Objective: To determine the prevalence of and associations among displayed risk behavior information that suggests sexual behavior, substance use, and violence in a random sample of the self-reported 18-year-old adolescents’ publicly accessible MySpace Web profiles.


Participants: A total of 500 publicly available Web profiles of self-reported 18-year-olds in the United States.

Main Outcome Measures: Prevalence and associations among displayed health risk behaviors, including sexual behavior, substance use, or violence, on Web profiles.

Results: A total of 270 (54.0%) profiles contained risk behavior information: 120 (24.0%) referenced sexual behaviors, 205 (41.0%) referenced substance use, and 72 (14.4%) referenced violence. Female adolescents were less likely to display violence references (odds ratio [OR], 0.3; 95% confidence interval [CI], 0.15-0.6). Reporting a sexual orientation other than “straight” was associated with increased display of references to sexual behavior (OR, 4.48; 95% CI, 1.27-15.98). Displaying church or religious involvement was associated with decreased display of all outcomes (sex: OR, 0.32; 95% CI, 0.12-0.86; substance use: OR, 0.38; 95% CI, 0.19-0.79; violence: OR, 0.12; 95% CI, 0.02-0.87; any risk factor: OR, 0.36; 95% CI, 0.19-0.7). Displaying sport or hobby involvement was associated with decreased references to violence (OR, 0.27; 95% CI, 0.09-0.79) and any risk factor (OR, 0.46; 95% CI, 0.27-0.79).

Conclusions: Adolescents frequently display risk behavior information on public Web sites. Further study is warranted to explore the validity of such information and the potential for using social networking Web sites for health promotion.


P R I O R S T U D I E S 1 - 5 O F A D O L E S C E N T risk behaviors have used samples derived from schools, communities, and clinics. Today, online communities play an increasing role in the lives of adolescents. Adolescents are avid Internet users; more than 90% report having access and most report daily use. 6,7 Of these Internet- using adolescents, approximately half use online social networking Web sites (SNSs), such as MySpace (www.MySpace.com) and Facebook (www.Facebook.com). 8 MySpace, the most popular SNS, boasts more than 200 million profiles, of which 25% belong to people younger than 18 years. 9,10

S e e a l s o p a g e s 3 5 , 8 7 , a n d 9 1

Social networking Web sites allow users to create a personal Web profile that may contain audio, images (eg, pictures and video), and text (eg, blogs and personal descriptions). In addition, SNSs enable users to designate one another as “friends” and to communicate online. Therefore, SNSs provide adolescents with a venue for both identity exploration and peer interaction. For adolescents who feel isolated, such as those with interests outside the mainstream culture, SNSs may provide a social outlet that is otherwise unavailable.

Despite these potential benefits, risks may be associated with adolescents’ profile content. Health risk behavior information on a personal Web profile, such as information about sexual activity or substance use, is displayed in a globally public venue. Anecdotal reports and small studies 11,12 suggest that some adolescents display risky material on SNSs, but to our knowledge no large-scale systematic studies that evaluate adolescents’ display of health risk behaviors and associations among the display of risk behaviors on SNSs are available.

The veracity of displayed risk behavior information on SNSs is unknown; however, prior studies 13-16 have shown that computer use encourages high levels of self-
disclosure and uninhibited personal expression, which supports the validity of Internet self-report. The Media Practice Model identifies key factors in adolescents’ use of media and argues that adolescents select and interact with media based on who they are—or who they want to be—at the moment. This model supports that disclosures made on SNSs may reflect actual behaviors or behavioral intent. However, regardless of the veracity of displayed information, other users may respond to an adolescent’s disclosures as if they were truthful, and this in turn may influence the adolescent’s intentions, self-image, and behaviors. Displaying risk behavior information has been shown to increase the likelihood of unwanted online attention from individuals such as cyberbullies or sexual predators. Given the popularity of SNSs, these Web sites may also function as a “media superpeer” by promoting and establishing norms of behavior among other adolescents. For example, sexual references on SNSs may create the illusion that sex is glamorous or risk free and may promote sexual initiation—a process known as media cultivation. Furthermore, social learning theory predicts that teens who see characters displaying references to behaviors such as risky sexual practices without experiencing negative consequences will be more likely to adopt the behaviors portrayed.

Many of the most important causes of morbidity and mortality in adolescence are associated with health risk behaviors, such as sexual behavior, substance use, and violence. Protective factors, such as involvement in a religious organization and participation in a sport or hobby, have been shown to reduce these adolescent health risk behaviors. The identification of factors that influence adolescents’ engagement in risk behaviors remains a challenge. Investigation of risk behavior displays on SNSs may provide a new source of information about the ways adolescents view and make decisions about health risk behaviors.

The purpose of this study is to determine the prevalence and associations among displayed information that suggests sexual behavior, substance use, and violence on a random sample of the self-reported 18-year-old adolescents’ publicly accessible MySpace Web profiles. Through this study we hope to introduce health care providers to SNSs; to describe the prevalence of demographic, risk, and protective factors featured on SNSs; and to explore associations among typical MySpace disclosures with the display of risk behavior information.

STUDY SETTING

This observational study applied content analysis to publicly available MySpace Web profiles between July 15 and September 30, 2007. Because this study involved observation of publicly available information, it received an institutional review board exemption from the University of Washington. This study was conducted using the Web site www.MySpace.com, on which all MySpace profiles are openly available. MySpace Web profiles may be public, meaning that full or most content is viewable to any Web site visitor, or private, meaning that limited information is available without the profile owner’s permission.

STUDY METHODS

DATA COLLECTION

Table 1 summarizes all variables. Two of us conducted content analyses (M.A.M. and T.E.B.). The research staff reviewed all publicly viewable elements of the MySpace profile. No attempts were made to contact individuals, read personal e-mails, or obtain access to information set as private.

study participants

Inclusion criteria for this study included having a publicly available personal Web profile on MySpace and reporting one’s age on that profile as 18 years. At the time a profile is created, the profile owner is required to enter a date of birth; the profile owner’s calculated age in years is then displayed among the profile’s demographic information. To ensure that the profile owner still actively maintained the Web profile, we only included Web profiles in which the owner had logged in to the profile within the last 30 days. Finally, we only included profiles in which the owner reported US residence.

SEARCH STRATEGY

MySpace features a “browse” function to seek Web profiles that meet particular criteria. Each individual search provides a maximum of 3000 “thumbnail” links to Web profiles. Search criteria can include particular age ranges, ethnicities, or home locations. Setting the search criteria for 18-year-olds yields a roster of 3000 Web profiles in nonalphabetical, nonnumerical order. The order in which search results are listed is in one of several formats provided by MySpace: newest profiles, recently updated profiles, most recent log-in to profile, or distance from a given zip code. We opted to have results listed in order of most recent log-in to Web profile to focus our search on actively used profiles. Given the huge population on MySpace that may be logging in at any time, the reporting of search results by most recent log-in is highly dynamic; to conduct a second identical search minutes after the first one could yield 3000 different Web profile links. To focus on profiles with the most recent log-in date, we selected the first 1500 from the 3000 profile search results and recorded URL numbers that linked to each individual’s profile. From these, we randomly selected 750 profiles. On reaching our goal of 500 evaluated profiles that met inclusion criteria, data collection was considered complete.
Table 1. Variable Descriptions

<table>
<thead>
<tr>
<th>Variables</th>
<th>Variable Coding and Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Self-report in identification section of profile.</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>Self-report in demographic information section of profile.</td>
</tr>
<tr>
<td>Relationship status</td>
<td>Self-report multiple choice in demographic information section; available options on MySpace include single, in a relationship, married, divorced, and swinger.</td>
</tr>
<tr>
<td>Sexual orientation</td>
<td>Self-report multiple choice in demographic information section; available options on MySpace include straight, gay/lesbian, bisexual, and unsure.</td>
</tr>
<tr>
<td>Parent/expecting</td>
<td>Self-report multiple choice in demographic information section; available options on MySpace include whether or not subject currently has children or is expecting.</td>
</tr>
<tr>
<td>Church/religious involvement</td>
<td>Obtained by viewing profile owner’s stated interests, pictures, and blogs. Our criteria to determine when church/religious involvement was a dominant theme of the Web profile included the listing of a religious preference under the religion self-report section and reference to church attendance or religious devotion in any other section of the profile.</td>
</tr>
<tr>
<td>Sport/hobby involvement</td>
<td>Obtained by viewing profile owner’s stated interests, pictures, and blogs. Because MySpace profiles encourage display of hobbies and interests, we developed criteria to determine when a particular sport/hobby was considered a dominant theme of the Web profile. These criteria included references to the sport/hobby in more than one section and more than one media (ie, listed football as a hobby in hobby section and posted picture of self in football uniform in personal pictures section).</td>
</tr>
<tr>
<td>Number of friends</td>
<td>We were interested in the number of friends listed as links on an individual’s Web profiles. Given the number of celebrities, bands, and politicians that may be listed as “friends,” we calculated a corrected friend count. Linked friend profiles can only be clearly identified as celebrities/bands/politicians by opening each individual profile. To calculate a corrected friend count, we determined the total friend count listed on the profile. MySpace lists online friends in collections of 40 per page. If the total friend count was 2 pages (80 friends) or less, each linked friend was viewed to determine if it was a celebrity/band/politician. If so, this profile was excluded from the total corrected friend count. If the total friend count was over 80, then the first 80 profiles were viewed and a proportion of celebrity/band/politician profiles was calculated. That proportion was applied to the total friend count and subtracted from the total to determine a corrected friend count.</td>
</tr>
<tr>
<td>Number of comments</td>
<td>Total number of comments listed in the publicly posted comments section of the Web profile.</td>
</tr>
<tr>
<td>Time since last comment</td>
<td>Number of days since most recent comment was received, determined by checking posted date of most recent comment on Web profile.</td>
</tr>
<tr>
<td>Number of days since last log-in</td>
<td>Number of days since profile owner last logged in to profile, posted in identification section of Web profile.</td>
</tr>
<tr>
<td>Age other than 18 y</td>
<td>All MySpace profiles require members to provide their age in the identification section of the Web profile. This reported age is not verified by MySpace. Profile owners may display evidence of being an age other than 18 in any other section of their profile, including free text “about me” section (ie, “I’m a 16-year-old sophomore”), pictures that suggest younger age (ie, pictures of a 14-year birthday party and profile identification picture also shows owner that age), or in listing school information (ie, “I’m in 7th grade at Denny Middle School”).</td>
</tr>
<tr>
<td>Sexual behavior display</td>
<td>All public sections of the Web profile were evaluated (including pictures, blogs, lists of favorites, and downloaded icons) for display of sexually suggestive material. Examples of material considered sexually suggestive included completion and display of a “sex survey,” describing personal sexual preferences, self-disclosures of sexual experiences, pictures of profile owner in undergarments, and downloaded sexually suggestive icons such as Playboy bunnies. Examples of material we did not include as sexually suggestive included gay pride flags or pictures of couples embracing.</td>
</tr>
<tr>
<td>Substance use display</td>
<td>All public sections of the Web profile were evaluated (including pictures, blogs, lists of favorites, and downloaded icons) for display of material suggesting alcohol use, tobacco use, or drug use. Examples included downloaded icons of beer brands, pictures of Web profile owner smoking, and downloaded pictures of marijuana leaves.</td>
</tr>
<tr>
<td>Violence display</td>
<td>All public sections of the Web profile were evaluated (including pictures, blogs, lists of favorites, and downloaded icons) for display of references to violence. Examples included downloaded pictures of firearms or graphic scenes from movies such as “Scarface,” personal disclosures discussing fighting, and listing fighting among hobbies or interests.</td>
</tr>
</tbody>
</table>

During the initial coding by one author (T.E.B.), the other author (M.A.M.) re-coded a 20% random profile sample to assess interrater reliability. Because profile content is dynamic and we did not archive profiles, dual-coded profiles were completed within a several-hour time frame. Unclear references during initial coding and disagreement cases were discussed by both coders to reach consensus. The Cohen’s $\kappa$ statistic was used to evaluate the extent to which there was agreement in the coding of the Web profiles. The range of $\kappa$ values for the variables of interest in this study was as follows: references to sex, 0.74; references to substance use, 0.84; references to violence, 0.78; references to church or religious involvement, 0.72; and references to sport or hobby involvement, 0.67.

References that included slang words were investigated using the Web site www.urbandictionary.com. To our knowledge, this is the most up-to-date reference of slang designed and used by adolescents.

**STATISTICAL ANALYSIS**

All statistical analyses were conducted using a commercially available software program (Stata, version 9.0; Statacorp LP, College Station, Texas). Our target sample size of 500 profiles was determined by our previous findings regarding proportion of profiles that displayed risk behaviors and planned analyses for this study. We used logistic regression to model associations of our 3 outcomes of interest: display of sexual references, display of substance use, and display of violence. A fourth outcome variable, display of any risk behavior information, was created to represent Web profiles in which the individuals had displayed references to any of the 3 risk behaviors. The following variables were included in these multivariable models: sex, relationship status, sexual orientation, being a parent or expecting a child, church or religious involvement, and sport or hobby involvement. These variables were selected based on their common availability on MySpace profiles, as well as our a priori hypothesis that they could...
be associated with the display of risk behaviors. We hypothesized that variables that may significantly affect a person’s identity (ie, sex, sexual orientation, church or religious involvement, or sport or hobby involvement) or variables that affected who individuals thought might view their Web site (eg, single people may modify their profile to attract potential partners) could be associated with the display of risk behaviors.

To adjust for the possibility that more actively used profiles (more online friends, more comments, and more frequent log-ins) would have greater opportunity (and therefore greater likelihood) of displaying risk behavior references, we adjusted our analyses for time since last log-in, number of friends, number of comments, and time since last comment. Finally, we also adjusted for self-reported race/ethnicity, including a dummy variable for people who left the answer space blank.

Two of the variables, relationship status and sexual orientation, contained categories determined by MySpace. The relationship status variable included the following categories: single, in a relationship, married, divorced, and swinger. Because we had no theoretical basis for maintaining all categories, we collapsed the relationship status variable into 2 commonly used categories: in a relationship and single. The sexual orientation variable included the following categories: straight, gay, bisexual, and other. We collapsed these categories into 2 commonly used categories: straight and other. Sexual orientation data were missing for 7.4% of study participants, so we created a separate category for missing variables.

**RESULTS**

**SAMPLE POPULATION**

A total of 696 profiles were analyzed to obtain our target sample of 500 profiles. A total of 71.8% of evaluated profiles met inclusion criteria. Of the excluded profiles, 159 of 196 were excluded because of reporting an age other than 18 years on their Web profile demographic information. It is unclear why the MySpace search engine included these profiles in the search results. Profiles were also excluded because of unclear demographic information (2.5%) or private profile security setting (16.4%) (Figure). Overall, 93% of eligible profiles were included in our sample.

**DESCRIPTIVE STATISTICAL ANALYSES**

A total of 500 Web profiles met inclusion criteria and were included in all analyses. Our sample included slightly more males than (self-reported) female adolescents. Approximately 75% of study participants reported their ethnicity on their profile: 42.4% were white/Caucasian, 12.0% were Latin/Hispanic, 9.0% were black/African, 4.6% were Asian/Pacific Islander, 4.2% were other, and 1.4% were Native American (Table 2). Most study participants reported their home state within the United States (97.4%); most states in the United States (46/50) were included in this random sample. Most study participants (98.8%) reported their relationship status and most were single. A total of 92.6% of study participants reported their sexual orientation on their Web profile, and most reported that they were straight. A total of 98.6% of study participants reported their parenting status; of these, 6.4% were parents and 3.4% described themselves as pregnant or expecting a child. A total of 10.6% of Web profiles met our criteria for having significant church or religious involvement, and 16.4% met criteria for significant sport or hobby involvement. These data are summarized in Table 2.

**OUTCOMES**

Approximately half (54%) of the 500 Web profiles in our sample referenced 1 or more health risk behaviors such as sexual activity, substance use, or violence. The most frequently referenced risk behavior was substance use (41%), followed by sexual activity (24%), then violence (14%). Table 3 summarizes these data.

Multivariable analyses revealed that female adolescents were less likely than male adolescents to display references to violence (odds ratio [OR], 0.3; 95% confidence interval [CI], 0.15-0.6), and a trend was noted that they were more likely to display references to sexual behaviors (OR, 1.58; 95% CI, 0.98-2.57). Reporting a sexual orientation other than straight was associated with increased likelihood of displaying references to sexual behaviors (OR, 4.48; 95% CI, 1.27-15.98). Displaying significant church or religious involvement was associated with decreased likelihood of displaying all 4 outcomes (sex: OR, 0.32; 95% CI, 0.12-0.86; substance use: OR, 0.38; 95% CI, 0.19-0.79; violence: OR, 0.12; 95% CI, 0.02-0.87; any of the 3 previously mentioned risk behaviors: OR, 0.36; 95% CI, 0.19-0.7). Displaying significant sport or hobby involvement was associated with decreased likelihood of displaying references to violence (OR, 0.27; 95% CI, 0.09-0.79) and references to any of the 3 previously mentioned risk behaviors (OR, 0.46; 95% CI, 0.27-0.79). Table 4 summarizes these data.

**COMMENT**

Our study results confirm the widespread use of SNSs such as MySpace among sexes, ethnicities, and geo-
An important result from this study is that 24% of 18-year-olds on MySpace displayed self-disclosure of sexual activity, which is a significant finding given the potential risks associated with such practices.

Furthermore, the study found that profiles with references to alcohol use were more common than those with references to tobacco use or drug use. Profiles with references to violence were also more common than those with references to other types of risk behaviors.

The findings of this study have important implications for public health interventions aimed at reducing health risk behaviors among adolescents. For instance, programs that encourage responsible online behavior and promote safe, healthy choices may be effective in reducing the display of risk behaviors on social networking sites.

The study also highlights the need for further research on the factors that influence the display of risk behaviors on social networking sites. Understanding these factors could help in the development of targeted interventions to prevent negative outcomes associated with such behavior.

In conclusion, the display of health risk behaviors on social networking sites is a growing concern for public health. The findings of this study provide valuable insights into the factors influencing the display of risk behaviors on MySpace, which can inform the development of effective interventions to reduce such behavior among adolescents.
ences to church or religion or a sport or hobby reduced the likelihood of the display of references to risk behaviors is of interest—the protective effects of church or religion and sports or hobbies have been seen in survey data that assess adolescent risk behaviors.33—39

We found that reporting a sexual orientation other than straight was associated with the display of sexual content on MySpace profiles. Sexual orientation may affect an adolescent’s identity formation and influence the personal content that is displayed on an SNS. For adolescents who are questioning their sexual orientation, a personal Web profile may provide an avenue for identity experimentation. Thus, SNSs may provide a venue for adolescents’ exploration of sexual identity and a venue to attract potential partners. However, there may be risks to overt sexual displays on personal Web profiles. Homosexual adult men frequently report meeting sexual partners via the Internet, and studies54—56 have shown that meeting gay male partners in this way may carry higher risks of sexually transmitted infections.

Our study has several limitations that warrant mention. First, the validity of self-report on MySpace Web sites is unknown. We evaluated profiles from self-reported 18-year-olds but cannot confirm that all study participants were in fact 18 years old. Our study showed that approximately 10% of our participants reported their age as 18 years on registering with MySpace but then displayed an obvious reference to being an age other than 18 years on their profile. Furthermore, the validity of self-reported behaviors on MySpace Web pages is also unknown. Display of references to a risk behavior may represent engagement in that behavior, consideration of engagement in the behavior, boastful claims, or nonsense. The validity of displaying risk behavior information online has not been completely evaluated, but there are reasons to be concerned that such disclosures reflect either intent or actual behaviors. Previous studies of Internet behaviors have shown that computer use encourages high levels of self-disclosure and uninhibited personal expression, which supports the validity of Internet self-report.13—16 In addition, most teens report that most of their online self-representation reflects their identity but the information about themselves presented on MySpace may not be entirely current.33—35 Finally, previous studies36 also have shown that, even in Web sites designed to promote identity experimentation, such as chat rooms, individuals generally evolved their online presentations to fit their actual identities. Second, our profile search was conducted using the proprietary MySpace search engine. However, we see no obvious way in which it may have biased our findings because there is no evidence that it would systematically select higher-risk teens. Third, we evaluated Web profiles from 1 SNS. The extent to which findings could be generalized to other Web sites is not known. For consistency, and because of the availability of important data fields, we chose the single Web site that is the most popular among teens.5

Despite these limitations, our findings have valuable implications. First, it is important for parents and health care professionals who care for adolescents to have a basic understanding of SNSs and the associated risks and benefits for teens.57 Given the immense popularity of SNSs among adolescents, these Web sites have become an integral part of adolescents’ lives and therefore of their health and safety. Pediatricians often counsel parents that part of being a good parent is understanding where their children spend their time; SNSs are an increasingly important venue in which today’s adolescents spend their time. Although some view SNSs as an adolescent-only scene, it is only by understanding these publicly available Web sites that we can promote safe Internet use among our patients.

Second, SNS technology may someday replace other traditional forms of patient—physician or researcher—subject communication, such as the telephone, or even newer forms of communication, such as e-mail. Recent studies58 suggest that adolescents prefer communicating via SNSs rather than traditional e-mail.

Third, SNSs may provide a new venue to identify teens who are considering or engaging in health risk behaviors. Because current methods fail to identify many adolescents who may be strongly considering or are actually engaging in health risk behaviors, innovative approaches are clearly needed.59—62 Given the popularity of SNSs among teens and the high prevalence of risk behaviors displayed there, SNSs can be explored as an innovative venue to identify, screen, and ultimately intervene with adolescents who display risk behavior information.

Fourth, adolescents need guidance on safe Internet use. Given the dangers associated with displaying personal risk behaviors online, pediatricians need to devise consistent and effective ways to discuss Internet use and health risk behaviors with their patients.

### Table 4. Associations Among Variables Available on MySpace Profiles and Outcomes of Display of References to Sexual Behaviors, Substance Use, Violence, or Any of Those 3 Risk Behaviors on 18-Year-Olds’ MySpace Web Profilesa

<table>
<thead>
<tr>
<th>Variables</th>
<th>Display of References to Sex</th>
<th>Display of References to Substance Use (Alcohol, Tobacco, or Other Drugs)</th>
<th>Display of References to Violence</th>
<th>Display of Any Reference to 3 Risk Behaviors (Sex, Substance Use, or Violence)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female sex</td>
<td>1.58 (0.98-2.57)</td>
<td>0.9 (0.59-1.37)</td>
<td>0.3 (0.15-0.6)</td>
<td>0.86 (0.57-1.3)</td>
</tr>
<tr>
<td>Currently in a relationship</td>
<td>1.19 (0.73-1.94)</td>
<td>0.89 (0.58-1.37)</td>
<td>1.26 (0.68-2.33)</td>
<td>1.13 (0.74-1.73)</td>
</tr>
<tr>
<td>Sexual orientation other than straight</td>
<td>4.48 (1.27-15.98)</td>
<td>2.7 (0.77-9.48)</td>
<td>0.87 (0.17-4.52)</td>
<td>4.3 (0.89-20.56)</td>
</tr>
<tr>
<td>Parent or expecting child</td>
<td>0.84 (0.39-1.83)</td>
<td>1.08 (0.57-2.06)</td>
<td>1.15 (0.48-2.77)</td>
<td>1.3 (0.68-2.5)</td>
</tr>
<tr>
<td>Church or religious involvement</td>
<td>0.32 (0.12-0.86)</td>
<td>0.38 (0.19-0.79)</td>
<td>0.12 (0.02-0.87)</td>
<td>0.36 (0.19-0.7)</td>
</tr>
<tr>
<td>Sport or hobby involvement</td>
<td>0.51 (0.24-1.08)</td>
<td>0.62 (0.35-1.09)</td>
<td>0.27 (0.09-0.79)</td>
<td>0.46 (0.27-0.79)</td>
</tr>
</tbody>
</table>

Odds Ratio (95% Confidence Interval)

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a Also adjusted for time since last log-in, number of friends, number of posted comments, time since last comment, and self-reported ethnicity.
behavior information online, health care professionals should be able to discuss SNS disclosures with their adolescent patients and their parents. Although several organizations have developed educational materials addressing online safety, none specifically address risk behavior disclosures.

Research that involves SNSs and adolescent health is still in its infancy. Further study is needed to assess the validity of SNS disclosures and how to promote healthy behaviors using SNSs.

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Author Contributions: Dr Moreno had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. Study concept and design: Moreno, Parks, Brito, and Christakis. Acquisition of data: Moreno and Brito. Analysis and interpretation of data: Moreno and Parks. Critical revision of the manuscript for important intellectual content: Parks, Zimmerman, Brito, and Christakis. Statistical analysis: Zimmerman and Christakis. Obtained funding: Christakis. Administrative, technical, and material support: Moreno, Parks, Brito, and Christakis. Study supervision: Parks and Christakis.

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REFERENCES


A drug is a substance that when injected into a guinea pig produces a scientific paper.
—Anonymous