

## Constructions of Risk and Harm in Online Discussions of Ketamine Use

MELISSA TACKETT-GIBSON

*Sam Houston State University, College of Criminal Justice, TX, USA*

*(Received in final form 1 February 2008)*

### Abstract

This article qualitatively examines the content of online forum discussions of ketamine use in light of theories of Beck's *risk society*. Based on 59 discussions from a reputable harm reduction website, the study finds that online ketamine users are very knowledgeable about the harmful effects of the drug. They view risk and harm as stemming from: (1) the direct physical effects of ketamine; (2) the environment of use; and (3) the economic, social and legal consequence resulting from use. Moreover, they believe that the harmful consequences of use can be mitigated through controlled and safe use practices. These methods of mitigation include practices that ensure the purity of the drug, use in controlled environments with trusted individuals, and limiting the amount and frequency of use. Ultimately, the study finds that online discussions provide a rich exemplar of Beck's theory of contested definitions of risk and harm.

**Keywords:** *Ketamine, drug use risk, risk society, online community, club drugs, internet*

### Introduction

The risks of drug use vary widely across substances. They vary due to the attributes of a substance, the dosage, frequency of use, methods of use, the concurrent use of other substances, as well as the health of the user. Identifying the risks associated with recreational drug use is difficult to say the least. Mitigating them is perhaps even more so. However, those who use drugs weigh the risks of use and employ methods of harm mitigation frequently. Accordingly this article looks at risk construction among users of ketamine.

---

Correspondence: Melissa Tackett-Gibson, Sam Houston State University, College of Criminal Justice, 816 17th Street, Huntsville, TX 77341, USA. Tel.: 936-294-3643. E-mail: tackettgibson@shsu.edu

ISSN 1606-6359 print/ISSN 1476-7392 online © 2008 Informa UK Ltd.  
DOI: 10.1080/16066350801983699

It does so through an analysis of drug-related discussions from a major online drug information website.

The Internet is a ready source of information about ketamine and other “club drugs”. To date there are over 1.7 million websites dealing with various aspects of ketamine use.<sup>1</sup> The content of these sites predominately deals with pharmacological information and use prevention. However, there are websites dedicated to drug information sharing among those involved in the nonmedical use of substances. Websites, such as Erowid.org and Lyceum.org provide a wealth of information on substances of use. Their “virtual” archives offer pharmacological and legal information about specific drugs, as well as information on dosages, methods of use, and physiological effects. Some sites, including DanceSafe.org and the Shroomery.org have active discussion forums and chat rooms in which narratives of use are shared among users.

The ubiquity of online drug information has led some to conclude that the Internet leads to the proliferation of use and harmful consequences (Boyer et al. 2001; Halpern and Pope, 2001; Maxwell, 2005). Few, however, have examined online drug information or online drug-related communities to determine the use of and impact of drug information. In fact current research on the topic suggests that some virtual communities of users are interested in the pleasurable effects of recreational drugs *and* the consequences of use (Murguia et al. 2007). This article examines the perceptions of drug-use risk among those seeking information about ketamine online. Its purpose is to explore definitions of use risk and harm among those involved in an active online drug discussion board.

This discussion is set in the context of Ulrich Beck’s theory of risk society (1992). In short his theory suggests that present-day society is characterized by risk and perhaps more importantly by the constructions of risk by experts and lay constituencies. This article explores the conflict between these constructions – between users’ definitions of risk and prevailing definitions offered by official sources. While the official constructions of ketamine harm are readily outlined in the literature (and in many state sponsored prevention venues), little is known about the extent to which users have identified, discussed and constructed the risks of its use. Thus this article seeks to address the questions posed by Lupton (1999, p. 6): How do those considered ‘at risk’ respond to imposed definitions of harm, and to the proposed behavioral limitations? Moreover, how do individuals determine reliable and trustworthy definitions of risk?

### **Drug use risk in theoretical context**

Recent research has examined notions of risk and harm related to drug use (Moldrup and Morgall 2001; Perreti-Watel and Moatti 2006; White et al. 2006). Pilkington (2007) and others have specifically examined users’ assessment of drug use risks and methods of risk mitigation (Shewan et al. 2000; Hunt et al. 2007). While research related to the specific constructions of ketamine risk and harm is rare, it is burgeoning (Moore and Measham 2006, see also Moore and Measham this volume).

Notably, the theoretical work of Ulrich Beck (1992, 1994) has been utilized in this endeavor (Moldrup and Morgall 2001; Pilkington 2007). To Beck risk has become the organizing feature of society. Social life revolves around a preoccupation with risk and the potential for harm. This results from major transformations in technology and production, as well as changes in the perceptions of technology and its products. Not only has the process of industrialization created goods and services; but it has also developed conditions

ripe with risk (Lupton 1999). For example, while advances in the pharmaceutical industry have made it possible to mass-produce medications, they have also created (as in the case of Oxycontin in the United States) the potential for easy access to a substance considered highly addictive. They have increased the *risk* of nonmedical drug use and addiction.

Risks then are those unintentional consequences of changes in production, communication, science and technology in modern life (Beck 1992; Beck 1994). In contrast to Douglas and Wildavsky (1982), Beck's does not view risk merely as cultural perceptions and products. They are real and potentially harmful (Lash 2000). They are also officially identified, defined and evaluated by 'experts' (Beck, 1994; Giddens, 1994; Adam and Van Loon 2000). In the case of Oxycontin, the drug moved from a method of pain management to a harmful drug when, as "hillbilly heroin", its use was defined as problematic by the media and law enforcement (Borger 2001; Sappenfield 2001). Thus, the meaning of risks and in particular the definitions of the harmful consequences are *constructed*.

In addition to being constructed, risks are also *contested*. They are "changed, magnified, dramatized, or minimized within knowledge, and to that extent [they are] particularly open to social definition and construction" (Beck 1992, p. 23). In risk society, conflict erupts as various interests try to define risk, manage it, modify standards of behavior, and allocate or diminish consequences. Theoretically the use of drugs such as ketamine and the acquisition of online drug information can both be seen as products of Beck's "risk society." Both are products of technological advances in pharmacology and computer networking. The use of ketamine and online drug information are defined as potentially 'risky' behaviors. This is due in part to the fact that online drug information often conflicts with prevalent warnings of harm. It presents a medium in which alternative constructions of use, such as pleasurable use (Hunt et al. 2007), are found.

Moldrup and Morgall (2001) consider all modern drugs high-tech artifacts with high-tech risks. In their account of the development, testing, marketing, and use of fluoxetine (Prozac) they note that market forces in modern society influence the need to aggressively market new drugs. In the case of Prozac marketing not only produced the global demand for a drug, but it also delayed news of side effects and contraindications. Consequently, the risks associated with use were identified years after the drug had gained widespread use. As Moldrup and Morgall (2001) note, even if procedures and reviews aimed at harm prevention were in place, the relative speed of the drug development process and market demands worked to ensure that public could have been exposed to unseen long-term drug use risks.

Since, "the consequences of drugs are invisible to individuals ...[they are] highly dependent on cultural and scientific interpretation" (Moldrup and Morgall 2001, p. 71). Scientific, commercial and governmental voices weigh in on the debate surrounding new substances. These debates frequently reveal the conflict between "lay" and "expert" opinion. As Adam and Van Loon note, the process of risk definition is highly political (2000). Therefore, various and contested assessments of risk and risk consequence struggle for authority.

With the development of the Internet, and more importantly the growth of online communities, various groups previously excluded from the public discourse defining risk, now frequently participate. They contribute competing views of risk and harm often in stark contrast to those offered by "official" authoritative sources. Online drug-related communities develop their own experts, redefine drug use risk and establish methods of managing the consequences of risky behavior (Tackett-Gibson 2007). In fact it is the proliferation of "lay" online information that is the perceived risk of the Internet. The use of online information, which may or may not be complete or accurate, is uncertain and unpredictable. Political efforts to control its content and minimize the risks of "misinformation" are ineffectual due

to its global reach. Thus the perceived harm of the Internet is that it broadens access to drug use information and has the potential to introduce nonusers to use. However, the Internet may also play an important role in harm reduction to the extent that developing lay definitions of risk also define aspects of use as harmful and advocate methods of harm mitigation.

## Methods

This research began in Fall of 2001 as an ethnographic examination of online communities engaged in the exchange of drug using information. At that time the debates concerning the ethics of Internet research were emergent (Jones 1994; Frankel and Siang 1999). Our intention was to collect information publicly available online, however, given the sensitive nature of the discussions, we elected to inform websites of the project and solicit permission to collect data from those sites. Initially, three large online drug information websites were recruited for participation to the study. Website administrators were offered detailed descriptions of the research goals including its governmental sponsorship. They were asked to allow researchers to disclose the research to website members and to interact fully in online discussions. The sites were also asked to participate in the development and the administration of an online survey of forum participants; to review findings; and to provide review and comment on research reports. In essence they were invited to partner in the research enterprise.

One website declined participation citing concerns that forum participants would confuse research activities with online law enforcement surveillance in the US. It was assumed that even a research presence would discredit the website's reputation of being an objective and "safe" source of drug information. One website did not respond to the solicitation and another expressed an active interest in the project. This was notably due to the fact that the website's server was located outside of the United States and was maintained by individuals residing in North America, Europe and Australia. Since the website had a large international membership, there were reportedly few concerns about US. law enforcement activities (DrugSite Administrator, personal communication, May 15, 2002). Thus, research data were collected from this large, reputable drug-related website, referred to in this article as "DrugSite".

The parameters of research activities were generally established by website administrators and moderators. At their request, our data collection activities were limited to reading, archiving active forum discussions and searching website content and archives. The presence of a researcher/lurker in the forums was not disclosed to participants, nor was it made explicit that the website was collaborating in the project until the survey was administered. Moderators believed that the disclosure of the project might hinder the free exchange of information and impact perceptions of trust in the community, albeit one that interacted in a medium that was publicly accessible online. Although, participants were not notified of the project or provided an opportunity to consent to participation, DrugSite users were required to register with the site and "agree" to terms of use. These terms explicitly notified users that forum communication was the property of the website and nonconfidential.

Still the protection of participants was of utmost concern (Capurro and Pingel 2002). Participants on the website often used elaborate user names. Some of these names could easily be linked to other websites, forums and other sources of personal information. Therefore, we could not assume that user names alone provided anonymity (Bassett and O'Riordan 2002; Walther 2002). Personal identifiers were also used on occasion in the

course of discussions. Thus methods were employed to protect participants' anonymity. For example, disclosed personal identifiers were excluded from data files, with the exception of age and gender. User names were also assigned fictitious names for purposes of reporting. Similarly, the website and the names of the actual discussion forums are assigned pseudonyms.

### *Research data*

While the original research design called for the use of ethnographic methods, much like those described by Kozinets (1998), efforts were limited to observing online interactions. During 2001 to 2003 I closely followed club drug-related discussions at DrugSite. Large amounts of data were collected through reading daily posts. However, due to the volume of discussion on the site, it was often necessary use the website's search engine to identify discussions across all forums on a specific topic. Transcripts for this article appeared in discussion threads occurring between 2001 and 2003. They were selected from those archived on the site and available through the site's search engine.

The topic of ketamine was typically discussed on two active forums, "The Harder Stuff" and "Psychedelic Dreams". Forum moderators often culled through the discussion threads and deleted off-topic or unnecessarily repetitive threads prior to archiving. So the actual number of threads referencing the topic is unknown. It is reasonable to assume however, that those identified for the current analysis were representative of threads considered helpful and relevant to users by the moderators. A search of the archives yielded 120 threads containing a reference to ketamine in the title. From those I selected the threads that were most active in terms of the number of participants (at least five distinct participants per thread) and the number of responses (at least 10 replies to the original post). Ultimately, 59 discussions were selected for analysis.

Analyses of the transcripts included the use of both predefined thematic categories congruent with the research question and the subsequent use of categories that emerged from the data (Miles and Huberman 1994). The predefined categories included: (1) user's characterizations of ketamine risks; (2) the ways in which user's evaluated claims of harm; and (3) the ways in which users sought to mitigate harm. The transcripts were initially coded by the broad thematic categories. Additional readings of the transcripts refined the predefined codes, developed sub-categories within broad codes, and developed new codes. The analytic process closely followed that described by Strauss and Corbin (1990) as open coding.

Excerpts from texts that illustrate the major findings are presented below. References to the texts are bracketed and provide the user's pseudonym, the name of the forum on which the discussion occurred, and the year in which the discussion took place. Online texts are fraught with errors in grammar and spelling. The excerpts in this article are presented just as they were written online, including errors or colloquial references.

### *DrugSite*

At the time of the study, the DrugSite offered information archives and dozens of discussion forums related to specific substances, methods of use, and dangerous drug interactions. It should be noted that the site also had very active discussion forums dedicated to nondrug topics, such as current events, the arts, and religion and politics. In fact, website statistics indicated that activity in drug-related forums accounted for only 18% of the site's daily

traffic (DrugSite Administrator, personal communication, July 2, 2002). During the study, DrugSite had over 35,000 registered members, 75,000 active threads of discussions, and more than 850,000 individual posts. Today the site has grown much larger in terms of registrants and active forums with nearly 80,000 members; 200,000 active threads and 3.5 million posts. The website was popular not only in the United States, but also in Britain and Australia; and references to parties, drug availability and prices in these locations were common.

Much of the website's content was congruent with the messages of the harm reduction movement. In fact DrugSite's introduction formally advocated "harm reduction" and the education of participants so that "short-term disasters" and "long-term negative consequences" could be avoided (DrugSite, "Our Mission", 2003). The site was designed to be a peer education network that shared information in a "nonbiased" and nonthreatening atmosphere.

### *Discussion participants*

Both males and females participated in the selected discussions, although due to the nature of online communication it was difficult to determine the number of men or women that contributed to the discourse. Similarly determinations of participants' age, occupation or race cannot be made. In general, few personal details were shared in the public forum, though it was clear that several active participants had met one another face-to-face and spoke frequently offline. All of the discussion participants directly acknowledged the use of ketamine or interest in its use. Participants loosely fell into four distinct groups of users: (1) those that had little experience with ketamine and wanted to obtain drug information; (2) those who had used ketamine but "didn't like it"; (3) those who had a great affinity for the effects of ketamine, a good deal of experience with its use, and were current users; and (4) those who had an affinity for the drug's effects, a history of high levels of ketamine use, and were currently limiting or quitting its use. Those participants with long-term experience with the drug were afforded the most deference and respect within conversations. Similarly, those well versed in harm reduction strategies and those with knowledge of pharmacology and/or neurochemistry were also considered "very knowledgeable", or "experts" on the topic.

### **"Official" constructions of ketamine risk**

The literature identifies many potentially harmful effects of ketamine. In addition to its immediate dissociative effect, ketamine is said to cause short-term dizziness, confusion, blurred vision, paranoid ideation and insomnia (Weiner et al. 2000; Britt and McCance-Katz 2005; Copeland and Dillon 2005; Wolff and Winstock 2006). The ability to learn and attentiveness may also be impaired; and according to some, users may experience flashbacks for several days or weeks after use (Freese et al. 2002). At very high doses, the drug is said to cause high blood pressure, depression, and potentially fatal respiratory responses (Maxwell 2005).

While relatively little is known about the long-term effects of the drug, some studies suggest it may impair cognition and memory for extended periods of time following use (Morgan et al. 2004; Morgan and Curran 2006). Additional case reports also indicate that dependence may develop with frequent, high-dose usage; and that withdrawal symptoms may become manifest upon a reduction in use (Critchlow 2006).

Ketamine is also said to pose risks associated with the circumstances of use. These include the risks of needle sharing for those who use the drug intravenously, drug interactions, and high-risk sexual behavior (Breen et al. 2006, see also Oser et al, this volume). Dillon et al. (2003) also note the potential risks linked to the environment such as falls, drowning, serious accidents, and sexual or criminal victimization. Still to date, there is a lack of research examining the health impact of typical recreational doses of the drug, variations in use patterns and length of use, or the use of ketamine in combination with other substances.

### Online constructions of risks and harm

DrugSite participants discussed various aspects of ketamine use online and in the process constructed definitions of risks and harm. Of the 59 threads assessed, one third mentioned safe usage practices and the potential consequences of ketamine use. In addition to topics related to risk definition, participants discussed drug preparation, dosage and methods of use and methods of enhancing pleasurable drug effects or mitigating. Approximately a quarter of the 59 threads examined were dedicated to discussions of “cooking” liquid ketamine into a powder and flavoring powdered ketamine. Similarly, participants shared “recipes” for dosages, drug use combinations, and settings that increase the desired drug-induced effects.

However, it was the discussion of harm that illustrated the sophistication of many of the users of ketamine online. Site members were well aware of the prevalent perceptions of ketamine harm (see also Moore and Measham, this volume). Several were able to discuss the pharmacological properties of the drug, its chemical make-up and how it was processed in the body. One member noted that, “K users are different. They often have a little more knowledge [than raver kids]. . . they’re just a different type of user.” Users frequently compared the harms associated with ketamine to those of other drugs such as ecstasy, LSD and other club drugs and psychedelics. In contrast to PCP and ecstasy, ketamine use was considered a relatively safe choice for recreational use. For example, users often echoed this statement from Caspar, “. . . there is no such thing as a safe drug, but I would say this one if used correctly is a good one. Safer by far than ecstasy.”

Though considered generally “safe”, users often discussed problems associated with ketamine use. Again, it was through these narratives that they constructed ‘risky’ ketamine use and its resultant consequences. The definitions of the harmful effects of ketamine reaffirmed and even expanded ‘official’ notions of harm. In other instances, they rejected claims of long-term negative effects and reworked definitions of harm. For example, users viewed the health risks of use as only one source of drug use harm. Harm also arose from the environment of use; “economic risks” such as victimization through fraud; the legal consequences of purchase and use; and the social consequences of drug testing.

### *Constructions of health consequences*

Discussion participants exhibited a good deal of knowledge about the physical side effects of use that are articulated in the literature. They also frequently cited experiencing problems similar to those constructed in the “official” literature. They recounted periods of slurred speech; an inability to speak or to “find the right words” when spoken to; memory problems; and nausea, and stomach pain and discomfort (attributed to snorting ketamine).

Several offered personal accounts of the health problems they attributed to their use. As Karmakitty recounted:

“... I was quite awed by the drug so... I started to snort too much. What I wanted to share is that my memory is shot now. I can’t think of simple words. ... When someone asks me a question I draw a complete blank. I couldn’t remember what shirt I wore yesterday, ... please any input?” (Psychedelic Dreams 2002).

Some of the chronic users on the boards cited more serious effects that lasted weeks or months after the discontinuation of use. These included kidney problems; the exacerbation of other illnesses; frequent moments of “*déjà vu*”; depression and lethargy; persistent feelings of being “detached from reality”; intense loneliness; and lastly, paranoia and “egocentrism”, or feelings and beliefs that common circumstances all point to the importance of user’s existence. In the discussions, most attributed their problems to high levels of frequent use rather than moderate or occasional use.

Others referenced serious psychological problems that they associated with use. For example, K-Bomb became worried when he “felt more at home in K-land” than in the “real” world. Dancing Queen recounted that after weeks of very heavy use, she and her boyfriend became “delusional, almost schitzo.” Her boyfriend, she said, became severely depressed. Both however, continued to use and still enjoyed “the out of body experiences” but they reduced the frequency of their use.

In spite of fact that the medical literature cites only a few rare accounts of ketamine addiction, most ketamine users online believed that ketamine was potentially seriously addictive. Caspar, one the site’s most outspoken members on ketamine’s harmful consequences, admitted his own addiction to the drug:

“... [My use got out of control,] to the point where I was injecting it twice or more a night. I started to exhibit some very odd side-effects. ... I am talking about days afterward. Some signs of real damage and I am man enough to admit it, it scared the f\*\*\* out of me. ... Addiction is a scary thing. I’ve had to quit cold turkey and it took a while to feel back to ‘normal’” (The Harder Stuff, 2001).

Silver, an avid use of morphine and other narcotics, believed that ketamine was one of the most addictive substances he had ever taken, “It can be both physically and psychologically addictive. The weird thing is [you can use it a lot] and never feel like an addict.” PShiff concurred, “when you are on the stuff you never want to stop.”

While some users insisted that the ketamine addiction was psychological rather than truly physical in its manifestation, most narratives emphasized the physiological characteristics of its addiction and withdrawal. Sherbert remembered, “I was physically sick for a full 30 days, ... it makes heroin addiction look like the sniffles!” She warns other users:

“Yes, K has a low potential for addiction. ... Once you’re there, however, it’s a monster. A low potential for addiction says nothing about the severity of the addiction. ... [With me] acute withdrawal was felt for at least two weeks. Chronic symptoms were felt for no less than 8 months” (Psychedelic Dreams, 2002).

In spite of these experiences, most of those involved in discussion of ketamine spoke of continued, but more cautious use of the drug. Few explicitly stated that they would quit use completely. Most considered their experiences with ketamine side effects, and even “addiction”, a warning to “slow down” or to be mindful that they had to use “safely” and “wisely”.

*Expanded constructions of risks and harm*

*Environmental risks.* In addition to the concerns about the physical harm of ketamine use, forum participants also acknowledged that the environment of use presented risks as well. Narratives explaining the need to control the setting of use echoed those found in official sources (Dillon et al. 2003). Some considered these risks to be greater than the physiological effects of ketamine. For example, PharmaceuticalSam advised new ketamine users that, “the only way you’re likely to suffer any immediate harm from K is if you hurt yourself [by falling or something]”. Cherubim continued by reminding users that “coordination is shot” while on the drug and that use should be managed in a predictable and safe environment.

Several described instances in which they had “acted out”, or gone “sleepwalking” during a ketamine trip. In the narratives users were often intermittently aware of their actions. They felt unable to prevent or control where they went or their behavior in a specific place:

“There has been several times where I have walked around during my K-hole . . . the last time I did this, i ended up kickin it in my downstairs bathroom and then bolting upstairs just to sit in the upstairs bathroom as well. I only remember bits and pieces of the hole . . .” (P\_Shift, *Psychedelic Dreams*, 2002).

Overall “acting-out” did not seem to be a great cause of concern among users – most had not had the experience while using the drug. However, one user did note that the potential for “acting out” impacted his decision to give up ketamine. IV\_Lover confessed that the loss of physical control he experienced while on the drug concerned him. According to his account he had, “acted out K-holes a few times [so] I stopped using it.”

*Economic, legal and social risks.* In contrast to the official accounts of drug use risks, users online expanded the notion of risk and harm to include not only the physical consequences of use, but also the economic, legal and social harms that resulted from the drug. Approximately 10% of the discussions included references to these types of risks. Many complained of “being cheated”, or paying too much for poor quality ketamine powder. A relatively new ketamine user complained that she had received a “pink” ketamine powder that upon use had poor dissociative effects. Another user believed she had obtained a ketamine mix rather than pure ketamine. KetaMatt advised her to, “either start using the liquid from sealed vials or find another source. It’s too easy to get ripped off from people selling powders” (*DrugSite – The Harder Stuff*, 2001).

Similarly site members shared stories and advise concerning the legal risks of use. Users were generally familiar with the legal penalties associated with the sale and use of the drug and in discussions considered the legal risks of importing ketamine from overseas sources or purchasing it through online sources. MrBig warned against buying ketamine from international suppliers:

“Customs knows all of the places selling bulk. . . the [customs agents] did a controlled delivery on me and raided my house. . . I’m out on bond now, my lawyers fees are through the roof. . . It’s not worth it now that I know how easy it is to get caught” (*DrugSite – The Harder Stuff*, 2001).

Lastly, some users expressed concern that ketamine use could provide a false positive of PCP use on routine drug tests. While the degree to which this was a “real” risk was widely debated, some users reported personal accounts of false positives. One site participant believed a “bad drug test” was as potentially as harmful as the physical consequences of the

drug. She reminded forum members to use wisely, as she had, “watched two good friends lose their careers over K/PCP results”.

*The contested constructions of harm: assessing the ‘official’*

It is important to note that the process through which ketamine risks were constructed were frequently contentious. Not only did members of the DrugSite doubt and question the drug use experiences of others on the site, but they also debated the meaning of published research results on ketamine risk. In essence they were, as Beck describes (1994), contesting the results of the scientific establishment and developing meaningful and “legitimate” lay definitions of harm. For example, several discussions focused on recent health research related to ketamine use and Olney’s lesions,<sup>2</sup> other forms of brain damage, and physical addiction and withdrawal. These discussions drew intense debates over both the legitimacy of research on ketamine harm and on the claims of physical addiction and withdrawal symptoms.

Members frequently cited the work of John Lilly, John Olney, Karl Jansen and William White’s essay on dissociatives as found on Erowid. Some believed that brain damage was a probable consequence of ketamine use. They also considered it reasonable to assume that this damage could also lead to long-term memory problems. As Caspar reports:

“Both Jansen’s book [*ketamine: Dreams and Realities*] and White’s essay are great places to learn about the effects of ketamine on the brain. . . . I will sum it up:

Fact 1– brain damage from ketamine has been documented in some animals. . . . In smaller animals it manifests as Olney’s lesions.

Fact 2 – studies on primates did not show this damage, but [Jansen] states that the monkeys may have been too young to show damage.

Fact 3 – none of the studies have been long-term . . . Bottom line – until safety is clearly established you take a leap of faith” (Psychedelic Dreams, 2001).

Not quick to rely upon those sources, PapaRoche and MescaLyn argued that the research on brain damage, especially Olney’s study, offered inconclusive evidence at best that damage occurred. They believed that many of the conversations highlighting brain damage and permanent memory loss presented errors and created “panic” among users. According to PapaRoche research suggests that moderate use over short-periods of time was “infinitely” safer than most club drugs and was rarely associated with serious short-term or long-term side effects. Similarly, MescaLyn believed that talk of brain damage was the result of present-day attitudes toward drugs: “Drug use is the boogey-man of our age.” Many of the claims of felt side effects, he argued were exaggerated or psychosomatic simply because new users are told drugs cause health problems. Ultimately, Pastiche reminded members that “the debate about whether ketamine is neurotoxic is detracting from the anecdotal evidence that WHEN ketamine is abused, the [problems] are VERY real dangers.” Similarly, most forum members would have agreed with Peterhof:

“Research into the long-term impact of K use is still in it’s infancy, much like the research into MDMA use was a decade ago. Now the evidence is strong that MDMA is a harmful drug, and it’s looking like K will be the same. Having said all that, I like K very much”. (The Harder Stuff, 2001)

Ketamine, like many other drugs discussed at DrugSite was considered potentially harmful. However, its harmful effects were believed to be (in comparison to other hallucinogens) minor and quite manageable (see also Moore and Measham, this volume).

Ketamine risks were associated with physical health effects, environmental causes of injury or harm, and social harm. Even so, the harmful effects of ketamine were not considered a serious concern of those who infrequently used small amounts of the drug and controlled their use and use environment.

There was not consensus, however, concerning the harmful effects of chronic, frequent use. The “reality” of long-term effects and addiction were vigorously debated. Various experts were cited to bolster views of harm, including both “scientific” and “experiential” experts (Adam and Van Loon 2000). Forum members were well versed in the scientific literature. They also cited their own work and experience in health related disciplines as evidence of their ability to interpret research results. Accordingly, sound scientific research had the capacity to accurately define harm; and scientific definitions of harm would ideally be authoritative. However, by and large the group considered the present-day scientific evidence limited and nascent. So while scientific evidence was critical to harm definition, the current research on ketamine was inconclusive and open to debate.

## Conclusion

In the absence of clear scientific evidence of harm, members put great confidence in the experience of other website members – when scientific knowledge was contested or insufficient the community’s experience defined real risk and harm. Several of the accounts of addiction were offered by long-time members of the community and experienced drug users. Their narratives of personal experiences with ketamine addiction, coupled with a position of respectability within the community, offered them “expert” status. When the “reality” of physical addiction was debated, an addiction narrative provided a cautionary reminder for limited use.

Thus, DrugSite provides a strong exemplar of the process of risk assessment and construction in what Beck called the *risk society*. When little credible information related to ketamine use and consequences is available, users through various “risk narratives” establish “correct” behaviors, primarily those of moderate and controlled use. Beck’s theory of risk society then is particularly useful in an examination of both ketamine and online forums. While ketamine and online drug information may be considered potentially harmful technological products, we see online venues being used as sites of “lay” risk construction. In this setting, while the harmful consequences of use are not considered serious for the casual user, the narratives routinely emphasize controlled and moderate use. Thus, the online forums, rather than simply introducing user to new and potentially dangerous drugs, highlight and potentially reduce the harmful consequences of use. In this virtual environment people are not only able to explore risks such as drug use but also those behaviors, positive and negative, associated with harm. Those on DrugSite use technology and access to scientific information to work to make sense of the risks of ketamine. As a result ketamine users involved in online discussions promote limited and safe use practices.

## Acknowledgment

Collection of data for this article was made possible by funding from the National Institute on Drug Abuse (R21-DA 014882).

**Declaration of interest:** The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

## Notes

1. This number includes only those active websites available in English via Google search engine.
2. The term “Olney’s lesions” was coined to describe the presence of small damaged areas, or lesions, in the cortex of the brain following exposure to dissociative anesthetics in rats. This research was conducted by John Olney and associates and published in scientific journals such as *Science*, *Neuroscience* and *Neuropsychopharmacology*. Results are widely reprinted online at drug information websites such as Erowid and Lyceum.

## References

- Adam B, Van Loon J. 2000. Introduction: Repositioning risk; the challenge for social theory. In: Adam B, Beck UJ, Van Loon J, editors. *The risk society and beyond: critical issues for social theory*. Thousand Oaks, CA: Sage Publications.
- Bassett EH, O’Riordan K. 2002. Ethics of Internet research: Contesting the human subjects research model. *Ethics and Information Technology* 4:233–247.
- Beck U. 1992. *Risk society: Towards a new modernity*. Thousand Oaks, CA: Sage Publications.
- Beck U. 1994. The reinvention of politics: Towards a theory of reflexive modernization. In: Beck U, Giddens A, Lash S, editors. *Reflexive modernization: politics, tradition, and aesthetics in the social order*. Stanford, CA: Stanford University Press.
- Borger J. (2001, June 25). Hillbilly heroin: the painkiller abuse wrecking lives in West Virginia. *The Guardian Unlimited*. Retrieved December 6, 2007, from <http://www.guardian.co.uk/print/0,4209600-107226,00.html>.
- Boyer EW, Shannon M, Hibberd PL. 2001. Web sites with misinformation about illicit drugs. *New England Journal of Medicine* 345:469–471.
- Breen C, Degenhardt L, Kinner S, Bruon R, Jenkinson R, Matthews A, Newman J. 2006. Alcohol use and risk taking among regular ecstasy users. *Substance Use & Misuse* 41(8):1095–1109.
- Britt GC, McCance-Katz EF. 2005. A brief overview of the clinical pharmacology of “club drugs”. *Substance Use & Misuse* 40:1189–1201.
- Capurro R, Pingel C. 2002. Ethical issues of online communication research. *Ethics and Information Technology* 4:189–194.
- Copeland J, Dillon P. 2005. The health and psycho-social consequences of ketamine use. *International Journal of Drug Policy* 16:122–131.
- Critchlow DG. 2006. A case of ketamine dependence with discontinuation symptoms. *Addiction* 101:1212–1213.
- Dillon P, Copeland J, Jansen K. 2003. Patterns of use and harms associated with non-medical ketamine use. *Drug and Alcohol Dependence* 69:23–28.
- Douglas M, Wildavsky A. 1982. *Risk and culture. An essay on the selection of technological and environmental dangers*. Los Angeles CA: University of California Press.
- Frankel MS, Siang S. 1999. Ethical and legal aspects of human subjects research on the internet: A report of a workshop, June 10–11, 1999. Retrieved June 15, 2001 from <http://www.aaas.org/spp/dspp/sfirl/projects/intres/report.pdf>.
- Freese TE, Miotto K, Reback CJ. 2002. The effects and consequences of selected club drugs. *Journal of Substance Abuse Treatment* 23:151–156.
- Giddens A. 1994. Living in a post-traditional society. In: Beck U, Giddens A, Lash S, editors. *Reflexive modernization: politics, tradition, and aesthetics in the social order*. Stanford, CA: Stanford University Press.
- Halpern JH, Pope HG. 2001. Hallucinogens on the Internet: a vast new source of underground drug information. *American Journal of Psychiatry* 158:481–483.
- Hunt G, Evans K, Kares F. 2007. Drug Use and Meanings of Risk and Pleasure. *Journal of Youth Studies* 10(1):73–96.
- Jones R. 1994. The ethics of research in cyberspace. *Internet Research* 4(3):30–35.

- Kozinets RV. 1998. On netnography: Initial reflections on consumer research investigations of cyberculture. In: Alba J, Hutchinson W, editors. *Advances in Consumer Research*. Provo, UT: Association for Consumer Research. Vol. 25. pp 366–371.
- Lash S. 2000. Risk culture. In: Adam B, Beck U, Van Loon J, editors. *The risk society and beyond: critical issues for social theory*. Thousand Oaks, CA: Sage Publications.
- Lupton D, (editor) 1999. *Risk and sociocultural theory: New directions and perspectives*. New York, NY: Cambridge University Press.
- Maxwell JC. 2005. Party drugs: Properties, prevalence, patterns, and problems. *Substance Use & Misuse* 40:1203–1240.
- Miles MB, Huberman AM. 1994. *Qualitative data analysis: An expanded sourcebook*, . 2nd ed.. Newbury Park, CA: Sage Publications.
- Moldrup C, Morgall J. 2001. Risk society—Reconsidered in a drug context. *Health, Risk, and Society* 3(1):59–74.
- Moore K, Measham F. 2006. Ketamine use: minimising problems and maximising pleasure. *Drugs and Alcohol Today* 6(3):29–32.
- Morgan CJ, Curran HV. 2006. Acute and chronic effects of ketamine upon human memory: A review. *Psychopharmacology* 188:408–424.
- Morgan CJ, Monaghan L, Curran HV. 2004. Beyond the K-hole: A 3-year longitudinal investigation of the cognitive and subjective effects of ketamine in recreational users who have substantially reduced their use of the drug. *Addiction* 99:1450–1461.
- Murguia E, Tackett-Gibson M, Lessem A. (editors). 2007. *Real drugs in a virtual world*. New York, NY: Lexington Books.
- Peretti-Watel P, Moatti J. 2006. Understanding risk behaviors: How the sociology of deviance may contribute? The case of drug-taking. *Social Science & Medicine* 63:675–679.
- Pilkington H. 2007. In good company: Risk, security and choice in young people's drug decisions. *The Sociological Review* 55(2):373–392.
- Sappenfield M. (2001, July 12). Rise of 'hillbilly heroin' creates alarm in the east. *The Christian Science Monitor*. Retrieved December 6, 2007, from <http://www.csmonitor.com/durable/2001/07/12/p1s3.htm>.
- Shewan D, Dalgarno P, Reith G. 2000. Perceived risk and risk reduction among ecstasy users: the role of drug, set, and setting. *International Journal of Drug Policy* 10(6):431–453.
- Strauss A, Corbin J. 1990. *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage Publications.
- Tackett-Gibson M. 2007. Voluntary use, risk and online drug-use discourse. In: Murguia E, Tackett-Gibson M, Lessem A, editors. *Real drugs in a virtual world*. New York, NY: Lexington Books.
- Walther JB. 2002. Research ethics in Internet-enabled research: human subjects issues and methodological myopia. *Ethics and Information Technology* 4:205–216.
- Weiner AL, Vieira L, McKay CA, Bayer MJ. 2000. Ketamine abusers presenting to the emergency department: A case series. *The Journal of Emergency Medicine* 18(4):447–431.
- White B, Degenhardt L, Breen C, Bruno R, Newman J, Proudfoot P. 2006. Risk and benefit perceptions of party drug use. *Addictive Behaviors* 31:137–142.
- Wolff K, Winstock AR. 2006. Ketamine: From medicine to misuse. *CNS Drugs* 20(3):199–218.