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Valium: Its Uses and Abuses

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VALIUM: ITS USES AND ABUSES

by

Jeffery A. Hardy

A thesis submitted in partial fulfillment
of the requirements for graduation
in
HONORS

Approved:

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UTAH STATE UNIVERSITY
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1980
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Most importantly, my thanks go to my dear wife Lu Ann, without whose love, concern, and clerical abilities I never would have gotten anywhere.

--Jeffery A. Hardy
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Between the months of June 1978 and June 1979, I was employed at Sunshine Terrace, a nursing home in Logan, Utah. In the year I spent there working as an orderly on the wing for incontinent male patients, I was exposed to a lot of things of which I had previously been unaware.

One which I observed was the liberal use of medications. At each nurses' station there was a small room which contained about six cabinets full of prescription drugs for the forty or so patients on that wing. At least every four hours the medication nurse would prepare a cart, filling a little cup with pills and capsules for each patient. Through questioning of these nurses I discovered that a lot of medications were solely prescribed to keep the patients sedated. One nurse told me that "the place would be a madhouse" if all the people that were on sedation were suddenly taken off. In experiences I had with unruly, uncognizant patients I could understand the reason for such use of drugs. But I wondered if some people weren't overmedicated.

At the same time, I had heard and read much from the media about the liberal use of Valium, an anti-anxiety agent. I wondered if it was used extensively at the nursing home. After investigating this, I found that there did not seem to be much use of it at Sunshine Terrace. But my curiosity had been piqued and I wanted to know if Valium use in America was as extensive as the sedative medications seemed to be at the nursing home.
Originally I intended to focus on nursing home use of Valium. But initial research into the literature showed little had been done in that area. I focused my attention instead on claims of abuse of Valium by the general populace. The articles I had read and the presentations I had seen made Valium sound like a drug gone bad. So I made a literature search to see if I could ascertain the truth of those accusations. The report which follows is the result of that search. It is limited by the materials which were available to me. Actual laboratory research into the problem would have been more desirable but the limitations of my finances and limited research experience made it impossible.
INTRODUCTION

Valium (medical term: diazepam) is the most widely prescribed of any drug in the United States and has been for at least the last six years (1,2). According to one survey in 1972, prescriptions at that time for Valium and its sister drug Librium accounted for half of all psychotherapeutic drug use in the U.S. (1). Another analysis claims that Valium and Librium are used by one in ten American adults each year (3). Such staggering statistics, coupled with the current media accusations of overuse and abuse of not only Valium but a variety of prescription drugs, led me to examine the use and alleged abuse of Valium.
HISTORY

A better understanding of the nature of the Valium controversy can perhaps be gained by an understanding of the history behind the birth of the drug.

In 1952 chlorpromazine hydrochloride was synthesized and found to be an effective drug treatment for schizophrenia. Until that time, there had been no specific psychiatric drug treatments, only sedatives and stimulants. The discovery of chlorpromazine led to an intensified search for other specific chemical remedies to psychological problems. Drugs for depression were developed. Then, between the latter half of the 1950's and the first half of the 1960's, a number of sedatives specific for neurotic anxiety (termed "minor tranquilizers") were introduced to the medical profession. Miltown (meprobamate) was the first, brought on the market in 1955 by Wallace Laboratories.

Miltown was an immediate success. Encouraged by its acceptance, drug companies turned their efforts to developing other, more effective tranquilizers. In 1960 Hoffmann-LaRoche, a Swiss firm with its American base in Nutley, New Jersey, marketed the drug Librium, a member of the family of drugs called benzodiazepines. The story behind the discovery of this drug, and ultimately of its sister drug Valium, (or at least the story as it has reached us through interviews with its inventor, Leo Sternbach, by media journalists) is one of great interest (4,5).

Leo Sternbach is a polish-born Jew, and the son of a Cracow pharmacist. He attended college, receiving a Master's degree in pharmacy and a PhD in chemistry. Nazi anti-Semitic pressure prevented him from entering into academia so Sternbach turned to the pharmaceutical
job market. In 1939 he joined the Swiss firm of Hoffmann-LaRoche, centered in Basel. The following year he was transferred to the firm's Nutley, New Jersey plant, where he has remained since.

When the push came to develop new tranquilizers, Sternbach remembered a group of compounds he had studied in Cracow, the benzheptoxdiazines. He synthesized many of their derivatives and sent them for testing. None of them were effective and Sternbach turned to other things. A year and a half later in 1957 during a major clean-up of his lab, he discovered two samples from his benzheptoxdiazines work. He had not tried all of the possible reactions on these compounds and decided he would try them out before throwing them away. He tried a reaction with one of the samples and then sent it to be tested.

To Sternbach's amazement, the new compound was very effective in reducing neurotic anxiety (6). Sternbach had had no idea that the compound would be an effective tranquilizer, he had only felt that he should not leave work undone. The structure of the new compound was determined in 1958 and it was named Librium. It was approved by the FDA and marketed in 1960.

During the time that these legalities were being taken care of, Sternbach was busy trying out variations of his compound - 149 in all. One of these variations was shown to be much more potent than the others and was no more toxic. It was also found to have muscle-relaxant and anti-epileptic effects (7). The structure of this compound was established in 1961 and it was approved by the FDA and marketed in 1963 as Valium. Although the discovery of this drug has been heralded as "the biggest pharmaceutical discovery that was ever made" (4) by Leo Sternbach himself, there are those who worry about the abuse and/or overuse of Valium by a large number of Americans.
USAGE

The aforementioned wide use of Valium is not without a number of substantial positive benefits. The drugs which Valium and its companion drugs (collectively termed the benzodiazepines) replace, such as barbiturates, meprobamate (Miltown), and hydroxyzine, are inferior to the benzodiazepines in many ways. They can be easily fatal if taken in overdose because they depress the respiratory center of the brain and the patient stops breathing. Tolerance to these drugs is achieved very rapidly and they are often abused. In addition, withdrawal can be severe (1).

The benzodiazepines, however, and Valium in particular, have side effects much milder than the above-mentioned drugs but are just as effective (1). If used even in large amounts they have usually little or no overdose potential (1,8). Tolerance and withdrawal problems occur only in isolated cases (1,8). They have few side effects, interact with few other drugs (they do multiply the effects of alcohol like all sedatives), and in addition, their effects on the nervous system are immediate (1).

The most common use of Valium is for neurotic anxiety (6). Anxiety is a difficult condition to assess in clinical terms. Webster's New World Dictionary describes it as a "worry or uneasiness about what may happen" (9). A well known expert on psychotherapeutic drugs, David J. Greenblatt, describes it as "a psychophysiologic response resembling fear but inappropriate to the reality of the perceived threat" (6). The professional description perhaps adds more depth to understanding this condition, but it still remains a difficult prognosis
to analyze with accuracy. Patients may manifest anxiety in different ways. They may show fear, anger, irritability, apprehension, or just plain worry. They may exhibit a number of clinical symptoms. Among these are breathlessness, tremor, increased urination, fatigue, restlessness, and difficulty in sleeping. But a patient may show none or all of these symptoms, in a very obvious way or barely perceptibly. A patient may have anticipatory anxiety, relating to specific upcoming events in his life. But he may also experience "free-floating" anxiety, not associated with any particular situation (6).

All of these variables make it difficult for the doctor to evaluate the amount of anxiety a patient is suffering. And the few actual clinical methods for quantifying anxiety are claimed to have serious limitations (6). So it is up to the doctor and the patient to analyze the amount of anxiety the patient has. In essence, subjective decisions based on the doctor's experience and clinical studies must be made. It is only in the patient's reaction to the prescribed dosage of anti-anxiety agent that the physician can monitor if the dosage is correct (8).

Despite the nebulous character of quantifying anxiety, it is usually a recognizable condition in most patients. Most doctors treat it with minor tranquilizers (1,10,11). Considering that Valium is the most prescribed drug in America (1,2), and the most prescribed minor tranquilizer (1,10), it is likely the drug prescribed most often for anxiety. Whether this is the most desirable treatment for neurotic anxiety, however, is a question.

Valium is used most widely as an anti-anxiety agent [minor tranquilizers are prescribed 84% of the time for anxiety conditions (10)], but it also has a variety of other uses.
Experience and clinical studies have shown that Valium can act as an effective muscle-relaxer (6,7). Although the mode and site of interaction are not known, the effects cannot be attributed solely to the depressive effects of the drug on the nervous system (those effects which give it its anti-anxiety ability). For this reason, Valium is often used to treat severe muscle spasticity accompanying cerebral palsy, multiple sclerosis, Parkinsonism, cerebrovascular accidents, endoscopic procedures (in which tubes are inserted into body openings), and for pain and spasm associated with muscle strain, particularly in the back (12). Unfortunately, the doses required to effect muscle relaxation in most patients also produce drowsiness, uncoordination, and similar effects. Any patient required to perform tasks which require coordination and clear judgement should not be taking Valium in such large doses (12). However dangerous, Valium continues to be used for muscle relaxation (6,10,12) despite the fact that even the FDA will not endorse such use (13).

When a patient suffers from uncontrollable repetitive seizures, epileptic or otherwise, intravenous Valium seems to be the ideal drug (6,12). It has been most effective in preventing or arresting seizures, especially those which are chemically (12) or electrically (7) induced. Again, it is not known for sure how Valium acts to prevent seizures, although theories have been presented (7,12).

Most studies have shown Valium and its sister drugs to be as effective as any other kind of sedative or tranquilizer in suppressing symptoms of alcohol withdrawal (14). It has been shown to be effective in treating delirium tremens as well as the seizures which may accompany them (12). For these reasons, Valium is used as an agent to help cure
the chronic alcoholic from his dependence on alcohol. There is, however, no evidence and no guarantee that it is effective when used for outpatient therapy to prevent the newly abstaining alcoholic from returning to alcoholism. In fact, since alcoholics are patients with a very strong drug-seeking behavior, there is no reason not to believe that they could substitute alcohol dependence for dependence on Valium (12).

Valium is also used by some doctors as an aid to the birth process. Not only can it act to reduce the pain of delivery, but it also can reduce the requirement for opiates by the patient, enhance the amnesiac effects already imposed, and does not seem to produce any adverse effects upon the newborn child of any importance (6).

Patients who are about to undergo any surgical procedure which requires general anesthesia are usually given a premedication sedative beforehand. Valium is often used as such a premedication (6). It has been well established as a useful tool for this procedure.

In addition to the above-described uses of Valium, there are scores of other applications. New uses appear in the medical journals almost weekly. Valium is used to combat depression (the frequent companion of anxiety) (6, 12). It has been used to help induce sleep (6, 12). It has also been combined with various other drugs to alleviate problems as varied as reducing itching and reducing libidinal urges in homosexuals (15). It seems as if Valium has become the modern wonder drug to beat all wonder drugs: the panacea for all ills.
ABUSE

Despite its varied applications and side effects which are rare or weak as compared with other drugs taken for similar problems, there has been a torrent of information in the professional journals (and slick magazines) concerning abuse, overuse, and addiction to Valium.

Before reviewing the above claims perhaps it would be helpful to define the terms being used. Abuse is used primarily to indicate an improper use (9). In dealing with drugs, and Valium in particular, abuse would generally refer to an unnecessary increase in the amount of a drug ingested. This can occur either in one session or in incremental amounts over an extended period. This increased intake is most often responsible for addiction, habituation, and tolerance to the drug.

The terms addiction, habituation, tolerance, and dependence are often used interchangeably. This is not correct. Each term refers to a specific problem (16). Addiction refers to any true physiologic dependence on a drug. Dependence upon a drug is only true addiction if withdrawal of the drug is followed by a form of withdrawal syndrome (16) in the patient characterized by true physiological changes. Habituation, although it can occur concomitantly with addiction and generally follows long term drug exposure, can also occur by itself (16). It is a psychological, subjective desire for drugs and is accompanied by subjective unpleasant feelings, but is not associated with any real organic withdrawal syndrome (16). Tolerance, on the other hand, while it can occur with addiction or habituation, is a physiological condition
of adaptation to a drug and is not directly associated with dependence. An individual can build tolerance to a drug in two ways. Either the receptor sites in the body which the drug reacts with adapt to high concentrations of the drug and higher concentrations must be used to effect stimulation, or the body improves its ability to clear the bloodstream of the drug and higher doses must be given to achieve the same effect (16).

In addiction, biological systems can also be affected by drug toxicity. Toxicity is the ability of a drug through a single dose or through extended use to build up compounds which can be fatal to an organism.

Habituation is not the concern of this report. Being a psychological condition, it is not the drug but the personality of the user which is the crucial factor. Perhaps the perceived pain is just as strong, but true physical addiction does not occur.

Addiction, however, is an issue of great concern as it applies to Valium use. The medical journals literally abound with cases of withdrawal syndromes exhibited in individuals deprived of Valium (17-24). The first case was reported in the American Journal of Psychiatry in 1965 (17) only two years after Valium was marketed. Journal after journal and case after case document a seemingly appalling fact: Valium is indeed addictive and produces a withdrawal syndrome and psychosis.

It would seem that the facts I mentioned earlier concerning mild side effects, compiled by those interested in showing the positive effects of Valium, have been proved false by this flood of case histories. This is, however, likely a fallacy. If we take into account the kind
of people who have been used to provide these statistics, a limiting condition appears. With almost no exceptions, every person used in a case study to document Valium addiction has been a long time drug user and had been ingesting large doses of Valium, far exceeding any prescribed amount (16,18-24). In addition, many of these individuals are polydrug users, people who abuse a variety of drugs, including alcohol (20,22,23).

So although these case reports represent valid observations of addiction, they do not appear to be a true indication of the extent of addiction to Valium. They seem to represent a small minority, often those people who have exhibited a drug-seeking, drug-abusing personality (8,16). True addiction is probably a very unusual occurrence (12,16) and likely occurs primarily among those with such addiction-prone personalities (16).

Support for this belief comes from a study carried out in Cincinnati in 1973 (25). In this six month study, patients admitted to a psychiatric ward were allowed to seek and obtain Valium simply on demand. When the results were analyzed, it was found that the patients chose to use the drug only when they felt anxious. It was used only moderately by them: twenty-seven percent of the patients never used the drug and through the entire six months a request was made only on the average of once every three days. So under conditions where psychiatric patients with problems of anxiety were allowed free use of the drug, only moderate use was observed. This evidence would tend to support claims that addiction to Valium is an unusual condition. Of course, being in a hospital situation may have inhibited some patients in their drug requests.
There are also arguments that what is diagnosed as Valium withdrawal may many times actually be the return of symptoms for which the drug was taken for in the first place (8,16). If the anxiety was severe enough, some experts consider it difficult to distinguish return of symptoms from a withdrawal reaction. If this is true, many supposed cases of addiction could be cast into doubt.

It also seems to be the feeling of the medical profession that the majority of their patients do not voluntarily increase their doses nor have any problems when they come off the drug (1,8,16). Physician and patient seem to be content with its use. Although these are very subjective facts, they may have some credence, being based on the physician's first-hand experience.

Concerning tolerance to Valium, there is also sufficient evidence to indicate that a certain degree of tolerance to the side-effects of Valium does occur. A high amount of tolerance, however, has not been found (16). Also, since it is not yet known if tolerance also develops to the therapeutic effects of Valium, the side-effect tolerance is not necessarily unfavorable (16).

As far as toxicity is concerned, little research has been done with Valium. One study, carried out at the University of Utah (26) considered 1,239 deaths reported at 27 medical examiner or coroners offices across the U.S. and Canada which had involved Valium in any way. It was found that death was generally caused by ingestion of a number of drugs and not just Valium. Although there was a high occurrence of Valium use among the cases studied, its importance toxicologically in the fatalities was considered minimal.
The preceding facts seem to indicate that under the easily definable, clinical limits of abuse as previously outlined, Valium is not an abused drug, or at least not to the extent that would make it more dangerous than any other drug. Its clinical side effects are truly minimal as compared especially with the drugs it replaces. The major clinical concern, addiction, (with its associated withdrawal syndrome) has been documented but seems to be a serious problem primarily among abuse-prone individuals who already have a considerable history in drug and alcohol abuse. (Such individuals also abuse a number of other prescription drugs.)

In general, although the information concerning clinical abuse of Valium is certainly not complete, the majority of the facts gathered seem to indicate that it is not abused, at least not by the definition the scientific community has given it.

The question remains, however, should abuse be as narrowly defined as it seems to have been in the literature cited? Although there are no written criteria designating what the limits of abuse are, it appears that a cautionary generalization can be made. In all the data I gathered concerning the abuse of Valium, the term "abuse" was always used to designate a clinically observable situation, where intake of the drug had proceeded to the point that it not just hampered, but almost halted the patient's ability to function.

There could be a less severe, but likely far more common form of abuse of Valium. Although it appears that the term 'abuse' is primarily used in cases where the clinician can document physical change, there is a whole spectrum of usage of the drug.

Although it is not of the same severity as addiction, overuse of Valium could also be termed abuse. If abuse is defined as incorrectly
using an object, then any amount of excessive intake, whether prescribed by a doctor or initiated solely by the patient, can also be considered abuse.

The whole question of overuse and its ramifications, however, is not well documented. Since it is not an organically measurable condition, consideration of it can be highly subjective. What one clinician terms overuse of a drug may be considered as an insufficient dosage by another. Although blatant overuse would likely be an identifiable condition, much of the spectrum of overuse would be in a grey area, where personal philosophies and medical attitudes would do much to color a physician's judgements concerning correct dosage. There appears to have been little research of a professional nature done specifically on the question of overuse, perhaps because of these complications.

The complexities of this situation do, however, bring another fact to light. There are two identifiable kinds of overuse of Valium. First, there is over-prescription by the doctor. There are a few studies concerning over prescription of Valium by physicians, but also much supportive information in the form of studies done on prescription patterns in America (3,10,11,27-30). The second kind of overuse is overuse by the patient. If a patient has a non-monitored source of Valium or received simultaneous prescriptions from a number of unknowing doctors, the professional community has no way of keeping tabs on patient use. Under these conditions a patient could elevate Valium intake to any level he chooses. This is certainly a possibility and likely a major factor in abuse-overuse.

I was unable to find, however, professional documentable proof of patient use. The media has done much to popularize the attraction
of Valium to Americans, examples of such being "Valumania" by the New York Times Magazine of February 1976, "The Drug Everybody Loves" in Family Health of January 1978, and a 60 Minutes special report on Valium in October of 1977. These accusations of patient (and physician) overuse, however, are not documented nor do they use acceptable survey methods in their research and thus we have no way of knowing just how representative they truly are. This is an area of drug use in America which certainly needs to be more heavily monitored so that the professional community, and the public as a whole, can be more aware of patient use of prescribed drugs.

As mentioned, however, there are some statistics concerning over-prescription of Valium by physicians. First, let us look at prescribing patterns as documented in area and nationwide professional surveys.

There seem to be as many conclusions concerning psychotherapeutic drug use, and Valium in particular, as there are studies (3,10,11,27-30). Nonetheless, a few repetitive conclusions appear in virtually all studies made. First, psychotherapeutic drug use is a widespread phenomenon, with at least 10% of the population involved (3,28), not only in America but in many other nations (28). The statistics cited at the beginning of this paper would tend to support these results. Second, it appears that general practitioners are the major prescribers of minor tranquilizers (3,11,30).

These facts in themselves prove nothing. The fact that psychotherapeutic drug use is prevalent does not necessarily indicate that these drugs are being over-prescribed. It also tells us nothing about patterns of use, whether the majority of people are habitual users or only sporadic consumers of such drugs. The fact that the general
practitioner, the physician least specialized in use of drugs for psychological problems, prescribes the most psychotherapeutics also does not tell us that he is prescribing them inconsistently, although there is certainly a possibility.

There are some noted studies, however, which delve into such questions. The answers they arrive at are varied, but do lie across a spectrum of belief of which we can deliniate the outlines. At the far right of the spectrum I discovered researchers, notably H. J. Parry et al, National Patterns of Psychotherapeutic Drug Use (11), who have concluded that although use is extensive there seems to be little abuse and overuse involved. Most outpatient prescriptions, Parry's study discovered, are for nonpsychiatric disorders (11). He also concluded that the largest proportion of users had taken the drugs irregularly, sporadically, or if regularly, only for short periods of time (11). Such results support those with an attitude of satisfaction with psychotherapeutic drug use in America. They seem to indicate that although use is high, it seems to be correct in the majority of cases. They bolster the attitude that the general physician is making good value judgements in his prescribing habits.

There are those researchers, however, who have come to drastically different conclusion. A number of studies indicate that minor tranquilizers are the drug prescribed most frequently, but with the least justification, mostly by general practitioners and internists (3,27,29). One study states that duration of treatment seems to be prolonged and unnecessary (30). These researchers are disturbed with the use of psychotherapeutic drugs and urge much caution in prescribing and in patient monitoring. Their results show that the general practitioner
seems to be too careless with his prescription and that psychotherapeu
tic drugs are not needed to the extent they are being prescribed.

Such directly conflicting results from surveys of drug use, all published in major medical journals, leads to concern. What exactly is the status of psychotherapeutic drug use in America? Is there cause for alarm as the "slicks" and some researchers would have us believe? Or is the whole issue blown out of proportion?

It is a fact, however, that the Drug Enforcement Administration, on FDA approval after years of study and congressional discussion, ruled in 1975 that a prescription for Valium or Librium will be valid for only six months and can only be refilled five times (31). The DEA itself said that continued consumption of high doses could lead to addiction. The FDA commented that easy availability of Valium and Librium could be contributing to raising their abuse potential (31). These statements and rulings by the government indicate their concern for the abuse potential of Valium. They seem to feel that there is over-prescription and they are attempting to control it.

So, although proof is insubstantial to indict Valium as being improperly used, there seems to be concern nationwide. It seems that many people, swayed either by the "scare" articles in slick magazines or by the negative scientific evidence, however inconclusive, feel that we are an overmedicated society and that Valium is a prime example.

In this context Valium becomes more than a drug; it is a symbol. The battle for restricted Valium use as it has taken place in congress, with LaRoche pouring millions into their lobby (32), becomes a battle between attitudes, and perhaps a battle deciding which faction, scientific community, government, media, or business, has more power.
One fact conceded by almost all researchers though, is that there is an obvious need for more study and understanding (10,11,27-30). Considering the variety of opinions, it appears important to have more conclusive work done which would support one opinion or the other. If there is indeed overuse of Valium and the minor tranquilizers, it is indicative of social trends in America, moving toward finding simple, quick answers and away from more time consuming solutions, which perhaps are more permanent.
COMMENTS AND CONCLUSION

It seems to me in this consideration of Valium use and abuse that we are considering two opposing schools of thought. The first is what could be termed "utilitarian happiness". This group consists of those who feel that life should be free of stress. Any tool which can rid us of problems and relieve stress is to be welcomed. If something works, why not use it? Such people would see no dignity or virtue in tolerating physical or mental discomfort. If increasing use of a drug helps in coping with social stresses, it should increase personal happiness.

The opposing view has its roots in the puritan ethic. Upholders of this view would consider it a "cop out" to use drugs as a way of relieving stress. They would maintain that society is over-drugged, where people swallow pills to forget their problems but never get to the causitive source.

It seems to me that these viewpoints mirror the ideological battle in human society between the philosophies of here-and-now happiness versus the belief in emotional growth, searching not for happiness but "salvation". Depending on ones viewpoint, there is a different set of judgemental values (varying with the strength of one's position left or right) with which one would make decisions concerning drug usage. Those in the "happiness" camp would not consider dosage extreme if it alleviated stress and made the patient content. Those of the opposing view would believe that different methods should be used to solve the problem, perhaps considering drug treatment totally unnecessary if replaced with an attitude of concern and desire to listen
to patient problems by the physician. Two studies suggested exactly such a treatment (1,3). They hypothesized that perhaps all that was necessary to really help patients with anxiety problems was to spend more time with them and discuss their problems. One study indicated that this method had positive results in its setting (33).

If my theory is true, then analyses of prescription patterns could and would be considered in different contexts by the "opposing views" and perhaps this would be a causitive force in the diversity of conclusions reached by those conducting the various drug use surveys. If true, then perhaps even further studies would bring no conclusive evidence to either camp.

It would appear that my study of this subject has resulted in a stand off. There are more questions now than in the beginning and certainly few answers. But perhaps the truth about the abuse of Valium is not the most important thing that I learned in researching this topic. I feel that I have learned something about the nature of research and problem solving.

In researching a single problem, I realized that a whole new group of problems arise usually, rather than finding a solution to the original. But this is not necessarily a negative thing. In discovering and shaping new problems, the nature of my original question and some of its ramifications becomes clearer. I may feel farther away from the light at the end of the tunnel, but at least I now have a partial map of my trail.

I have also learned about the difficulties entailed in researching the work of others. Not only is there difficulty in gathering and organizing references, but once I had the material, it was difficult to find the exact research I wanted. The superiority of original
research compared to gathering sources was greatly emphasized.

Research itself, however, is not beyond reproach. The attitude with which a researcher attacks a problem and the way in which he handles it seem to clearly color the results. Just because an article in a major journal says that something is so does not make it a fact. If this were so, I think you could prove just about anything you wanted to with "facts".

Last, but certainly not least, the exposure that the media gives to a subject can certainly be slanted or exaggerated. True addiction to Valium is certainly much less widespread than the media would have us believe. But this does not mean that the media should be disregarded as pure sensationalists. The media provides an avenue for questions to be asked that perhaps an organization (like the AMA) would not ask itself, providing the impetus for investigation into a problem. Perhaps it was questions by the media which initiated research into Valium and minor tranquilizer abuse by the scientific community. And, if not for certain media accusations which came to my attention, I likely never would have studied Valium or written this paper.
LITERATURE CITED


