

TECHNICAL PAPERS ON HEALTH AND BEHAVIOR MEASUREMENT

TECHNICAL PAPER 9

Effects of Decomposition of Complex Concepts

Michael L. Hubbard, Janella Pantula, Judith T. Lessler

Reference Citation

Hubbard, M.L., J. Pantula, and J.T. Lessler. (1992) Effects of decomposition of complex concepts. In C.F. Turner, J.T. Lessler, and J.C. Gfroerer (eds.), *Survey Measurement of Drug Use: Methodological Studies*. DHHS Pub. No. (ADM) 92-1929. Washington, D.C.: Government Printing Office.

Survey Measurement of Drug Use

Methodological Studies

CHARLES F. TURNER AND JUDITH T. LESSLER

Research Triangle Institute

AND

JOSEPH C. GFROERER

National Institute on Drug Abuse

EDITORS

NATIONAL INSTITUTE ON DRUG ABUSE
DIVISION OF EPIDEMIOLOGY AND PREVENTION RESEARCH
5600 FISHERS LANE
ROCKVILLE, MARYLAND 20857

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
ALCOHOL, DRUG ABUSE, AND MENTAL HEALTH ADMINISTRATION

For sale by the U.S. Government Printing Office
Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402-9328
ISBN 0-16-038065-0

Effects of Decomposition of Complex Concepts

Michael L. Hubbard, Janella Pantula, and Judith T. Lessler

Our cognitive assessment of the NHSDA questionnaire strongly suggested that there were problems with some of the terminology used in the survey (see Chapter 2). Two relatively complex concepts—the nonmedical use of prescription drugs and problems induced by drug use—seemed to pose particularly serious problems for respondents. To answer questions related to these concepts required that respondents recall complex sets of information; they were then asked to make fairly complicated—yet rapid—judgments about this information.

In the field experiment, we tested a questionnaire in which these complex concepts were decomposed into a number of simpler elements for which more straightforward questions could be formulated. This chapter reports the results of our experiment and compares the responses we obtained by using this alternative measurement strategy with those obtained with the current NHSDA questionnaire. (Chapter 7 contains details of the design of the field experiment.)¹

NONMEDICAL USE OF PSYCHOTHERAPEUTIC DRUGS

Differences Between Current and New Wordings of Questions

The current NHSDA elicits information on four psychotherapeutic drugs: analgesics, sedatives, stimulants, and tranquilizers. We decided to explore

¹Wordings for the questionnaire versions discussed in this chapter can be found in Appendix E (current NHSDA wordings) and F (new wordings).

the effects of changing several key features of current questions on the use of such drugs. (Versions A and B of the questionnaire [see Appendix E] retain the current NHSDA question wording; Versions C and D [see Appendix F] use the new wordings developed for the field test.) The first was the order in which questions on the four types of drugs were presented. The current NHSDA asks about the drugs in the following order: sedatives, tranquilizers, stimulants, and analgesics. We could find no documentation on the rationale for this ordering beyond that of tradition: it may be that they were ordered from the least to the most threatening. (The use of analgesics, which include opiates, was considered the most threatening to respondents, whereas the use of sedatives and tranquilizers was perhaps seen as more acceptable.) The versions of the questionnaire that used new wordings for many items also changed the order of presentation of these drugs.

The second major change involved the way in which the concept of nonmedical drug use was introduced and employed. In the current version of the NHSDA, the interviewer introduces the concept by reading the definition of nonmedical drug use, which is broken down into four parts:

Nonmedical use of these drugs is any use on your own, that is, either:

- (1) without a doctor's prescription, or
- (2) *in greater amounts than prescribed*, or
- (3) *more often than prescribed*, or
- (4) for any reasons *other* than a doctor said that you should take them—such as for kicks, to get high, to feel good, or curiosity about the pill's effect.
[emphasis in original]

The respondent is also given a card containing this definition and is asked to refer to it in answering the subsequent questions about psychotherapeutic drug use. Thereafter, for each type of drug, the interviewer asks the respondent first to look at another card (called a pillcard) containing pictures of various drugs and to indicate each drug that he or she "had ever taken for nonmedical reasons—on your own, either without a doctor's prescription or in greater amounts or more often than prescribed or for a reason other than a doctor said you should take them." The respondent is then given a list of drug names, each of which is accompanied by a number, and asked to circle the numbers that correspond to the drugs he or she has used for nonmedical purposes. (We subsequently refer to this question as the *list question*). Thus, in the current NHSDA

format. respondents must perform the following tasks for each type of psychotherapeutic drug:

- recognize which drugs they have used from a list of drugs accompanied by pictures,
- understand the definition of nonmedical drug use, and
- decide if their use of the drugs they have just identified would be considered nonmedical.

A third aspect of the current questionnaire is the additional questioning that occurs after a respondent has indicated nonmedical use of a drug.² The interviewer asks four specific questions about age at first use, lifetime frequency of use, recency of use, and 12-month frequency of use. For stimulants, there are two additional questions about needle use (whether the respondent has ever used a needle and the recency of needle use).

For the field test, we made several changes in the current wordings of questions on the use of psychotherapeutic drugs (Versions C and D, see Appendix F). We reordered the questions to ask first about analgesics (which were referred to as “painkillers” rather than analgesics), followed by sections on tranquilizers, stimulants, and sedatives. The rationale for this ordering was to expose respondents first to questions about drugs that are widely prescribed as medical treatment. Because current medical practice rarely prescribes the use of stimulants and sedatives, any reported use is likely to be nonmedical.

The greatest change in this section of the questionnaire involved the introduction and use of the term *nonmedical use*. The new wording decomposed this concept; that is, we broke down the complex question asking about any of three different types of drug use into a series of three separate questions. For each drug, respondents were asked first

²One further aspect of the current NHSDA that was altered in the field test was the structure of the list of drug names accompanying the list question. The current list of names is organized so that the names of chemically similar drugs are adjacent in the list. At the end of the list, there is a space where the respondent can indicate that he or she took some other unlisted drug from that category and a place to note that he or she has taken such a drug but does not know the name of it. Each drug type is accompanied by a pillcard containing pictures of each drug on the list in the same order as in the list question: the name of the drug and its number from the list are printed under its picture. Respondents who feel that they have never taken the given type of drug for nonmedical reasons are asked to indicate this by circling 91 in a box below the list question. For the field test, we made changes in the structure of the list questions and the accompanying pillcards. Rather than ordering drugs by chemical similarity, we presented the list questions and pillcards in alphabetical order. These changes were found to have no important effects on responses, and these analyses are not discussed in this chapter. For a description of these analyses, interested readers may consult Section 4.3.4 in Research Triangle Institute (1991) *The NHSDA Methodological Field Test Survey: Final Report*. Research Triangle Park, N.C.: Research Triangle Institute.

TABLE 9-1 Summary of Differences Between Current and New Wordings of Questions on Psychotherapeutic Drug Use

Feature	Current Wordings	New Wordings
Order of drug types	Tradition/threat	Frequency of prescription
Introduction of the term <i>nonmedical use</i>	All at once	Decomposed into three questions
Additional questions	Asked once	Asked three times
List questions and pillcard organization	Chemical similarity	Alphabetical order

whether their physician had prescribed the drug and, if so, whether they had overused it (taken it in larger amounts or more often than prescribed). Second, they were asked about recreational use of the drug (for kicks, to get high, to feel good, or out of curiosity). Third, respondents were asked about using drugs not prescribed for them (i.e., prescribed for someone else, obtained from a nondoctor, or bought without a prescription).

After answering the questions noted above about each subtype of nonmedical drug use, respondents either skipped to the next question (if they had not so used the drug) or answered four additional questions about that subtype (i.e., a list question to indicate which drugs were used, a question on age at first use, a lifetime frequency question, and a recency question). After negotiating the three sets of questions on type of use, respondents were then given the overall definition of nonmedical use and asked whether they had used the drug type in question nonmedically in the past 12 months. Those who indicated no such use skipped to the next question; the rest answered a further six questions (a 12-month frequency question and five drug dependency questions found in the Drugs section [Section 11] of Versions A and B).³

The final set of questions in each drug section concerned needle use of the drug type. Respondents were first asked if they had ever used the drug type nonmedically, with a needle. Those reporting no use were instructed to skip to the next set of questions. The rest answered three questions about use with a needle (a list question to indicate which drugs were used, a recency question, and a question about sharing needles).

³The four experimental conditions of the field test were labeled Versions A, B, C, and D. Version A used current NHSDA wordings and was self-administered; Version B used current NHSDA wordings and was interviewer administered; Version C used new wordings and was self-administered; and Version D used new wordings and was interviewer administered.

TABLE 9-2 Prevalence of Medically Prescribed Drug Use (Weighted Percentage of Persons 12 Years of Age and Older Reporting Lifetime Use of Drugs Reportedly Prescribed by Doctor; Question Asked only in New Versions of Questionnaire)

Type of Drug	New Wording	
	Self Admin.	Int. Admin.
Sedatives	9.5	9.5
Tranquilizers	23.4	15.5
Stimulants	4.8	4.9
Painkillers	51.8	53.7

NOTES. Percentage of respondents responding "yes" to Question 1 in new versions of the questionnaire. The question asked: "Has a doctor ever prescribed [drug] for you or given you samples of [drug]?" Versions of questionnaire are: New wording in self-administered format (Version C); New wording in interviewer-administered format (Version D).

Thus, as summarized in Table 9-1, the new wording of the questions about psychotherapeutic drugs used

- a different order of asking about particular types of drugs
- different ways of introducing the term *nonmedical use*, and
- additional questions (list question, age of first use, lifetime frequency, and recency).

Estimated Prevalence of Lifetime Use of Psychotherapeutic Drugs

Table 9-2 presents respondent reports of lifetime *medical* drug use (for Q-1 in Versions C and D: "Has a doctor ever prescribed for you [drug] or given you samples of [drug]?"). As would be expected from data on the actual prescription of drugs, more than half of the respondents reported medical use of analgesics, 15 to 25 percent reported medical use of tranquilizers, and 5 to 10 percent reported use of sedatives and stimulants.

Weighted prevalence estimates for lifetime *nonmedical* use of the four psychotherapeutic drugs in the four experimental conditions are presented in Table 9-3 and displayed graphically in Figure 9-1. For these estimates, we counted respondents as lifetime users if they indicated use of any drug in the list question and did not circle 91 in the box below the list. (A few respondents circled both drug names and 91; they were not counted as users.) In the versions that used the new wordings, we defined users as anyone who answered "yes" to questions about overuse of prescriptions (Q-1b), recreational use (Q-2), use of drugs not obtained from a doctor (Q-3), or overall past-year nonmedical use (Q-4).

TABLE 9-3 Prevalence of Nonmedical Drug Use (Estimated Percentage of Persons 12 Years of Age and Older Reporting Lifetime Nonmedical Use of Psychotherapeutic Drugs)

Drug Use	Current Wording		New Wording	
	Self Admin.	Int. Admin	Self Admin.	Int. Admin
Sedatives				
Nonmedical Use	3.5	2.2	3.8	3.4
No Nonmedical Use	96.0	97.6	90.4	94.6
No Nonmedical Use/Named Drug	0.1	0.1	0.6	0.1
Indeterminate	0.4	0.1	5.2	1.9
Tranquilizers				
Nonmedical Use	5.6	5.0	6.1	7.2
No Nonmedical Use	92.8	94.5	89.6	91.4
No Nonmedical Use/Named Drug	0.1	0.1	1.4	0.0
Indeterminate	1.5	0.3	2.9	1.4
Stimulants				
Nonmedical Use	6.7	6.4	8.5	9.5
No Nonmedical Use	93.2	93.2	88.8	89.3
No Nonmedical Use/Named Drug	0.0	0.3	0.2	0.5
Indeterminate	0.1	0.1	2.4	0.7
Painkillers/Analgesics				
Nonmedical Use	6.6	4.6	13.5	14.6
No Nonmedical Use	93.4	95.2	82.7	83.1
No Nonmedical Use/Named Drug	0.1	0.2	0.9	0.7
Indeterminate	0.1	0.1	3.0	1.6

NOTE. Questionnaire versions are: current wording in self-administered format (A); current wording in interviewer-administered format (B); new wording in self-administered format (C); new wording in interviewer-administered format (D).

Overall, the estimated prevalence of nonmedical lifetime use of psychotherapeutic drugs is higher when estimates are based on responses to the new wordings. Estimated lifetime use is higher in both the self-administered (Version C) and interviewer-administered (Version D) forms of the new wordings than in either version of the current questionnaire (Versions A and B) for painkillers (analgesics), stimulants, and tranquilizers. This pattern is especially striking for painkillers: prevalence estimates were 13.5 percent and 14.6 percent in Versions C and D, respectively, and 6.4 percent and 4.6 percent in Versions A and B, respectively. For sedatives, the drug type for which the smallest differences were found, prevalence in the self-administered format with the current NHSDA wording (Version A) was virtually identical to that in the self- and interviewer-administered form of the new question wording (Version D; 3.5 percent vs. 3.8 and 3.4 percent, respectively). The interviewer administered version with the current sedative wordings produced a somewhat lower estimate (2.2 percent).

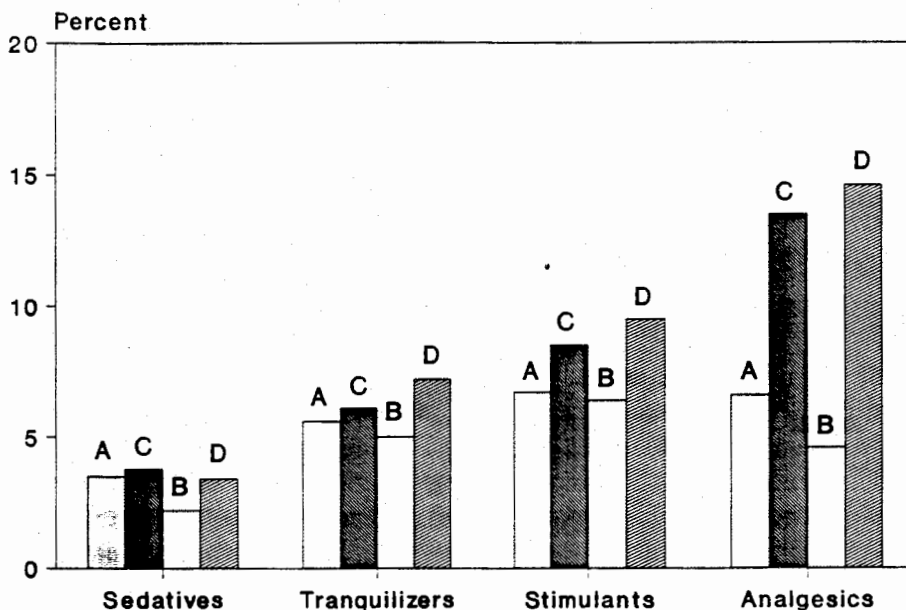


FIGURE 9-1 Weighted estimates of prevalence of nonmedical drug use, by type of drug and questionnaire version. NOTE. Questionnaire versions were: A: Current NHSDA wording in self-administered format; B: Current NHSDA wording in interviewer-administered format; C: New wording in self-administered format; D: New wording in interviewer-administered format.

The pattern with regard to self-administered versus interviewer-administered questions was less clear, although it suggests an interaction between administration type and wordings. The interviewer-administered format produced the highest prevalence estimates when coupled with the new wordings (Version D); it produced the lowest prevalence estimates when joined with the current wordings (Version B). The self-administered format occupied an intermediate position (Version C produced higher estimates than Version A) for three of the four drugs. For sedatives, Version A produced slightly higher prevalence estimates than Version D, with Version C producing the highest. Figure 9-1 shows that the differences between Versions A and B and between C and D are less than the differences between the current and new wording conditions (i.e., between Versions A and C and between B and D), especially for painkillers and stimulants, the two categories in which the wording effect is most pronounced.

To summarize, we found higher estimates of nonmedical psychotherapeutic drug use with the new wordings than with the current ones and even lower estimates of prevalence with the interviewer-administered

form that used current NHSDA wording. We cannot identify with certainty the cause of this pattern; we believe, however, that the difference in the definition of nonmedical use may be an important factor. Rather than answering a single question (as in the current NHSDA), respondents who were given the new wording had four opportunities to indicate nonmedical use.

We propose two alternative explanations for the higher prevalence estimates that resulted from answering several questions rather than one. The first might be called the confusion hypothesis. If respondents have difficulty understanding the concept when it is presented in its entirety or if the definition is confusing, they may simply not admit using drugs nonmedically, which would result in lower prevalence estimates. A second hypothesis is that respondents, out of fear that their use could be misconstrued, may resist admitting that they are using a drug. For drugs, such as painkillers, that are frequently prescribed, respondents may view overuse of a prescription or the use of drugs obtained from someone else for pain control as not in the same category as use of a drug for kicks or to get high; as a result, they may deny any nonmedical use of drugs. The decomposed questions allow respondents to deny recreational use while indicating overuse in a separate question. Thus, the cause of the lower prevalence estimates seen for the current NHSDA questions compared with the new wordings becomes relatively unimportant: whether confusion or the desire to avoid being misunderstood is responsible, the decomposition of the questions can circumvent the problem.

Table 9-4 displays the contributions of each of the three decomposed questions to the overall percentage of respondents reporting nonmedical drug use for Versions C and D. This table shows that the type of nonmedical use varies by type of drug. Overuse of prescriptions is relatively frequent for painkillers (which are prescribed more often than the other psychotherapeutic drugs) and rare for stimulants (which are seldom prescribed). Recreational use (for kicks or to get high) is greater for stimulants and relatively less for the other three types of drugs. Painkillers were the drugs that respondents reported they obtained most frequently without a prescription. In contrast to the pattern for painkillers—for which overuse of prescriptions and use of painkillers without a prescription were the predominant patterns—for tranquilizers, recreational use was reported more frequently than overuse and nearly as frequently as use without a prescription. Stimulant users also obtained drugs frequently without a prescription but reported less of that behavior than of recreational use of the drug.

TABLE 9-4 Comparison of Different Nonmedical Use Questions (Estimate of Percentage of Persons 12 Years of Age and Older Reporting Nonmedical Use of Psychotherapeutic Drugs on Three Different Questions)

Nonmedical Use Question	Version:	Sedatives		Tranquilizers		Stimulants		Painkillers ^a	
		C ^b	D ^b	C ^b	D ^b	C ^b	D ^b	C ^b	D ^b
Q. 1b: Overuse of Prescription		1.4	0.6	1.9	1.3	0.4	0.2	4.7	4.1
Q. 2: For Kicks or to get High		2.7	2.8	2.4	3.0	6.7	8.4	2.9	3.3
Q. 3: Obtained without Prescription		1.9	2.1	4.4	3.4	5.7	7.3	10.1	11.2
None of the Above		92.0	94.8	91.6	91.4	89.3	89.9	84.9	84.7

^aExamination of the drugs names given by respondents indicate that respondents were *not* reporting use of over-the-counter medications when answering these questions.

^bQuestionnaire versions are: new wording in self-administered format (C); new wording in interviewer-administered format (D).

Thus, users of painkillers and tranquilizers report what could be interpreted as medical abuse: overusing prescriptions and obtaining drugs without prescriptions, but not for recreational purposes. Stimulant and sedative users appear to be more recreational in their use; stimulant users also report obtaining their drugs without prescriptions. The drugs that respondents were most likely to report obtaining without a prescription, however, are also those for which differences between new and current wordings are greatest (painkillers and stimulants). It appears that by decomposing the questions, we get a more differentiated view of the various forms of nonmedical use.

With regard to the apparent interaction of wording and administration, it may be that the fear of being misunderstood is greater when telling one's answers to an interviewer (in contrast to self-administered formats), which resulted in lower prevalence for Version B. Yet the highest reported prevalence was found with Version D, another interviewer-administered condition but one in which the questions were decomposed. Perhaps in this case, the more precise questions minimized the opportunity for being misconstrued and at the same time maximized understanding.

Evidence for Understanding of the Definition of Nonmedical Use

In addition to the data on effects of wording changes on the reported prevalence of nonmedical use of psychotherapeutic drugs, it would be valuable to know whether respondents' answers to the global nonmedical drug use question were consistent with their answers to the separate questions about subtypes of nonmedical drug use (i.e., overusing prescriptions, recreational use, and obtaining drugs without prescriptions). The new wording of the questions about nonmedical use of psychotherapeutic drugs affords an opportunity to investigate this issue. In particular, we can also ask whether respondents who reported any of the three subtypes of nonmedical use in the past year also reported past-year global nonmedical use. To answer this question, we compared the frequency with which respondents reported past-year use of drugs for any of the three subtypes of nonmedical use (in the recency questions—Q-1e, Q-2d, or Q-3d) with the frequency of past-year nonmedical use for the global question (Q-4). In making this comparison, we combined responses from both new wording conditions (Versions C and D). Table 9-5 shows the results of this comparison.

If respondents understand the global definition of nonmedical drug use (i.e., the one presented to them in the current wording), then those who report past-year use of any of the three subtypes of nonmedical use

TABLE 9-5 Consistency of Responses to Global Question on Nonmedical Use of Psychotherapeutic Drugs and Responses to Questions about Particular Types of Nonmedical Use (Versions C and D Combined)

Questions about Particular Types of Nonmedical Use ^b	Response to Global Use Question ^a					
	Used		No Use		Indeterminate	
	n	Percent	n	Percent	n	Percent
Sedatives						
Past Year Users	4	44.4	4	44.4	1	11.1
Lifetime Users	2	3.7	52	96.3	0	0.0
Nonusers	0	0.0	1558	99.3	11	0.7
Indeterminate	0	0.0	0	0.0	3	100.0
Tranquilizers						
Past Year Users	20	64.5	11	35.5	0	0.0
Lifetime Users	3	3.6	80	96.4	0	0.0
Nonusers	2	0.1	1512	99.5	6	0.4
Indeterminate	0	0.0	0	0.0	1	100.0
Stimulants						
Past Year Users	23	79.3	5	17.2	1	3.5
Lifetime Users	2	1.7	117	96.7	2	1.7
Nonusers	1	0.1	1477	99.5	6	0.4
Indeterminate	0	0.0	0	0.0	1	100.0
Painkillers, Analgesics						
Past Year Users	25	28.1	63	70.8	1	1.1
Lifetime Users	8	5.9	127	94.1	0	0.0
Nonusers	7	0.5	1390	98.5	14	1.0
Indeterminate	0	0.0	0	0.0	0	0.0

^a Responses to Question 4

^b Responses to Questions 1e, 2d, and 3d

should also report global nonmedical use. That is, we would not expect a respondent who reports any past-year nonmedical use to say “no” on Q-4. Yet clearly this is not the case, as can be seen in Table 9-5. More than 70 percent of painkiller users who reported one of the subtypes of nonmedical use in the past year said “no” on Q-4—thereby denying global nonmedical use. No drug type was immune from this type of inconsistency, although it was less frequent for the other drugs (44 percent for sedatives, 35 percent for tranquilizers, and 17 percent for stimulants). The converse inconsistency (saying “yes” on Q-4 but “no” to past-year use for all three subtypes) occurred much less frequently (approximately 6 percent for painkillers, 4 percent for sedatives and tranquilizers, and 2 percent for stimulants). These inconsistencies suggest that respondents do not seem to recognize that global nonmedical use is indicated by answering “yes” to any of the three subtypes of nonmedical use.

Figure 9-2 displays the percentage of respondents who did not report global nonmedical use (i.e., who answered “no” on Q-4) but admitted

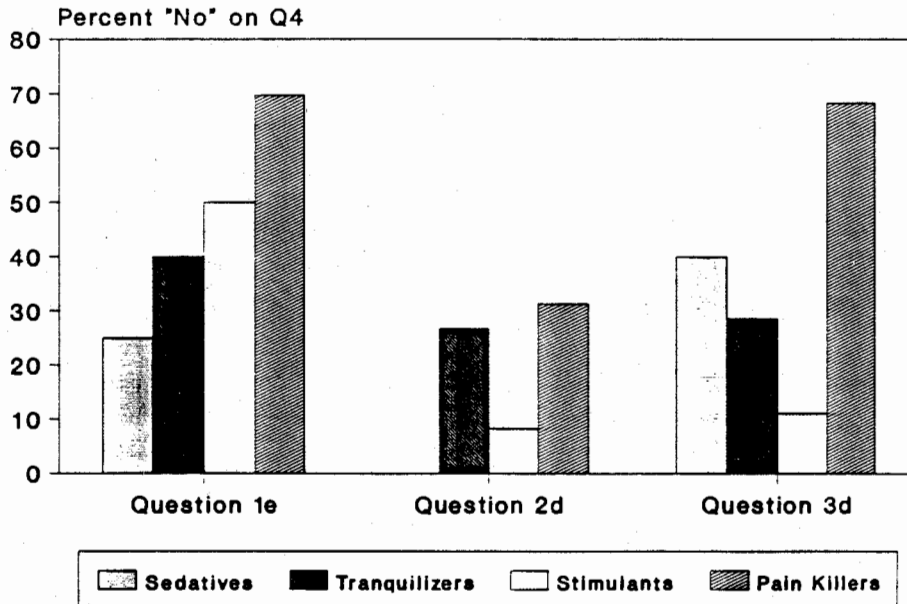


FIGURE 9-2 Percentage of past year nonmedical users of psychotherapeutic drugs who did not report nonmedical use on Question 4 by type of nonmedical use reported. NOTE: Data were obtained in self- and interviewer-administered versions of questionnaires using new question wordings, i.e., Versions C and D.) Individual questions about nonmedical use used following format: 1e: How long has it been since you last took [drug] either in greater amounts or more often than you were told to; 2d: How long has it been since you last took [drug] either for kicks, to get high, to feel good, or for curiosity; 3d: How long has it been since you last took [drug] that was prescribed for someone else, that someone gave you, or that you bought without a prescription; 4: People sometimes take [drugs] either in larger doses than prescribed, more often than prescribed, or for reasons other than why a doctor said to take them—such as for kicks or to get high. People also sometimes take pain killers that they get from someone who is not a doctor. When people use [drugs] in this way, we refer to these types of use as “nonmedical” use or taking [drugs] for “nonmedical reasons.” The next questions are about the use of [drugs] for nonmedical reasons during the past 12 months. If you have any questions about what we mean by “nonmedical reasons,” please ask your interviewer to explain further. Think just about the past 12 months—from your 12-month reference date up to and including today. During the past 12 months, did you take a [drug] for nonmedical reasons?

such use for one or more of the subtypes (i.e., they answered “yes” on Q-1e, Q-2d, and Q-3d). The most consistent pattern is that of respondents admitting that they overuse their prescriptions (Q-1e) while not reporting nonmedical use of those drugs. This occurs, for example, for 70 percent of persons who reported using painkillers. Furthermore, 68 percent of respondents who reported using painkillers that were obtained from sources other than a doctor (Q-3d) did not report this as nonmedical use on the very next question (Q-4). For other drugs, these percentages

were lower but still substantial. Overall, it was less common for respondents to admit *recreational* use of psychotherapeutic drugs and then to deny nonmedical use. (Only 31.3 percent who admitted recreational use of painkillers did so, as did 26.7 percent with tranquilizers, and 8.3 percent with stimulants; no respondents who reported recreational use of sedatives denied nonmedical use on the global question.)

Thus, it is clear that respondents were more likely to respond inconsistently to some aspects of nonmedical use than to others. In particular, they were most likely to admit nonmedical use when they took drugs for recreational purposes and least likely to admit it when they overused drugs prescribed to them. Users of painkillers were particularly prone to denying nonmedical use for drugs obtained without a prescription—perhaps because they were often used for a seemingly “medical” purpose (e.g., pain relief).

DRUG PROBLEM ANALYSES

One answer sheet in each version of the questionnaire was devoted to collecting information about the kinds of problems that respondents may have experienced in the past 12 months as a result of their use of drugs. In both versions that used the current wording of the NHSDA questionnaire, respondents were asked to complete such an answer sheet *only* if they had ever used tobacco, alcohol, psychotherapeutics, marijuana and hashish, inhalants, cocaine, hallucinogens, heroin, or other opiates in their lifetime. They were then presented with a list of problems and asked to answer “yes” for any problem they had that they believed was caused by their use of drugs. They were then instructed to write down the name of the drug they believed caused the problem. (See Answer Sheet 14 in Appendix E).

The versions of the questionnaire with new wordings used an entirely different format for asking the corresponding set of questions. These versions asked every respondent, regardless of lifetime drug use, to indicate whether he or she had experienced a particular problem in the past 12 months. Once it was established that a problem existed, respondents were asked whether use of drugs in their lifetime had caused the problem. If so, they were instructed to list the relevant drug.

In general, rates for missing and faulty data, which are summarized by the frequencies presented in Tables 9-6 and 9-7, were lower for the questionnaire versions that used the new wordings.⁴ Overall, only six

⁴For the set of tables presented in this chapter, lifetime and past-year drug use were based on lifetime and past-year use of alcohol, marijuana, cocaine, and cigarettes as defined by the composite questions.

TABLE 9-6 Percent of Respondents Giving Inconsistent Responses to Old Wordings of the Drug Problems Answer Sheet by Lifetime and Past Year Drug Use^a

Type of Drug Use ^a	Self-Administered		Interviewer-Administered	
	Base N	Percent	Base N	Percent
Used Drugs in Past Year	622	4.8	548	4.0
Used Drugs in Lifetime	702	7.3	675	8.7
Did Not Use Drugs in Lifetime	134	8.2	137	2.9
Undefined Lifetime Drug Use	1	na	1	na

^aDrug use is based on composite questions asking about use of alcohol, marijuana, cocaine, and cigarettes.

na: not applicable

respondents in the field test recorded no data on the drug problem answer sheets. As we expected, some lifetime drug users who received versions of the questionnaire with current NHSDA wordings incorrectly skipped this section, despite being asked to answer all questions even if they had no problems related to drug use in the past 12 months. This error resulted in the greatest amount of faulty data for the current NHSDA question wordings (7.3 percent of lifetime drug users incorrectly skipped this section in the self-administered format, and 8.7 percent incorrectly skipped it in the interviewer-administered format). Furthermore, as shown in Table 9-7, the new question wordings resulted in negligible amounts of missing data as a result of lifetime drug users answering “yes” to having a problem and then not responding as to whether the problem was caused by one of the drugs they had used.

Table 9-8 presents the percentages of lifetime users, by questionnaire version, who reported problems in the past year resulting from their alcohol, drug, or cigarette use. These percentages are based only on respondents’ answers to the questions that asked whether they had a problem as a result of their lifetime use of these substances.⁵ Of the two wordings and format methods used, Table 9-8 shows that the current NHSDA wordings produced higher levels of reported past-year problems resulting from lifetime alcohol, marijuana, cocaine, and cigarette use. For the self-administered format of this questionnaire (Version A), 20.9 percent of the lifetime drug users reported having at least 1 of the

⁵For this analysis, negative responses were logically imputed for missing and faulty data on these questions. In some instances, particularly for versions of the questionnaire that used the current NHSDA wordings, respondents reported experiencing a problem but then did not list the drug or drugs that they thought had caused it. The percentages presented in Table 9-9 were calculated taking this into account by logically imputing negative responses for such cases.

TABLE 9-7 Attribution of Problems to Drug Use for Respondents Reporting Past Year Problems in New Versions of Questionnaire by Lifetime Drug Use and Mode of Administration

Problems Associated With Drug Use During Past Year	Lifetime Users ^a						No Use in Lifetime ^a					
	New Wording SAQ			New Wording IAQ			New Wording SAQ			New Wording IAQ		
	N Prob.	% Drug	% Miss.	N Prob.	% Drug	% Miss.	N Prob.	% Drug	% Miss.	N Prob.	% Drug	% Miss.
Had arguments and fights with family or friends	290	7.2	1.0	267	13.9	0.0	33	0.0	0.0	29	3.5	0
Felt completely alone and isolated	119	6.7	1.0	107	16.8	0.9	12	0.0	0.0	7	0.0	0
Felt very nervous and anxious	209	6.2	1.9	181	11.1	0.6	22	4.6	0.0	17	0.0	0
Had health problems	145	8.3	1.4	158	11.4	0.6	17	0.0	0.0	20	0.0	0
Found it difficult to think clearly	95	21.1	0.0	94	33.0	1.1	6	0.0	0.0	8	0.0	0
Felt irritable and upset	273	4.4	1.5	260	12.7	0.8	19	0.0	0.0	20	0.0	0
Got less work done than usual at school or on the job	97	1.0	2.1	93	10.8	0.0	11	0.0	0.0	5	0.0	0
Felt suspicious/mistrustful of people	97	3.1	4.1	98	13.3	1.0	11	0.0	0.0	4	0.0	0
Found it harder to handle my problems	74	5.4	1.4	61	26.2	0.0	11	0.0	0.0	8	0.0	12.5
Had to get emergency medical help	76	6.7	1.3	55	4.0	5.5	6	0.0	0.0	9	0.0	0

NOTE. Table lists: number of respondents reporting the problem (N Prob.); percent of these respondents attributing problem to drug use (% Drug); and percent of these respondents for whom data were missing for attribution question (% Miss.). Questionnaire versions are: new wording in SAQ (self-administered questionnaire) [Version C]; new wording in IAQ (interviewer-administered questionnaire) [Version D].

^a Drug use classification is based on response to composite questions concerning use of alcohol, marijuana, cocaine, and cigarettes.

TABLE 9-8 Percentage of Lifetime Users Reporting Past Year Problems Resulting from their Alcohol, Drug, or Cigarette Use by Questionnaire Type

Problems Associated With Use in Last Year	Current Wording		New Wording		Total
	Self Admin.	Int. Admin	Self Admin.	Int. Admin	
Became depressed or lost Interest in things	6.8	4.2	1.6	2.2	3.7
Had arguments and fights with family or friends	9.8	5.8	3.2	3.8	5.7
Felt completely alone and isolated	3.3	1.5	1.1	1.6	1.9
Felt very nervous and anxious	5.7	5.5	1.0	2.3	3.7
Had health problems	5.2	4.7	1.4	1.8	3.3
Found it difficult to think clearly	7.0	5.3	2.1	3.9	4.6
Felt irritable and upset	7.5	5.4	1.5	3.4	4.5
Got less work done than usual at school or on the job	4.1	3.9	1.4	0.9	2.6
Felt suspicious or mistrustful of people	2.7	1.7	.3	1.1	1.5
Found it harder to handle my problems	2.9	2.0	.4	1.4	1.7
Had to get emergency medical help	1.3	0.8	.8	.1	.8
Any of the above problems	20.9	15.5	6.9	9.5	13.3
(N)	(702)	(675)	(666)	(716)	(2,759)

NOTES. Percentages are based on the total number of lifetime users of alcohol, marijuana, cocaine, and cigarettes (based on response to composite questions). Questionnaire versions are: current wording in self-administered format (A); current wording in interviewer-administered format (B); new wording in self-administered format (C); new wording in interviewer-administered format (D).

11 problems listed, compared with 15.5 percent for the corresponding interviewer-administered questionnaire (Version B).

These apparent differences, although not statistically significant, are large enough to prompt questions about the factors that might be generating them. We might suspect, for example, that respondents would be more reluctant to discuss problems directly with an interviewer than to report them privately on a self-administered form. However, a higher level of reporting in the interviewer-administered format of the questionnaire containing the new wordings suggests otherwise. Another plausible explanation for this phenomenon lies in the slight wording differences of the two versions based on the current NHSDA questionnaire. The interviewer-administered version indicates clearly that the questions are concerned only with problems that the respondent felt were caused by drugs. In contrast, in the self-administered version, the introduction to

TABLE 9-9 Adjusted Percentage of Lifetime Drug Users Reporting Past Year Problems Resulting from their Alcohol, Drug, or Cigarette Use by Questionnaire Type

Problems Associated With Use in Last Year	Current Wording		New Wording		Total
	Self Admin.	Int. Admin	Self Admin.	Int. Admin	
Became depressed or lost interest in things	5.0	3.9	1.6	2.2	3.2
Had arguments and fights with family or friends	7.5	5.4	3.2	3.8	5.0
Felt completely alone and isolated	2.4	1.5	1.1	1.6	1.7
Felt very nervous and anxious	3.7	5.4	0.9	2.1	3.0
Had health problems	3.6	3.9	1.4	1.8	2.7
Found it difficult to think clearly	6.2	5.1	2.0	3.9	4.3
Felt irritable and upset	5.8	4.6	1.5	3.4	3.8
Got less work done than usual at school or on the job	3.1	3.7	1.4	0.8	2.2
Felt suspicious or mistrustful of people	1.9	1.4	0.3	1.1	1.2
Found it harder to handle my problems	2.3	1.8	0.4	1.3	1.5
Had to get emergency medical help	0.7	0.8	0.8	0.2	0.6
Any of the above problems	16.9	14.0	6.8	9.4	11.9

NOTES. Percentages are based on the total number of lifetime users of alcohol, marijuana, cocaine, and cigarettes (based on response to composite questions). The *adjusted* percentages reported in this table have been calculated with negative responses imputed when the respondent failed to list a drug after responding positively for having drug-related problems. Questionnaire versions are: current wording in self-administered format (A); current wording in interviewer-administered format (B); new wording in self-administered format (C); new wording in interviewer-administered format (D).

this section is complex, fusing many questions into one. Some respondents may have skipped over the instructions and may therefore have listed problems unrelated to drug use. If respondents did not believe that a causal relationship existed between their drug use and their problem, they may have been confused by the heading "WRITE NAMES OF DRUGS THAT CAUSED THE PROBLEM." If we assume that respondents would have listed the drug that caused the problem if, indeed, that was their belief, percentages for the self- versus the interviewer-administered versions become even closer to each other (compare Table 9-8 with Table 9-9).

Because the questionnaire versions that used the new wordings prompted each respondent to answer questions about their problems,

TABLE 9-10 Percentage of Respondents Receiving New Versions of Questionnaire Who Reported Problems During Past Year by Lifetime Drug Use and Mode of Administration

Problems During Last Year	Lifetime Users		No Use in Lifetime		Total	
	Self Admin.	Int. Admin	Self Admin.	Int. Admin	Self Admin.	Int. Admin
Became depressed or lost interest in things	20.6	19.7	13.4	3.9	20.1	8.6
Had arguments and fights with family or friends	35.0	33.2	25.2	14.2	34.1	19.7
Felt completely alone and isolated	12.7	10.8	7.9	5.6	11.7	6.7
Felt very nervous and anxious	27.4	23.2	15.0	11.8	25.2	13.4
Had health problems	22.0	22.3	11.0	18.5	22.2	14.8
Found it difficult to think clearly	10.9	12.0	3.5	10.5	11.4	7.0
Felt irritable and upset	39.6	33.9	20.2	18.2	36.6	19.2
Got less work done than usual at school or on the job	11.6	10.2	9.4	3.2	10.9	6.3
Felt suspicious or mistrustful of people	10.9	11.1	9.9	2.2	11.0	6.1
Found it harder to handle my problems	10.1	6.3	9.7	4.4	8.1	7.0
Had to get emergency medical help	9.2	7.1	4.1	6.0	8.1	5.1
Any of the above problems	59.1	55.1	39.2	33.9	57.0	36.5
(N)	(666)	(716)	(130)	(122)	(796)	(838)

NOTES. Percentages are based on the total number of lifetime users and nonusers of alcohol, marijuana, cocaine, and cigarettes (based on response to composite questions). Table includes only persons receiving new versions of questionnaire. Versions are: new wording in self-administered format (C); new wording in interviewer-administered format (D).

regardless of drug use, it is possible to compare the prevalence of reported problems, such as depression, among persons who have and have not used drugs. As shown in Table 9-10, it is evident that lifetime drug users in general are reporting more problems. Also apparent (see Table 9-9) is the lower prevalence of problems in the past 12 months attributed to drug use that we found for the questionnaires with the new wordings. We believe this is due to better understanding of the objective of this set of questions on the part of respondents. Thus, even though 57.0 percent of lifetime users (versus 36.5 percent of nonusers) reported having had at least 1 of the 11 problems, they did not necessarily attribute those problems to drug use when specifically asked this question.⁶

These large differences across questionnaire versions in the percentage of lifetime drug users who report past-year problems and attribute them to their drug use suggest that respondents cannot reliably implement the complex definition used in the current version of the NHSDA. We believe that the available evidence suggests that decomposition of this concept produces more reliable measurements as a result, in part, of improved comprehension by respondents of the concepts involved. We would also note that this decomposition will allow analysts to assess whether drug users, compared with nonusers, report more of the problems typically associated with drug use—regardless of whether the respondents themselves attribute those problems to their use of drugs.

CONCLUSIONS

The evidence with regard to measurements of the nonmedical use of psychotherapeutics indicates that decomposing the current NHSDA question on this issue substantially increases the reporting of such use. The results are striking, particularly for painkillers (i.e., analgesics). The estimated prevalence of nonmedical use of painkillers more than doubled when we decomposed the concept into its constituent parts and asked respondents separate questions about each part. For stimulants and tranquilizers, the differences are not as striking as for painkillers, but they are nonetheless substantial.

Our analyses of responses to the individual questions using this new questioning strategy suggest that some respondents may use a personal definition of nonmedical use regardless of the instructions provided in the questionnaire. Respondents were less likely to report *recreational* use of psychotherapeutic drugs while denying nonmedical use in response to the global question. In contrast, more than two-thirds of respondents who

⁶The difference between the self- and interviewer-administered formats in the proportion of persons reporting one or more of these problems was not significant.

used painkillers obtained without a prescription did not report this as non-medical use of painkillers. This result, which involved *adjacent* questions in the new version of the questionnaire, suggests that respondents' personal definitions of nonmedical use often override those provided in the questionnaire. So, for example, taking painkillers for "kicks" might easily be seen as a nonmedical use whereas using a friend's painkillers for a headache might not.

Whatever the underlying mechanism, it is clear that survey designers cannot rely on respondents to follow instructions to classify such usage as nonmedical. Decomposing nonmedical use into its constituent parts ensures that estimates of use can be calculated according to the survey designer's definition. It also allows examination of the impact on prevalence estimates of adopting alternative definitions—even after the survey is completed.

For measurements of problems caused by drug use, the differences in the results obtained from the current and new wordings were less striking. Nonetheless, our analyses suggest that decomposition can provide novel, useful, and, we believe, more accurate data on the consequences of drug use. We note, in particular, that decomposition offers the opportunity to obtain estimates of the prevalence of various problems among subgroups of drug users and abstainers without confounding those data with respondent judgments as to whether these problems were *caused* by their use of drugs.