad in different locations	Multi-provider	Under 23 years old	Movement, no screening	Multiple providers + movement
Available 24/7								
Young language	1							
Payment language	0.026	1						
Trustworthy	**0.121***	**0.157***	1					
Ad in different locations	0.118	**-0.293***	**0.193***	1				
Multi-provider	-0.043	**0.262***	-0.100	-0.136	1			
Under 23 years old	**0.264***	**0.144***	**0.245***	0.061	**0.164***	1		
Movement, no screening	**0.138***	**-0.137***	-0.080	**0.190***	0.031	**-0.151***	1	
Multiple providers + movement	0.114	**0.260***	0.013	-0.026	**1.000***	0.057	**0.345***	1

Appendix D: List of Artifacts

Products (publications, conference papers, technologies, websites, databases including locations of these products on the internet)

- Final Research Report
- Executive Summary
- Project Webpage (https://www.jrsa.org/projects/escorts.html) that contains links to:
  - Policy Brief (3 pages)
  - Webinar Presentation Video
  - Reference and Training Guide for Law Enforcement and Prosecutors (8 pages)
  - Final Project Report (will upload once approved by NIJ)
- Journal Article draft (to be finalized and submitted to the *Journal of Human Trafficking* by January 31, 2022)

Datasets Generated (All Archived with ICPSR)

- Quantitative case-level dataset
- Quantitative ad-level dataset
- Qualitative case dataset
- Qualitative ad dataset
- Interview transcripts
- Focus group transcripts

Dissemination Activities

- Webinar (December 7, 2021)
- American Society of Criminology Annual Meeting Presentations: 2018, 2019
  - Accepted 2020, 2021 but COVID-19 precluded attendance
- Social media plan to communicate results and push interested people to the project webpage for resources
- Op-ed (to be submitted to the Atlantic or similar outlet when NIJ approves final report)
- Distribution of announcement featuring products available on project webpage through various JRSA and Human Trafficking Intelligence Project distribution lists.