When less is more: A web-based study of user beliefs about buprenorphine dosing in self-treatment of opioid withdrawal symptoms

Raminta Daniulaityte,1 Robert Carlson,1 Delroy Cameron,2 G. Alan Smith,2 Amit Sheth2

1Center for Interventions, Treatment, and Addictions Research (CITAR), Department of Community Health, Boonshoft School of Medicine, Wright State University; http://med.wright.edu/citar
2Ohio Center of Excellence in Knowledge-Enabled Computing (KnO.e.sis), Wright State University; http://knoesis.org

Abstract

Aims: There is growing evidence of an alarming increase in the illicit use of buprenorphine in the USA, but our understanding of how use remains limited. This study aims to explore web-based data on illicit buprenorphine use, focusing on user beliefs about the appropriate dosing in self-treatment of opioid withdrawal.

Methods: PREDOSE, a novel semantic Web platform, was used to extract relevant posts from a web-forum that allows free discussions on illicit drug use. The web-forum content was based on the PREDOSE platform where we identified 2,177 posts containing discussions about buprenorphine and opioid withdrawal, covering a time period between January 2005 and September 2013. A random sample of 404 (33%) posts was selected and content analyzed using NVivo.

Results: The number of buprenorphine-related posts increased over time, peaking in 2011. The majority of these posts focused on lower dosage forms of buprenorphine (2 mg or lower) with a total of 97 cases used in standard treatment (16-24 mg/day). Such posts expressed a belief that lower doses of buprenorphine are more effective in the self-treatment of opioid dependence, while the physician-prescribed dose is too high. Thus, prescribed doses can be "conserved" or shared with others.

Conclusions: Social web data suggest that the "less is more" approach to buprenorphine dosing may be fairly prevalent among illicit opioid users and may be one of the contributing factors to the increasing availability of diverted buprenorphine. Our findings highlight the importance of web-based data in drug abuse epidemiology research.

Introduction

Buprenorphine's use in substance abuse treatment in the U.S. has expanded exponentially since its approval in 2002. Simultaneously, U.S.-based reports about its illicit use have also increased.1 Some studies have suggested that in the U.S., diverted buprenorphine is more commonly used for self-treatment than opioid withdrawal symptoms than get less high.2 More research is needed to provide a better understanding of how and why illicit buprenorphine use occurs.

There is a growing recognition that the web provides unprecedented opportunities for drug abuse research. A growing number of users rely on web-based resources not only to seek information, but also to share their experiences and opinions about different drugs. Such user-generated content can therefore be a rich source of data about the web-based drug use, cyber communities, and drug-related discussions. The goal of the study is to analyze web-forum discussions about the illicit use of buprenorphine, focusing on the user attitudes and beliefs related to illicit buprenorphine use.

Methods

A website that allows for free discussion of illicit drugs and is accessible for public viewing was selected for the study. Because posts on the website were made anonymously and intended for public viewing, the University's Institutional Review Board determined the study to be exempt from human subjects review. Nevertheless, to safeguard anonymity, pseudonyms used by forum contributors were anonymized during the data collection; the actual name of the website has been omitted to assure confidentiality. The data extraction and analysis proceeded in the following stages:

1. The PREDOSE Trend Explorer was used to extract data on the frequency of web-based posts that contain any mentions of buprenorphine (Figure 1). For comparative purposes, data on the frequency of oxycodeine and hydrocodeine mentions were also extracted.

2. The PREDOSE Custom Search identified 2,177 posts containing mentions of buprenorphine and opioid withdrawal, covering a time period between January 2005 and September 2013. The Custom Search function in PREDOSE provides a capability to set up search parameters to enable the user to conduct a focused search of keywords in both concepts, distance (number of words) between them, and a time period. Identification of "buprenorphine" and "withdrawal" included relevant brand and slang terms.

3. The posts were uploaded to an NVivo data base. A random sample of 404 (33%) posts was manually coded and analyzed using a framework that combines qualitative and quantitative methods commonly employed in content analysis studies of media communications.

4. All posts of 500 or less words were segmented to assess coding reliability in relation to buprenorphine's dosing. The reliability sample was then independently coded by two coders. Kappa was calculated. Cohen’s kappa scores of 0.40-0.75 indicate acceptable, and above 0.75, indicate excellent agreement.

Results

The overall number of buprenorphine-related posts increased over time (Figure 1). Initially, buprenorphine was less commonly discussed than hydrocodeine or oxycodeine. However, the frequency of buprenorphine-related posts increased substantially over time, and it became more common than hydrocodeine or oxycodone-related mentions (Figure 2).

Out of 404 coded posts, about 20% contained information about the specific amounts of the daily dose discussed on the forum. The majority of the coded posts advocated use of very low doses—2 mg and lower per day—when self-treating opioid withdrawal symptoms (Table 1). The coder reliability assessment indicated excellent agreement between coders in identifying reports of dosing at or below 2 mg per day (Kappa of 0.75) and above 2 mg per day (Kappa of 0.75).

In web-forum discussions about "low dosing," users expressed a belief that buprenorphine is a "counterintuitive" drug that may be more effective at lower doses than at higher doses (Table 2). Many of the dose-related discussions endorsed a view that physician-prescribed doses, typically averaging 16-24 mg per day, are too high, and thus, they can be "conserved" or shared with others (Table 2). In addition, some web-forum participants advocated use of a low amount of buprenorphine in conjunction with an opioid agonist to make reductions from a full agonist to buprenorphine easier and less painful. Such recommendations were especially relevant for those who tended to switch back and forth between buprenorphine and their opioid of choice.

Conclusions

We found that respondents endorsed use of significantly lower amounts of buprenorphine than conventional doses averaging between 18 and 24 mg per day. Lay attitudes that buprenorphine is more effective in lower doses contrast medical treatment protocols and contribute to the increasing use of diverted buprenorphine.

Buprenorphine-related discussions increased over time, peaking in 2011 and 2012. The number of posts was correlated with increases in the amount of rxFF test for research in a popular illicit drug forum. A review. Addiction. 2007;102(3):315-322.

References

1. Cameron D, Smith GA, Blaschke TF, et al. "I just wanted to tell you that..." How the internet is used to research hidden populations of illicit drug users: A review. The number of buprenorphine-related posts increased over time, peaking in 2011. The majority of these posts focused on lower dosage forms of buprenorphine (2 mg or lower) with a total of 97 cases used in standard treatment (16-24 mg/day). Such posts expressed a belief that lower doses of buprenorphine are more effective in the self-treatment of opioid dependence, while the physician-prescribed dose is too high. Thus, prescribed doses can be "conserved" or shared with others.

Conclusions

We found that respondents endorsed use of significantly lower amounts of buprenorphine than conventional doses averaging between 18 and 24 mg per day. Lay attitudes that buprenorphine is more effective in lower doses contrast medical treatment protocols and contribute to the increasing use of diverted buprenorphine.

Buprenorphine-related discussions increased over time, peaking in 2011 and 2012. The number of posts was correlated with increases in the amount of rxFF test for research in a popular illicit drug forum. A review. Addiction. 2007;102(3):315-322.

References

1. Cameron D, Smith GA, Blaschke TF, et al. "I just wanted to tell you that..." How the internet is used to research hidden populations of illicit drug users: A review. The number of buprenorphine-related posts increased over time, peaking in 2011. The majority of these posts focused on lower dosage forms of buprenorphine (2 mg or lower) with a total of 97 cases used in standard treatment (16-24 mg/day). Such posts expressed a belief that lower doses of buprenorphine are more effective in the self-treatment of opioid dependence, while the physician-prescribed dose is too high. Thus, prescribed doses can be "conserved" or shared with others.

Conclusions

We found that respondents endorsed use of significantly lower amounts of buprenorphine than conventional doses averaging between 18 and 24 mg per day. Lay attitudes that buprenorphine is more effective in lower doses contrast medical treatment protocols and contribute to the increasing use of diverted buprenorphine.

Buprenorphine-related discussions increased over time, peaking in 2011 and 2012. The number of posts was correlated with increases in the amount of rxFF test for research in a popular illicit drug forum. A review. Addiction. 2007;102(3):315-322.

References

1. Cameron D, Smith GA, Blaschke TF, et al. "I just wanted to tell you that..." How the internet is used to research hidden populations of illicit drug users: A review. The number of buprenorphine-related posts increased over time, peaking in 2011. The majority of these posts focused on lower dosage forms of buprenorphine (2 mg or lower) with a total of 97 cases used in standard treatment (16-24 mg/day). Such posts expressed a belief that lower doses of buprenorphine are more effective in the self-treatment of opioid dependence, while the physician-prescribed dose is too high. Thus, prescribed doses can be "conserved" or shared with others.

Conclusions

We found that respondents endorsed use of significantly lower amounts of buprenorphine than conventional doses averaging between 18 and 24 mg per day. Lay attitudes that buprenorphine is more effective in lower doses contrast medical treatment protocols and contribute to the increasing use of diverted buprenorphine.

Buprenorphine-related discussions increased over time, peaking in 2011 and 2012. The number of posts was correlated with increases in the amount of rxFF test for research in a popular illicit drug forum. A review. Addiction. 2007;102(3):315-322.

References

1. Cameron D, Smith GA, Blaschke TF, et al. "I just wanted to tell you that..." How the internet is used to research hidden populations of illicit drug users: A review. The number of buprenorphine-related posts increased over time, peaking in 2011. The majority of these posts focused on lower dosage forms of buprenorphine (2 mg or lower) with a total of 97 cases used in standard treatment (16-24 mg/day). Such posts expressed a belief that lower doses of buprenorphine are more effective in the self-treatment of opioid dependence, while the physician-prescribed dose is too high. Thus, prescribed doses can be "conserved" or shared with others.

Conclusions

We found that respondents endorsed use of significantly lower amounts of buprenorphine than conventional doses averaging between 18 and 24 mg per day. Lay attitudes that buprenorphine is more effective in lower doses contrast medical treatment protocols and contribute to the increasing use of diverted buprenorphine.

Buprenorphine-related discussions increased over time, peaking in 2011 and 2012. The number of posts was correlated with increases in the amount of rxFF test for research in a popular illicit drug forum. A review. Addiction. 2007;102(3):315-322.