Assessment of Public Health and Social Problems Associated with the Use of Psychotropic Drugs


Technical Report Series 656

World Health Organization Geneva 1981
CONTENTS

1. Introduction ...................................................................................... 7
2. Technology for assessment of extent of use of psychotropic substances ........ 9
   2.1 Outline of present knowledge on extent and patterns .................. 9
   2.2 Description and evaluation of methods of assessing prevalence and patterns of consumption ......................................................... 11
       2.2.1 Estimation of supply ................................................................. 12
       2.2.2 Methods of assessing drug distribution .................................. 13
       2.2.3 Assessment of consumption of psychotropic drugs .................. 15
       2.2.4 Indirect indicators of prevalence and patterns of consumption ...... 16
   2.3 Relation between extent of drug use and magnitude of drug-related problems ...................................................................................... 18
   2.4 Recommendations relating specifically to assessment of extent of use .... 19
3. Techniques for the assessment of drug-related health problems .................. 20
   3.1 Outline of present knowledge ......................................................... 20
       3.1.1 Mortality ................................................................................. 20
       3.1.2 Morbidity resulting from psychoactive substances ................... 21
   3.2 Evaluation and applicability of methods ........................................ 23
       3.2.1 Mortality ................................................................................. 23
       3.2.2 Morbidity ................................................................................. 25
       3.2.3 Role of toxicological analyses .................................................. 28
   3.3 Recommendations relating specifically to assessment of drug-related health problems ................................................................. 29
4. Techniques for the assessment of drug-related social problems ................. 30
   4.1 Present knowledge ......................................................................... 30
       4.1.1 Behavioural problems ............................................................... 30
       4.1.2 Criminal behaviour .................................................................... 34
       4.1.3 Socioeconomic effects ............................................................... 36
   4.2 Analysis, evaluation and applicability of methods ............................. 37
       4.2.1 Behavioural problems ............................................................... 37
       4.2.2 Criminal behaviour .................................................................... 39
       4.2.3 Socioeconomic costs ................................................................. 40
5. Conclusions and general recommendations ............................................. 42
Annex 1. WHO's activities in relation to its international treaty obligations .... 45
Annex 2. The role of nongovernmental organizations .................................. 47
Annex 3. Proposed mechanism for the monitoring of psychotropic drugs ...... 48
References ............................................................................................ 50
WHO EXPERT COMMITTEE ON IMPLEMENTATION OF THE
CONVENTION ON PSYCHOTROPIC SUBSTANCES, 1971
Geneva, 15 to 20 September 1980

Members
Dr P. Chanoit, Marcel Rivière Institute, La Verrière, Le Mesnil – St. Denis, France
   (Co-Rapporteur)
Dr H. Kalant, Associate Research Director, Biological Studies, Addiction Research
   Foundation, Toronto, Canada (Chairman)
Dr P. Kielholz, Director, Psychiatric University Clinic, Basle, Switzerland
Dr W. McGlothlin, Professor in Residence, University of California, Department of
   Psychology, Los Angeles, California, USA (Co-Rapporteur)
Dr R. Nadzharov, Deputy Director, Institute of Psychiatry of the Academy of
   Medical Sciences of the USSR, Moscow, USSR
Dr V. Nararatnam, Director, National Drug Dependence Research Centre,a
   University of Science of Malaysia, Penang, Malaysia
Dr O.O. Oguremi, Professor and Head of Department of Behavioural Sciences,
   University of Ilorin, Ilorin, Nigeria
Dr C. Schuster, Department of Psychiatry, The University of Chicago, Chicago, IL,
   USA
Dr K. Setyonegoro, University of Indonesia, Directorate of Mental Health, Ministry
   of Health, Jakarta, Indonesia (Vice-Chairman)
Dr M.I. Soueif, Professor of Psychology, University of Cairo, Egypt

Representatives of other organizations

United Nations
   Mr P.K. Bailey, United Nations Division of Narcotic Drugs, Vienna International
   Centre, Vienna, Austria
   Dr G.M. Ling, Director, United Nations Division of Narcotic Drugs, Vienna
   International Centre, Vienna, Austria
   Dr. B. Rexed, Executive Director, United Nations Fund for Drug Abuse Control,
   Vienna International Centre, Vienna, Austria

International Narcotics Control Board
   Professor T.L. Chrusciel, Deputy Director, Institute for Drugs Research and
   Control, Warsaw, Poland

International Criminal Police Organization
   Mr G. Atkinson, Drugs Sub-Division of the Interpol General Secretariat, Saint
   Cloud, France

International Council on Alcohol and Addictions
   Dr P.H. Connell, Director, Drug Dependence Clinical Research and Treatment
   Unit, The Maudsley Hospital, London, England

---
a This Centre is also a designated WHO Collaborating Centre.
International Sociological Association
Dr. A. J. Gebert, Bern, Switzerland

World Federation of Associations of Clinical Toxicology Centers and Poison Control Centers
Dr C. Bismuth, Toxicological Clinic, Fernand Widal Hospital, Paris, France
Dr C. Fromwbirth, Toxicological Clinic, Fernand Widal Hospital, Paris, France

World Psychiatric Association
Dr Eva Tongue, Deputy Director, International Council on Alcohol and Addictions, Lausanne, Switzerland

WHO Collaborating Centres
Addiction Research Foundation (Canada)
Mrs Ruth Cooperstock, Social Policy Research Department, Addiction Research Foundation, Toronto, Ontario, Canada

Health Research Institute (Thailand)
Dr Vichai Poshychinda, Chief, Drug Dependence Research Centre, Chulalongkorn University, Bangkok, Thailand

National Institute on Drug Abuse (USA)
Dr Donald Jasinski, Director, Addiction Research Center, Baltimore City Hospital, Baltimore, MD, USA

Secretariat
Dr A. Arif, Senior Medical Officer in Charge, Drug Dependence Programme, Division of Mental Health, WHO, Geneva, Switzerland
Dr T. A. Baashe, Regional Adviser on Mental Health, EMRO, Alexandria, Egypt
Dr A. H. Ghobue, Consultant Psychiatrist, Drug Unit, St George's Hospital, London, England (Temporary Adviser)
Dr H. Halbach, Honorary Professor, University of Munich, Federal Republic of Germany (Temporary Adviser)
Dr S. L. Harris, Chairman, Department of Pharmacology, Medical College of Virginia, Virginia Commonwealth University, Richmond, VA, USA (Temporary Adviser)
Dr O. Jeanneret, Director, Institute of Social and Preventive Medicine, Geneva, Switzerland (Temporary Adviser)
Dr Inayat Khan, Senior Medical Officer, Division of Mental Health, WHO, Geneva, Switzerland (Secretary)
Dr K. Poikolainen, Department of Public Health Science, University of Helsinki, Finland (Temporary Adviser)
Dr N. Sartorius, Director, Division of Mental Health, WHO, Geneva, Switzerland
Dr E. Sellers, Head of Medicine, Addiction Research Foundation, Toronto, Ontario, Canada (Temporary Adviser)
1. INTRODUCTION

The WHO Expert Committee on Implementation of the Convention on Psychotropic Substances, 1971, met in Geneva from 15 to 20 September 1980. Dr N. Sartorius, Director, Division of Mental Health, welcomed the participants on behalf of the Director-General. He stressed the importance of the work of the Committee because of the enormous extent of both medical and nonmedical use of psychotropic substances in all countries and because of the relevance of the subject to another programme of high priority in WHO, namely, the provision of essential drugs for health care in general and primary health care in particular. The terms of reference of the Committee were to advise on appropriate technology for assessment of the public health and social problems associated with the use of psychotropic substances and to make the health profession aware of these risks. There is a need for communication and coordination among workers in this field, standardization of terms and criteria, and training of personnel. Another important issue is to make effective drugs available to health services.

The scope of the Convention on Psychotropic Substances is dealt with in the twenty-first report of the WHO Expert Committee on Drug Dependence (II), and the responsibilities of WHO are delineated on pages 7–10 of that report. It concentrated, however, on the specific functions conferred on WHO by Article 2 of the Convention entitled “Scope of control of substances”, giving special attention to the psychopharmacological aspects relating to Article 2, paragraph 4(a) of the Convention and some attention to the assessment of
public health and social problems (Article 2, paragraph 4(b) of the Convention).

The twenty-first report of the WHO Expert Committee on Drug Dependence recommended *inter alia* (page 39) that WHO should establish or strengthen mechanisms that will give it timely access to data relevant to the assessment of drugs likely to be covered by the Convention, and that WHO should assist all parties to the Convention to develop methods for collecting such data.

In 1979, the WHO Executive Board urged Member States “to pay due attention to the development of suitable instruments and measures to monitor the untoward consequences of drug dependence and abuse for public health and for society in general” (resolution EB63.R29). The work of the present Committee is therefore related to the need to produce guidelines concerning methods and instruments for assessment of the public health and social consequences of the use of psychotropic substances, in order to contribute to the efficiency of implementation of the 1971 Convention on Psychotropic Substances. This represents, however, only one aspect of the work of WHO in relation to responsibilities deriving from the 1971 Convention. A summary of work carried out in this field is to be found in Annex 1.

WHO has long been concerned with problems of drug dependence and drug abuse. Initially, the main thrust of WHO's activities in this field was related to responsibilities deriving from international narcotics control instruments. Gradually, increasing attention has been given to the need for assessing problems associated with psychotropic drugs.

Since the emphasis in the Committee's discussions was on methods, it did not attempt to carry out a detailed review of all relevant psychotropic substances. However, in various sections of the report, the points of specific concern have been illustrated by reference to groups of drugs that are associated with different and contrasting problems.

The Committee, while noting that Article 2 of the Convention refers to "abuse", was concerned about difficulties in the use of terms such as "abuse", "use", "misuse", and "illicit use". It noted that the systems of health care and drug supply and control varied widely among the countries of the world. In some countries, for instance, there were few doctors or pharmacists, and drugs were supplied by relatively unqualified persons in an unstructured way, but with general relevance to therapeutic use. Furthermore, in some countries drugs of the same chemical class are listed under different schedules: for example, in one country nitrazepam, chlordiazepoxide, and chlorazepate are available on a single prescription with indefinite renewal,
while all other benzodiazepines are in a schedule requiring a new 
prescription each time the drug is dispensed. The Committee there-
fore decided to employ the general term “drug use” in its deliber-
ations.

Further, it was recognized that widely different demographic, 
social, cultural, economic, and environmental influences prevail in 
different regions of the world, and that countries and regions differ 
substantially in the levels of advancement of their health services and 
research facilities, and in the variety of available dependence-produc-
ing psychotropic substances. For this reason, the Committee recognized 
a need for differentiation of the types of data-gathering necessary for 
assessment of health and social problems related to use of such drugs 
in different parts of the world. To this end, it included in its assess-
ment of research methods, specific attention to their applicability in 
different parts of the world. This consideration is also reflected in the 
recommendations that follow sections 2.4 and 3.4 of the report and in 
the general recommendations at the end of the report (section 5).

2. TECHNOLOGY FOR ASSESSMENT OF EXTENT OF 
USE OF PSYCHOTROPIC SUBSTANCES

2.1 Outline of present knowledge on extent and patterns

The Committee reviewed the findings of studies on the use of psy-
chotropic substances conducted between the late 1960s and the pres-
ent time. Although the term “psychotropic substances” includes 
natural products with psychotropic actions, industrial solvents, and a 
wide variety of other materials, this section applies principally to syn-
thetic psychotropic therapeutic agents.

The studies reviewed represent a variety of methods, and all attempt 
some assessment of consumption in large populations. For the most 
part, information about the use and spread of psychotropic substan-
ces has been acquired in developed countries, although it is becoming 
increasingly apparent that misuse and abuse of these drugs exist in 
some developing countries (1). Systematic studies are rare in the 
developing countries. Within any one country or geographic region, 
direct comparisons between various studies of drug utilization are 
difficult because of differences in the drugs selected for study, the
categorization of the drugs, and the methods of analysis employed. In an effort to permit reasonably general conclusions, this report will therefore focus on studies with similar criteria and from limited geographic areas. These include the USA, Europe, Canada, and Australia. Studies in a number of developing countries have also been cited.

Fourteen studies from the USA, including 8 large-scale surveys, prescription audits, and analyses of sales data, demonstrate consistency in some general findings. There has been a decline in the reported use of stimulants and barbiturates, as shown by both sales and national survey figures (although this does not take into account illicit production). Minor tranquilizers and/or sedatives are used more than all other drug classes, and are also reported to be used more regularly. Women are considerably greater consumers of medically prescribed tranquilizers and sedative-hypnotics than men, while more men than women report nonmedical use. Regular or frequent use of psychotropic drugs increases with age.

In Europe (14 studies reviewed) there have been similar findings. Reports indicate that use of barbiturates and stimulants has generally decreased, while over a 10-year period the use of nonbarbiturate hypnotics, and especially of benzodiazepines, has increased steadily as a proportion of all psychotropic drugs used. One United Kingdom study found that 5% of all females and 3% of all males reported use of tranquilizers for longer than 6 months during the previous year. The one cross-national study comparing the USA and a number of European countries reported that during 1971 the rates of psychotropic drug use ranged from 10% in Spain to 17% in Belgium and France, with females reporting more use than males in every country (2).

Australia has the advantage of a data base provided by the National Pharmaceutical Benefits Scheme, which covers approximately 90% of all prescribed drugs. The 3 reports utilizing this data base demonstrate that in 1976–77 psychotropic drugs represented 12% of all prescriptions. Pensioners, who constitute 9% of the Australian population, consume 45% of all psychotropic drugs. The pensioners accounted for two-thirds of barbiturate use, one-half of the use of nonbarbiturate sedative-hypnotics, and one-third of the use of minor tranquilizers.

The Canadian data are based on 10 studies in 3 Canadian provinces. Surveys of children and adolescents tend to show that psychotropic drug use among them is only sporadic and experimental while regular steady use increases with age. Sex differences in psychotropic drug use are considerably less marked among the young than among adults (this finding also applied to the United States and Australian studies).
In general, the Canadian data tend to conform to patterns similar to those found in the USA and Europe.

In addition to the above studies, which are directed primarily towards the use of psychotropic drugs obtained by prescription, there are numerous surveys of school and other populations that are concerned primarily with the nonmedical use of these substances. A recent WHO publication reviewed general population studies of the use of both licit and illicit drugs in 8 countries (3). Large-scale surveys of secondary-school populations in the Philippines, Thailand, and Malaysia have found that between 4% and 8% have used various stimulant, sedative, or hallucinogenic drugs (4, 5, 6).

2.2 Description and evaluation of methods of assessing prevalence and patterns of consumption

The nineteenth report of the WHO Expert Committee on Drug Dependence was primarily devoted to a discussion of epidemiological approaches and other methods for collecting data on the nonmedical use of dependence-producing drugs (7). These methods included central case registers, cross-sectional surveys, retrospective and prospective longitudinal studies, and “natural experiments”. This section will therefore focus on topics relating to either prescription drugs or culturally acceptable or sanctioned drug use. Clearly, there are many areas of overlap between methods applicable to the assessment of socially sanctioned and unsanctioned use, but a larger array of methods is available for the assessment of sanctioned consumption. (In most countries, the same substances are both medically and socially sanctioned. However, there are instances in which this is not the case. The methods to be described are applicable to both types.)

The methods that have been used to date have generally been neither concerned with, nor appropriate for, assessing the possible social and public health consequences of drug consumption. What follows is a description of the major methods in current use, the kinds of information that potentially may be obtained by these methods, and some limitations of each approach. Of the greatest value are data that can be collected longitudinally and/or data that can indicate trends over time, as well as methods that permit the identification of consumption by individual users in order to assess the relation between amounts and patterns of use and social and public health problems.
2.2.1 Estimation of supply

In order to form an idea of the magnitude of any single drug abuse problem one must have some quantitative data. The first and probably most easily approached factor involves the supply side of the distribution arm. That is, how much of the drug is available and how much is being used licitly and illicitly? The problem of gathering such data is complex and the accuracy of the picture obtained will vary with both the drug and the country involved. For instance, drugs that are already scheduled at either an international or a national level require a degree of record-keeping that varies with the level of control. On the other hand, some countries keep careful records of both the production and licit use of all drugs in their territories, while others have little or no information in this regard. Factors affecting the available supply can be divided into three broad categories: (1) licit and illicit production, (2) licit and illicit importation, (3) licit and illicit exportation. Data on all three categories are necessary to arrive at an estimate of the supply available at any given time.

The most reliable data, of course, are those for licit production, importation, and exportation; these may be obtained in many countries from governmental, industrial, and commercial survey sources, as well as from international control bodies. For instance, in the USA, production data on drugs controlled nationally or internationally may be obtained from the Food and Drug Administration or the Drug Enforcement Administration, which obtain data through their Automated Reports and Consummated Orders System (ARCOS). Information provided by the Government on manufacture, export, import, and (for substances in Schedules I and II only of the Single Convention) on stocks of internationally controlled drugs can be obtained from publications of the International Narcotics Control Board. Data on marketed but non-controlled prescription drugs can be obtained from the Food and Drug Administration (USA), directly from the manufacturers, or from commercial firms that specialize in manufacturing surveys of the pharmaceutical industry.

In other countries, a variety of sources are also available. A few illustrative examples may suffice. In Finland, such information is available from a single source, the National Board of Health. In Egypt, where drug production is a virtual governmental monopoly, data can be obtained from the Division of Pharmacy of the Ministry of Health. In Malaysia, which has no primary manufacturing, import and export data can be obtained from the Ministry of Trade and In-
dustry or the individual firms. In some developing countries, facilities for carrying out sampling or survey studies do not yet exist and will have to be created in their entirety.

Illicit production, importation and exportation present a much more difficult problem. Nevertheless, some information can be obtained from data such as seizures and purchases made on the illicit market for investigative purposes. These data give some indication of the availability, purity, and cost of individual drugs.

Sampling surveys from general and drug-using populations can also provide useful information. Indeed, this may be the only way to obtain reliable data in many countries.

In the USA this is accomplished, in part, by the National Survey of Drug Abuse, a survey of households carried out by personal interviews. One piece of information obtained concerns the availability and use of pharmacological classes of drugs. The system suffers from the fault of not being specific for individual drugs. Another source of data on the supply of illicit drugs is the Client-Oriented Data Acquisition Process (CODAP), which is used in all federally funded drug-abuse treatment facilities. Drug availability information from this data system is self-reported by clients and presents problems of consistency and validity.

What is important is not the absolute accuracy of such data, but their collection on a regular basis, since this will provide information on trends. For instance, it will reveal whether there is a sudden increase in the available supply of a certain drug in one or more countries. If this is not a reflection of an increased legitimate use, then it may be a strong indication of a developing abuse problem.

2.2.2 Methods of assessing drug distribution

None of the following methods permits accurate assessment of actual consumption; therefore, any associations made between distribution figures and social and public health consequences of use require additional study.

(1) Crude sales data: Sales data, expressed in monetary units, can provide a gross overview of the distribution of substances or classes of substances and can be studied over time. They do not provide a measure of use or consumption unless the country also keeps national prescription registries, as described below.

(2) Prescription registry data for total populations or for selected segments of populations (e.g., elderly, social welfare recipients, union
members): These data can provide information on individual drugs or drug classes and, if linked with health data on individual recipients, can describe patterns of prescribing. This method would permit the application of the concept of “defined daily dose” (8–10), thus allowing a high level of comparability between different populations or subgroups. This method also allows an examination of trends and patterns in prescribing practices. Such methods permit the examination of individual differences in prescribing patterns of physicians, as well as differences between groups of physicians differentiated on the basis of age, specialty, etc.

(3) Prescriptions dispensed through pharmacies: If the prescriptions are sampled adequately, these studies have some of the advantages of prescription registry data and, if repeated over meaningful periods of time, allow the collection of trend data. As with prescription registries, descriptive data may be available that permit the identification of patterns (e.g., sex of patient, type of prescribing physician). Such studies are limited by the size and quality of the sample selected. It is also difficult to discern patterns, i.e., whether many are receiving a few drugs each or a few are receiving many drugs, unless all outlets are sampled.

(4) Physician practice prescription records: When systematically kept, such records can provide trend data for individual patients and can be linked to symptoms and/or diagnosis. Unfortunately, relatively few physicians maintain such complete records and they may not be typical prescribers.

(5) Studies of drugs dispensed to institutionalized populations (hospitals, prisons, nursing homes): Such studies are of particular value as these populations are frequently given prescriptions for psychotropic drugs and are overlooked by other methods of assessment.

(6) Assessment through distribution systems where medications are not sold on prescription or where both systems coexist: Such distribution systems would include pharmacies in countries where prescriptions are not required, as well as other types of shop or outlet where drugs are sold or dispensed. The only precondition for the use of such data is that these outlets be acceptable to the general public. This method can provide information on sales that could be combined with data from more formal channels. Such sources could be a quick means of identifying new drugs on the market and, if sampled frequently, can provide trend data. In addition to traditional methods of acquisition of sales data, observers who are themselves involved in the
drug subculture ("participant observers") and community-based informants can be utilized.

2.2.3 Assessment of consumption of psychotropic drugs

Most studies of consumption rely on self-report methods, in which problems of validity are of particular importance. Since the consumer of the substance can be identified, these methods offer a better possibility of linking consumption to social and health problems associated with use. It is necessary to institute careful measures to protect the confidentiality of replies and the identities of individual respondents.

(1) National and cross-national self-administered questionnaire or interview surveys of drug use: These give a measure of reported consumption and allow the identification of high-risk segments of the population. Such data can provide information on other types of health indicators and on the use of other substances, such as alcohol and tobacco. Moreover, if a similar or the same sample is tested repeatedly over time and the identical questions are asked, trend data can be collected. Self-report and interview data are subject to problems of recall and interviewer bias. Surveys can indicate the correlations between consumption data and health and social problems but add little to an understanding of why particular associations exist.

(2) Surveys of selected populations: These could be surveys of particular high-consumption groups, such as youth, minority groups, women, or the elderly, and share the advantages and disadvantages of self-report and interview data, as well as being limited to the population under study.

(3) Natural history studies of patterns of use: This method, which can be applied to either individuals or groups, permits free expression of experience and opinion since it does not utilize prestructured questions. While the method suffers from sampling limitations, it can provide information on potential social and public health problems that can subsequently be studied by more systematic methods. Such studies are more able to address the issue of causality than other methods and are of greater heuristic value. This method has the disadvantage of requiring skilled interviewers and may be slower and more costly than structured interviews.

As demonstrated in the above discussion, all methods have advantages and disadvantages. Whenever possible it is desirable to use more than one method of assessing prevalence and patterns of use.
A recent study of alcohol consumption in one region of Ontario (81) clearly illustrates this. Three methods of assessing consumption were applied in the same area over a short time interval. One was a general population survey, another was the collection of sales data from liquor and beer outlets, and the third was the utilization of a method developed for non-literate populations. This last method brought together small groups of individuals sharing demographic characteristics, such as sex, age, and occupation, and asked them projective questions (e.g., “How many people like yourselves would you say drink alcoholic beverages?” “How much?” etc.) It was found that the relatively inexpensive projective technique applied in group interviews correlated well with the sales data for alcohol consumption, but the survey results underreported consumption by 50%. Thus, it is desirable, whenever possible, to utilize more than one means of data collection.

The approaches described in the preceding sections are most readily applicable to the study of consumption of prescribed psychotropic medications. For investigation of illicit consumption it is often necessary to use less formal methods. These are described in the following section.

2.2.4 Indirect indicators of prevalence and patterns of consumption

Numerous other methods of data collection exist that indicate problems associated with psychotropic drug consumption. In the USA, these include systems such as DAWN (Drug Abuse Warning Network) and CODAP (Client-Oriented Data Acquisition Process). In many countries, it is possible to collect hospital emergency facility statistics and notifications of adverse drug reactions, police seizures, etc. While these data provide valuable information on rough trends, they generally reflect problem-generating behaviour on the part of a small and variable segment of the population.

In the twenty-first report of the WHO Expert Committee on Drug Dependence (11), the various potential national sources of data concerning drug abuse are outlined:

“(1) National alerting or early warning reporting systems, which collect data systematically from a number of reporting points strategically located throughout a country or region.

(2) Centres for narcotic maintenance, detoxification, or treatment of drug-dependent persons, where interviews and urinalysis can reveal the various drugs in current use.
(3) Forensic or public health chemical laboratories, where drugs illicitly in circulation can be analysed.
(4) The reports of coroners [or medical examiners] when autopsies have been performed in cases of deaths suspected of being related to drugs.
(5) Public health reports regarding conditions that may be related to the non-medical use of drugs (e.g., serum hepatitis).
(6) Case register that record contacts of drug users with treatment and other institutions.
(7) Police and other law enforcement services in close contact with the milieu of the illicit distribution and use of drugs.
(8) Emergency treatment centres and 'street' clinics, which are in contact with persons suffering from the adverse effects of drugs or combinations of drugs.
(9) Youth and student counselling services, where information may be provided about drug use.
(10) Reports and references appearing in youth-oriented publications and broadcast by youth-oriented radio stations."

With respect to the development of an effective and coordinated data collection programme, it seems important to establish a centralized agency charged with the responsibility for overall surveillance, development of standardized data collecting forms and procedures, and determining the reliability and validity of collected data. Because of the disparate sources of information, some data sources need to be reviewed carefully to ensure a reasonable degree of reliability and validity with respect to providing useful information.

A basic step for ensuring accuracy of data collection is the development of uncomplicated data-gathering procedures. It is imperative that there be adequate and rapid feedback of the analysed data to gathering units and that the data are meaningful to these units. Further, wherever possible such data-gathering efforts should be integrated into the normal information-gathering activities of the reporting units. In some countries, financial inducements have been provided to ensure accuracy of data gathered.

Other approaches that have been used concurrently to ensure validity of data gathered include:
—use of an alternative data-gathering technique (e.g., surveys, interviews, etc.) on the same population cohort;
—use of analytical techniques to measure drug levels in body fluids;
—analysis of street drug samples.

Irrespective of the approach used, it is imperative that the degree of validity be known before social policies are evolved on the basis of the information gathered.
2.3 Relation between extent of drug use and magnitude of drug-related problems

The foregoing sections have dealt with methods of gaining information on the extent and patterns of drug use, both medically prescribed and nonprescribed. It must be borne in mind, however, that total or per capita rates of drug prescription or drug use cannot be equated with magnitude of drug-related problems. Psychotropic drugs, as defined here, are used principally for the treatment of disease, and nonprescribed or nontherapeutic use constitutes a relatively small part of the total use in most countries. Increases in the extent of use may therefore be due to increases in the frequency of occurrence or of diagnosis of the conditions for which the drug is prescribed, changes in current medical standards with respect to optimal dosage for the treatment of those conditions, or changes in preferred therapy from methods using no drugs or other drugs to use of the drug in question.

For these reasons, an increase in the extent of use of the drug does not, in itself, constitute a cause for alarm or a sufficient justification for the imposition of control measures that might limit availability or convenience of use of the drug for therapeutic purposes. The twenty-first report of the WHO Expert Committee on Drug Dependence noted (II, section 6) that “The drug’s usefulness must be weighed against the potential or established risks from its abuse, and the resulting ratio determines both the need for control and the degree of control”. It stated further that “WHO must make every effort to ensure that the inclusion of drugs in the schedules is justified by the appropriate assessment of the balance between risk and benefit”, and outlined a series of principles for assessing the therapeutic efficacy and safety of a drug, as well as its overall usefulness in comparison with other available therapiess.

All those considerations are still valid. An additional important consideration that bears on the balance of risk and benefit is the relationship among the extent of total use, the extent of heavy use, and the risk of specific identified ill-effects of such use. With respect to ethanol, this relationship has been worked out in considerable detail (82–84), and it has been demonstrated that the distribution of levels of average daily consumption of alcohol among the drinking population of a country fits a unimodal curve with a continuous smooth transition between the large numbers of users of the lower average daily amounts and the small numbers of users of the highest amounts.
Average daily intake levels have been identified at which the risk of various specified hazards of alcohol use becomes significantly greater than in the general population, regardless of whether those levels are or are not associated with a pattern of dependent use. It will be important to determine whether a similar relationship is valid for the use of prescribed psychotropic drugs, since this would have an obvious bearing on the balance of risk and benefit for a given drug.

Perhaps the most difficult factor to assess, however, in the balance of risks and benefits, is the level of dosage required by norms of good medical practice. This is essential for interpretation of the significance of changes in the extent of use in a population, and it is implicit in the responsibility assigned to WHO for the “appropriate assessment of the balance between risk and benefit”. However, it does not require merely a technique of measurement, but also a method for arriving at a consensus of expert clinical judgement. Perhaps for this reason it was not included in the mandate of the present Expert Committee; it should be the subject of a meeting convened specifically for that purpose.

2.4 Recommendations relating specifically to assessment of extent of use

1. Recognizing that there exist numerous sources of relevant data other than the official sources currently in use, it would be useful for WHO to initiate efforts to collect such information systematically.

2. It is important that countries be able to request help in the establishment of an “Emergency Treatment Services Monitoring System”. Expertise in this area should be made available by WHO. An appropriately constituted advisory group could assist in the development of a “collection system” to yield internationally comparable data. Such information gathering and compilation would be especially useful in scheduling functions in respect to the 1971 Convention on Psychotropic Substances. It is noted that the WHO Collaborating Centres for Research and Training in Drug Dependence represent one such informal information-gathering source.

3. Recognizing the importance of routinely collected data and noting the deficiency of national mechanisms and the inadequacy of gathering and reporting systems in the field of psychotropic substances in many of the developing countries, it is recommended that concerted efforts at national, regional, and international levels be made to remedy the existing deficiencies and to develop appropriate
ways and means for routine gathering of relevant information on drug abuse and its related social and public health problems.

With respect to the development of an effective and coordinated data-collection programme, it is important that national centralized systems be established that can assume responsibility for overall surveillance, development of standardized data collecting forms and procedures, and determining the reliability and validity of collected data.

4. Taking into account (a) the necessity of improving knowledge of patterns of prescription of psychotropic drugs in all parts of the world and (b) the fact that the United Nations Division of Narcotic Drugs has compiled a set of laws and regulations for most countries,\(^1\) concerning persons who are authorized to prescribe such drugs, it is recommended that a comparative study be made of the proportion of prescriptions or dispensing of these drugs accounted for by different categories of health care personnel (physicians, pharmacists, dentists, nurses, midwives, etc.) in various countries.

3. TECHNIQUES FOR THE ASSESSMENT OF DRUG-RELATED HEALTH PROBLEMS

3.1 Outline of present knowledge

3.1.1 Mortality

Crude overviews of mortality due to overdoses from psychotropic substances can be obtained from most national cause-of-death statistics by adding together the categories of fatal accidents, suicides, deaths following assaults, and undetermined deaths ascribed to solid and liquid substances. A large proportion of these cases actually involve psychotropic substances. Such calculations have indicated considerable increases in mortality from these substances in the USA (12–15), Denmark, Sweden, and Norway (16) during the past 20 years. In Australia the number of deaths from drug poisonings first

\(^1\) Issued by the United Nations in multigraphed form in the E/NL series.
increased from 91 in 1955 to 719 in 1967 and then decreased to 501 in 1970 after the adoption of a more stringent policy with respect to the prescription of sedatives (17). No increases in drug poisoning mortality have been observed in France, Italy, and the Netherlands in 1961–1969 (18), in Switzerland in 1957–1976 (19), or in Finland in 1961–1973 (16).

Several follow-up studies indicate that mortality among opiate addicts as well as among intravenous amphetamine users is considerably higher than the mortality in the respective reference populations (20–26, 33). Deaths among addicts are often due to overdose, but other causes of death are also important. The percentage of the latter causes has varied from 22 to 67 in the various studies (20, 27–30). The extent to which drug abuse increases the risk of death from causes other than poisoning remains to be evaluated.

The risk of road traffic casualties associated with the use of psychotropic substances is discussed in section 4.1.1.1 of this report.

3.1.2 Morbidity resulting from psychoactive substances

3.1.2.1 Morbidity due to acute overdose. Increasing numbers of patients appear at hospital emergency services, suffering from acute consequences of ingesting excessive doses of psychoactive drugs. Data obtained from studies in London (31), Toronto (30), Miami and Edinburgh (unpublished data), and by the DAWN system in the USA, are generally consistent and indicate that the substances most commonly encountered in overdose cases are benzodiazepines (30%), ethanol (25%), minor analgesics such as salicylates (20%), barbiturates (15%), and other sedative-hypnotics (10%). In London, England, and Toronto, Canada, the incidence of drug overdose was about 4 per 1000 population per year. Some 40–50% of patients had taken more than one drug. More than 50% of such patients were less than 30 years of age and twice as many were female as male.

With respect to changes in the pattern of drugs encountered in such cases over the past decade, the reduced frequency of more dangerous overdosage with barbiturates has been more than offset by a concurrent increase in benzodiazepine overdosage. This has been associated with a decrease in overdose fatality but an increase in morbidity.

In several studies, it has been shown that the choice of drug for ingestion in overdose is closely related to the general availability of the particular drug. Most such drugs are obtained by prescription.
3.1.2.2 Morbidity due to chronic consumption of large doses.

There exists a certain amount of published information on organ pathology and functional disturbances of various body systems in users of psychotropic drugs, although it is not nearly as large as the corresponding literature on alcohol and opiates. Some of the evidence, dealing particularly with amphetamines, methylphenidate, and benzodiazepines, has been reviewed recently by Schuster et al. (32), and numerous other reviews are available for different types of psychoactive drugs or specific types of pathology.

From these sources, it is clear that all the commonly used psychoactive drugs are capable of producing histological changes or functional impairment in many systems. However, the frequency of occurrence differs quite widely. The highest incidence of serious pathology, such as parkinsonism and other motor disturbances, intrahepatic biliary obstruction, disturbances of myocardial function, or neuroendocrine imbalance, is encountered during long-term therapy with neuroleptics, such as chlorpromazine, and with tricyclic antidepressants. Probably the lowest incidence of major disturbances, relative to the amount of use, occurs with benzodiazepines. Nevertheless, all the commonly employed psychotropic substances have some appreciable risk of toxicity.

In general, the various forms of toxicity may be categorized as: (1) direct pharmacological consequences of the drug action, (2) indirect consequences of the drug action, (3) consequences of the method of drug administration.

These types can be illustrated readily with examples drawn from the literature on amphetamines and benzodiazepines. Type 1 would include hyperpyrexia, ventricular arrhythmias, and characteristic paranoid psychosis, all of which may be directly provoked by amphetamine (33), and ataxia caused by large doses of diazepam (34). An example of type 2 would be trauma resulting from inappropriate behaviour caused by amphetamine-induced hallucinations or delusions (33). Type 3 is exemplified by bacterial endocarditis, viral hepatitis, or necrotizing angitis caused not by the drugs themselves but by the use of unsterile techniques for intravenous injection or by improper use of oral preparations for parenteral administration.

Physical dependence, revealed by the occurrence of withdrawal reactions, is also a type 1 effect. While withdrawal reactions of varying severity have long been known to occur in heavy users of alcohol and barbiturates, a similar picture has more recently been identified in benzodiazepine users after prolonged use even of doses at the
upper levels of the therapeutic range (35). It is very similar to alcohol-induced delirium tremens and is characterized by insomnia and nightmares, nausea and vomiting, tremor, mental confusion, clonus, and single or repeated epileptic seizures. The major difference is that the long half-life of the benzodiazepines causes the onset of the withdrawal reaction to be delayed for days after the last medication. Physical dependence on benzodiazepines probably occurs more frequently than is generally recognized.

One area of special concern is the production of fetal or neonatal injury by drugs consumed by pregnant women or lactating mothers. Some of the evidence on these matters is included in the review by Schuster et al. (32). A very comprehensive review has been prepared by Finnegan & Fehr (36).

3.2 Evaluation and applicability of methods

3.2.1 Mortality

National cause-of-death statistics continue to be the basic source of data on overdose deaths from psychotropic substances in most developed countries. Numbers of deaths are usually published only according to the “E” code (External cause of injury and poisoning) of the International Classification of Diseases (ICD). To obtain a comprehensive view, all poisoning deaths included in these statistics, whether accidental, suicidal, homicidal, undetermined, or due to drug dependence, should be considered together.

In addition to the “E” code data, numbers of deaths should also be tabulated and published annually according to Chapter XVII (Injury and poisoning) of the 9th revision of the ICD or to the “N” code (Nature of injury) in the 8th revision of the ICD, since this will provide more substance-specific information on various groups of fatal poisonings induced by psychotropic substances than tabulations according to the “E” code and will give directly the total numbers of poisoning deaths.

For comparative purposes, the main focus will be on certain young age-groups, say those aged 15–34 years, since the majority of overdose deaths are likely to occur in these age-groups in many countries and because deaths in these age-groups imply large losses of potential years of life. Moreover, death certification is likely to be more reliable in these groups than in the older age-groups owing to a higher frequency of autopsies and toxicological examinations.
The advantage of national data on causes of death is their representativeness. However, these data often have two disadvantages. First, their publication may be delayed for several years; second, the data are not sufficiently substance-specific. National statistics should therefore be supplemented, wherever feasible, by analyses of series of forensically examined deaths associated with psychotropic substances, as these can indicate rapidly any substantial increases in the number of deaths from specific psychotropic agents.

In developing countries, the above means of obtaining data on deaths due to poisonings from psychotropic drugs may not always be feasible. In these circumstances, information on drug-induced deaths may be obtained from lay informants belonging to the population groups in which the use of psychotropic substances is prevalent, and from astute medical practitioners or other health personnel.

The accuracy of data from national cause-of-death statistics should be further evaluated. Variation in thoroughness of cause-of-death inquiries and in diagnostic practices may introduce bias, for which they should be corrected when possible.

To increase the accuracy of cause-of-death examinations, continuous training for the certifiers and quality control surveys of laboratory examinations are recommended. More research on detection, pharmacokinetics, and lethal mechanisms of psychotropic substances, alone and in combination, is also needed.

As the present system of classification of deaths (9th revision of the ICD) is ambiguous and not sufficiently detailed with respect to the large variety of psychotropic drugs, the Committee recognizes that an additional supplementary classification of psychotropic substances involved in deaths needs to be developed.

Natural, accidental, and suicidal deaths in which psychotropic substances are a contributing factor could be studied in three ways, none of which has been much used. First, national cause-of-death registers may include data on underlying causes of death that have overdose or abuse of psychotropic substances as a contributing cause on the death certificate. Mention of these substances as a contributing factor within the various categories of underlying causes of death can illustrate the extent of deaths associated with psychotropic substances. Secondly, the total number of deaths from psychotropic substances could be estimated in all groups of underlying causes by multiplying the number of deaths in all these groups by the respective "attributable risks", the latter having been derived from earlier special epidemiological studies on the risks of death associated with psychotropic
substances. Thirdly, an approximation to the total number of deaths can be obtained by calculating the product of the estimated number of drug abusers in a given population and the corresponding estimate of their mortality rate, the latter having been obtained from previous epidemiological studies.

The third method could be used in some developing countries that lack reliable statistics on mortality. The second and third methods can be used only if the risks of death in drug-using populations have been previously ascertained. Epidemiological follow-up studies on the mortality among users of various drugs are therefore needed.

In addition, evidence on the impact of psychotropic substances on mortality can be obtained from studies evaluating the effects of drug control measures on the subsequent mortality. The impact of control measures on mortality should therefore be studied, whenever possible, by comparison of mortality rates before and after initiation of such measures or changes in them.

### 3.2.2 Morbidity

3.2.2.1 Monitoring the psychotropic drug-related problems in emergency treatment services. The most important measure of acute morbidity due to psychotropic drugs is that of overdose. Since the majority of cases of drug overdose are seen in hospital emergency treatment centres, they are best studied in these settings. Research carried out in different emergency treatment centres has not often focused on all the issues but usually on only one of four interrelated issues:

— the illegal use of drugs,
— suicide and suicide attempts with drugs,
— the symptoms and effects of physical dependence,
— episodes and outcome of acute drug intoxication.

Emergency treatment centres are capable of monitoring a wide range of drug problems and identifying trends in drug abuse in the general population.

The advantages of emergency treatment centres as a setting for drug-abuse studies are as follows:

1. Some form of medical emergency service exists in all health care systems.
2. They are “neutral” ground for those with drug-related problems. For those who have taken a drug overdose, for example, the underlying psychosocial reasons are ignored, at least temporarily,
while the acute consequences of the overdose are treated by a medical team.

(3) Such centres can serve as “early warning” systems.
(4) Trends can be used as a measure of the impact of control policies.
(5) Although emergency treatment centres differ in various countries, the standardization of variables should permit the collection of comparable data.

The following are suggestions for practical procedures to be followed:

(1) Studies should be prospective in nature because notes taken during an emergency situation are rarely sufficiently detailed to allow comprehensive data to be obtained retrospectively.
(2) Questionnaires should also be brief and simple, so that the staff, whose responsibility is to the patient and not to the research, can complete it easily.
(3) The questionnaire should be printed in such a way that one copy can remain with the hospital notes. This will save the staff from having to record their findings in duplicate.
(4) The questionnaire should concentrate on factual rather than judgemental or descriptive data.
(5) All emergency staff should be issued with instructions to help them complete the questionnaire accurately. Words and phrases such as “dependent”, “consciousness impaired”, “suicidal attempt”, should be carefully defined.
(6) Where possible, blood and urine samples should be obtained for drug analysis.
(7) It is essential in each centre to identify a “key person” interested in the study and responsible for supervising it, maintaining a high level of staff cooperation, and coordinating with the main research team.
(8) Regular feedback of the findings is very important in maintaining involvement of the centres.
(9) Strict medical confidentiality must be guaranteed.

3.2.2.2 Public health statistics. One possible method of obtaining an impression of the frequency of occurrence of drug-related health problems is the monitoring of public health data on the frequency of reports of various types of pathology, such as serum hepatitis or certain types of fetal damage. The assumption is that these problems are closely enough linked to drug consumption to serve as a reasonable
index of the latter. The advantage is the simplicity and low cost of the method. If data on such problems are gathered routinely and are made available promptly, they would presumably offer early semiquantitative indications of changes in the extent and amount of psychotropic drug use.

Unfortunately, this simplicity and economy are offset by a serious lack of specificity. To be useful for the purpose of estimating the magnitude of drug-induced health problems, such indices must meet two requirements: (1) the disease or disturbance being monitored must be relatively specific for the drug in question, and (2) a substantial majority of cases of the disease must be due to the use of that drug.

Neither of these requirements is met by the suggested indices. Serum hepatitis, for example, is related to unsterile injection technique rather than to any specific drug and has therefore been encountered in users of opiates, amphetamines, and various other drugs that are commonly self-administered by illicit users. In addition, it can also be transmitted by means other than the injection of psychotropic drugs, and the proportion of all cases that is attributable to injection can vary from one region to another and from one period to another.

Therefore, in order to be useful for purposes of estimating the extent of health problems caused by a particular drug that is being considered for scheduling, these indices would have to be improved markedly by a series of epidemiological refinements. It would be necessary to determine, by specific investigations, the following points:

1. What percentage of all cases of the disease in question is due to the particular drug being studied?

2. What percentage of all individuals with health problems attributable to that drug suffers from the disease in question during the time of the inquiry?

3. What percentage of those cases comes to the attention of the monitoring services from which the data are derived?

It is clear that the research needed to permit the derivation of a valid index of this type is formidable, and it would also be necessary to revalidate it from time to time because of the possibility of changes in the percentages noted above.

As noted in section 2.2 with respect to extent of use of psychotropic substances, the extent of health problems arising from such use can also be gauged roughly and indirectly by monitoring data collected routinely from a variety of agencies and services to which individuals
suffering from drug-related health problems often turn for help. Reference has already been made to CODAP in the USA. In France, "La Pharmacovigilance", an agency of the Ministry of Health, collates data from doctors, hospitals, pharmaceutical laboratories, etc. Similar systems for the monitoring of adverse reactions to drugs exist in other countries. Some of the advantages of data collection by such systems have been discussed in section 3.2.2.1.

3.2.2.3 Drug-related psychiatric disorders. Psychiatric disorders are often associated with the abuse of certain psychotropics drugs. It is well established, for example that the amphetamines can produce a toxic psychosis (37, 38, 87, 88). Although the causal relationships are unclear, a number of studies have demonstrated an association between depression and heroin abuse (32). The Committee felt that these data suggest that psychotropic drug-induced psychiatric disorders are an important public health consequence. However, this problem was not dealt with in detail since it is being considered within the WHO International Programme on the diagnosis and classification of mental disorders, alcohol and drug-related problems.

3.2.3 Role of toxicological analyses

Toxicological analyses can provide important information in assessing drug-related health problems. Methods have been developed for both the qualitative and quantitative measurement of drugs in body fluids and tissues. Some countries are carrying out such analyses on a routine basis in situations such as medical examiners' offices. Many hospitals in the developed countries also carry out such analyses as a part of routine medical care. Where this is done, it is a cost-effective method of gathering data on drug-related health problems.

Where analytical facilities are available or can be developed, the data generated can be of crucial value in establishing the validity of other data concerning the role of psychotropic drugs in morbidity and mortality. Some caution is necessary, however, in the interpretation of analytical data. Drugs have different pharmacokinetic and pharmacodynamic properties, and thus, at the time of sampling, the levels may not relate directly to the observed toxicity.

---

2 The Committee recognized that medications other than those usually classified as psychotropic may also have adverse psychological effects (e.g., hormonal therapy leading to depression).
In addition, even if a drug is detected, that may have little or nothing to do with the phenomenon under study. The drug may have been prescribed for a legitimate therapeutic use which has no relationship to the health problem observed. Another fact that must be taken into account is that multiple drugs are often involved and one drug can markedly influence the absorption, distribution, excretion, and metabolism of other drugs. In any case, for analytical data to be of use in establishing cause-and-effect relationships, standard data must be available relating blood levels to pharmacological and/or toxicological effects.

Even if analytical facilities are not available, other methods can be used to relate drug intake to health problems. These include such procedures as obtaining a careful medical history, including questions concerning drug use.

Other confirmatory data may be obtained from finding drug supplies in possession of the individual or from observation of needle tracks or other physical signs of drug use. Final confirmation may be obtained in selected cases by sending blood or tissue samples to a national or regional laboratory for analysis.

3.3 Recommendations relating specifically to assessment of drug-related health problems

1. The Committee recommends that WHO encourage laboratories engaged in the analysis of blood and tissue samples to cooperate with each other in sharing their facilities and the information they generate, in order to reduce the cost of gathering this information and to improve its dissemination.

2. In developed countries it is possible to obtain data on the extent of drug-related health problems from a variety of sources, including emergency services, coroners or medical examiners, hospital records, national mortality and morbidity statistics, and special surveys of selected populations of drug users. In many developing countries, only the first one or two of these services may be available and these can yield only an indication of change rather than an estimate of actual prevalence of drug-related health problems in the population.

Therefore, it is recommended that an effort be made, in countries in which multiple techniques are available to determine the validity and reliability of rough indices of prevalence of drug-related problems by comparison with the results of more sophisticated and costly methods of study of the same populations.
3. In view of the multiplicity and complexity of the relevant parameters, and of the limitation of other commonly used methods, it is highly desirable, when economic and cultural conditions permit, to encourage and support prospective longitudinal studies of high-risk populations. These studies should be pursued for a sufficiently long time (a period of years) to permit an assessment of the potential public health and social consequences of drug use.

4. TECHNIQUES FOR THE ASSESSMENT OF DRUG-RELATED SOCIAL PROBLEMS

4.1 Present knowledge

Causal relationships between the use of psychotropic substances and social problems can be established only with substantially less precision than for problems related to health. The association of social problems and chronic drug use among certain groups is very evident, and this correlation has been found to exist even among casual users of illicit drugs (39). However, as was pointed out in the twenty-first report of the WHO Expert Committee on Drug Dependence, it is important to stress that such problems are not necessarily caused by the drug consumption, and, indeed, use may be symptomatic of pre-existing functional difficulties faced by these individuals (11). On the other hand, it is certainly true that a problem exists when an individual is ostracized by society or has legal difficulties because of his or her drug use, regardless of the existence of a deleterious pharmacological effect of acute or chronic use.

4.1.1 Behavioural problems

Causal relationships between drug use and social problems have been established in the area termed “behavioural toxicity”. This term has been in use for some time to describe drug-induced performance decrements in animal experiments (40) as well as side-effects of therapeutic drugs in humans (41). More recently the usage has been broadened to include the effects of nonmedical drug use and defined as “alterations in perceptual and cognitive functions, psychomotor performance, motivation, mood, interpersonal relationships or intrapsychic processes of an individual to the degree that they limit the capacity of the individual to function within his setting.
or constitute a hazard to his physical well-being” (42). Obviously, some of these effects may be sought by the user so that the term “behavioural toxicity” is appropriate only from the viewpoint of the beholder. However, the important point to note is that such effects may extend well beyond the immediate consequences. This is particularly relevant with respect to the impairment of learning and maturation among youth.

Adolescents are continually expected to develop new skills and acquire new knowledge, both in school and in their social environments outside of school. Laboratory experiments with animals have demonstrated that a variety of psychoactive drugs impair the learning process (43), and similar results have been found in human studies. The effects of acute administration of cannabis upon memory have been extensively investigated and have been found uniformly to result in impairment (44). Similar effects on memory have been reported for diazepam (45). Since memory and other cognitive functioning are so essential to learning, it seems clear that frequent ingestion of drugs causing behavioural toxicity does have serious consequences, even in the absence of any resulting irreversible morphological damage to the nervous system.

It has often been suggested that drug use in adolescence impairs normal maturation and development in a wider area than that of formal education. It is argued that drugs are used as a means of escaping the emotional problems of youth and that their resolution is postponed or prevented. Drug use is also said to result in an amotivational syndrome causing a lack of interest in other pursuits. While these hypotheses appear plausible, they are more difficult to prove than is the impairment of educational processes.

Another behavioural toxicity problem, whose existence may be readily established, is the effect of drug use on the exercise of their duties by military personnel. Again, the demonstrated capacity of most drugs of abuse to impair judgement and generally decrease mental and physical functioning makes it reasonable to conclude that such effects on behaviour may represent a serious problem.

In general, the existence of intoxication during periods devoted to work is usually sufficient to establish that efficiency and work quality

---

are reduced. Such behaviour is also likely to result in the termination of employment with its associated economic and other problems.

Finally, alcoholism and drug abuse have long been known to have a disruptive influence on marital relations and parental responsibility, and for some illicit drugs, spouses of dependent individuals run a high risk of also developing dependence. A longer-term problem for society is the transgenerational deviance that may affect the children of drug abusers. While it is particularly difficult to establish causal relations over such long periods, it may well be one of the more serious consequences of parental drug abuse.

4.1.1.1 Effects of drug use on driving and other psychomotor behaviour. Both developing and developed countries have common concerns in elucidating the role of alcohol and psychotropic medication in road traffic accidents. Experimental evidence exists that a variety of central nervous system depressants impair driving skills in the laboratory setting. Investigations of road traffic accidents themselves do not show a similar clear relationship with the effects of other psychotropic drugs. Only with ethanol is there good evidence relating blood concentrations of the substance to road traffic accidents. The more complex pharmacokinetics of almost all psychotropic drugs, as well as the factor of individual variability of response, has prevented the demonstration of similar relationships for these other drugs. The possible adverse consequences of the interaction of alcohol and other psychotropic substances have been clearly indicated from the scientific literature. The Committee reached the following consensus:

(1) Sophisticated research is required to ascertain the role of psychotropic drugs in road traffic accidents. The investigations will have to be done in those countries with appropriate technological resources.

(2) The most misused and most dangerous substance involved in road traffic accidents is alcohol.

(3) Currently, the greatest danger from other psychotropic substances seems to be the potentiation of the effects of alcohol by sedative hypnotic agents.

(4) In the treatment of certain psychiatric conditions, neuroleptics and antidepressants may improve and normalize driving behaviour.

Hawks, D. & Edwards, G. Study on terminology and criteria of drug dependence, Copenhagen, WHO Regional Office for Europe, 1973 (EURO document 5422 IV).
(5) The knowledge and methodology developed to investigate the role of psychotropic substances in road traffic accidents should be extended to investigations of industrial accidents.

4.1.1.2 Alcohol and drug interactions and behavioural effects. The ability to reproduce consistently an alcohol-drug interaction in the laboratory does not apparently provide a basis for predicting which interactions will occur in the field setting. In this respect, an intuitive assessment of the nature of an interaction, a precise knowledge of the pharmacology and kinetics of a drug, and some preliminary simple observational studies can be instructive.

With respect to pharmacokinetic interactions, an acute effect of ethanol is to impair the metabolic breakdown and elimination of many psychotropic drugs; however, this effect is not as important as the pharmacodynamic interaction of psychoactive drugs in the central nervous system. In contrast, chronic ethanol administration increases the clearance of many drugs.

Acute experimental interactions of single doses of ethanol and depressant psychotropic drugs can cause impairment of many motor, sensory, and neurological functions (46–49).

During chronic therapeutic use of depressant psychotropic drugs, acute doses of ethanol will have at least as great an effect as the ethanol alone and in most experimental situations an enhanced effect is observed. Functions such as memory and learning are more affected than others.

Initial evaluation of alcohol interactions with “new” psychotropic agents, should include (a) acute administration of single doses of ethanol and the drug alone and together, the doses selected being the usual therapeutic or social amounts, (b) acute ethanol ingestion prior to and then after 2–3 weeks of chronic use of the drug at the usual therapeutic dose. The choice of experimental methods for the measurement of drug effects is arbitrary because the relevance of any particular method may not be self-evident. Some experimental procedures may be too sensitive, too complicated, or of quite unknown relevance (e.g., flicker fusion test). The recommended tests would include: choice reaction test, coordination test, attention test, learning acquisition, immediate recall of digit sequence, and word recall. The last three tests give some useful information with respect to real-life situations other than motor-vehicle driving.

Since the relevance of most experimental studies of psychotropic drug interactions has not been established, epidemiological techniques
have to be applied. In such studies, ethanol consumption or concentration must be controlled. Drug consumption must be documented by measuring drug levels and interpreted by a clinical pharmacologist familiar with such methods.

The consequences of ethanol ingestion superimposed upon chronic (therapeutic) psychotropic drug use and their relative importance with respect to motor-vehicle accidents, criminal behaviour, and behavioural toxicity have not yet been established, largely because ethanol is a predominant risk factor in these situations. It is also very difficult to devise proper controls for the effect of alcohol and thus identify the excess risk imposed by the interaction factor. In patients taking overdoses of drugs, potentiating by alcohol has been demonstrated fairly consistently.

4.1.2 Criminal behaviour

The relation between drug use and crime can be divided into three areas: direct pharmacological effects, effects related to illicit use and drug trafficking, and other effects. The last category may be further divided into effects indirectly associated with noncompulsive use and those associated with the acquisition of drugs of addiction.

Possible direct pharmacological effects include drug-induced disinhibition resulting in impulsive actions, drug-related paranoia or psychosis leading to violence, impaired performance (e.g., of driving) leading to crimes of negligence, and over-confidence, as in the use of drugs by persons for the wilful removal of inhibitions to engage in criminal activities.

A possible indirect effect of drug use is the interference with school and work activities which, in turn, may contribute to economic dislocation and criminal behaviour through the closure of normal job opportunities. Finally, and perhaps of gravest concern, is the question of income-generating crime among individuals with expensive drug habits, and the extent to which the crime is caused by the drug costs.

Alcohol is the only drug for which there is sufficient statistical evidence to establish a causal relation between crime and direct pharmacological effects; it has been possible to demonstrate a clear relationship between acute effects and crimes of both violence and negligence (50). Among other classes of drugs, barbiturates seem most likely to potentiate assault-proneness and other forms of criminal behaviour (50, 51). Amphetamines and cocaine are stimulants whose acute or chronic use in high doses can produce aggressive behaviour;
they can also induce paranoid reactions, which may give rise to violence and aggression (52). Cannabis and the stronger hallucinogens are capable of producing psychotic reactions, and there are occasional references to violent behaviour during these episodes. Reports of cannabis-related violence appear most often in the older literature from traditional cannabis-using cultures (53–57); however, observation and self-reports of laboratory subjects suggest that cannabis typically decreases both expressed and experienced hostility (58). On the other hand, there is evidence that the pseudohallucinogen, phencyclidine, has a fairly high potential for producing combative and violent behaviour (59, 60). The benzodiazepines occasionally give rise to rage reactions (85).

Opiates produce a reliable sedating reaction without the increased emotional liability and aggressiveness accompanying alcohol and barbiturate use (50). There is no tendency to produce psychosis or paranoid reactions.

There is limited evidence of the use of alcohol and other drugs to facilitate criminal behaviour. In one recent study it was found that a sample of pickpockets began using drugs primarily to reduce anxiety and facilitate performance (61).

In summary, there is some evidence that the use of drugs other than alcohol contributes to crime directly by potentiating impulsive and violent behaviour. The overall significance of this source of crime should be considered in the perspective of that directly resulting from alcohol consumption. Although statistics are available only for alcohol, it seems fairly certain that the relative contribution of the other drugs is small.

Since the use and possession of illicit drugs are crimes by definition, they are not dealt with in the context of this report. However, there is concern that the labelling of a user as a law violator may be criminogenic in other respects, and that many regular users do become involved in trafficking to some degree. The seriousness of such behaviour is attested by the very high rate of homicides among heroin addicts—in some populations it exceeds those resulting from drug overdose (62, 63).

A number of cross-sectional studies of non-narcotic drug use in Western countries have found that users show a higher rate of other forms of deviance than do nonusers (39, 64, 65). There is an associational relation between crime and even modest use of illicit drugs. However, cross-sectional studies cannot establish causal relations, and the limited efforts to utilize longitudinal surveys in the USA have
not supported the hypothesis that the use of nonnarcotic drugs causes crime, other than criminal activities related to direct pharmacological effects (65).

Where the cost of compulsive drug use exceeds the average income from legitimate sources, funds are likely to be derived at least in part from crime. The most direct evidence of the criminogenic role of heroin dependence in the USA is provided by the addicts themselves in terms of the self-reported type and frequency of crime committed to purchase drugs (66, 67, 76).

4.1.3 Socioeconomic effects

To some extent, the socioeconomic effects of drug abuse may be thought of as the aggregate of the individual effects. However, they also include the cost of societal responses, such as prevention and health care, as well as the indirect consequences of control policies, such as organized criminal networks that feed on the profits of illicit trafficking. The threat of drug abuse to the economy is likely to vary considerably from one society to another. For example, a fully employed society whose main resource is its work force may be very much threatened by a drug epidemic among its youth, whereas one with a chronic high rate of unemployment will not be affected to the same degree. Finally, it needs to be stressed that many of the socioeconomic costs, such as drug-related crime, organized drug trafficking, and corruption of officials, cannot be separated from the control policies adopted.

Before describing briefly the approach used to estimate the socioeconomic costs of drug abuse, it is useful to define some of the concepts employed (68). Costs may be considered as internal or external. The former are paid by the individuals concerned, i.e., the group abusing the drug, while external costs are paid by society as a whole, e.g., the utilization of goods and services for medical treatment that could otherwise be used for other purposes. Economic costs may be further distinguished as either direct or indirect. Direct costs are those for which an actual payment is made, e.g., the costs of wages for a drug enforcement officer or a drug treatment specialist. Indirect costs do not involve formal payments but represent a loss to the overall economy, e.g., foregone production resulting from unemployment caused by drug abuse (see section 4.2.3). Economists also distinguish between tangible and intangible costs. The latter cannot be assessed because it is either impossible or too difficult to assign monetary
values to them. It should be noted that some of what are considered the more detrimental costs of drug abuse, such as the damage to children of broken families and deterioration of neighbourhoods, fall in the intangible-cost category. Finally, where possible, the marginal costs should be taken into account when attempting to assess the economic burden of drug abuse—e.g., how much it costs to extend an existing agency to deal with the problems arising from drug abuse may be compared with the average costs of making arrests, treating patients, etc. The data needed to determine such costs are seldom available, however.

It should be noted that the net result of placing a drug under control may be positive, neutral, or negative depending, in part, on the substitution of other drugs. If the controlled drug is replaced by another of equal or more deleterious effects the goal is not attained. There are several instances where the control of a given drug appears to have contributed to the use of more potent forms of the same drug or more deleterious modes of administration (69). When the cost increases, more efficient intravenous administration may replace oral or inhalation use. Similarly, users may switch to other types of drug with a resulting increase in associated problems (70).

4.2 Analysis, evaluation and applicability of methods

4.2.1 Behavioural problems

As mentioned earlier, the frequent inability to employ controlled experiments limits the extent to which causal relationships can be established between drug use and social problems. However, there are a number of approaches that can further understanding in this area. First, extrapolations can sometimes be made from animal experiments. Second, the use of carefully matched comparison groups is a valuable aid in the interpretation of results. Third, the inclusion of reliable data on frequency, duration, and amount of drug use is essential. While a positive correlation between extent of use and the effect being studied does not necessarily establish causality, the absence of such a finding makes a causal relation quite doubtful. Fourth, both retrospective and prospective longitudinal studies yield a great deal more information than do cross-sectional data. Finally, natural experiments provide the opportunity to study important effects that
cannot otherwise be observed. For instance, the recent closure of the opium vends in Pakistan permits the gathering of information similar to that recorded when countries have suddenly altered the availability or cost of alcohol. All of the above aspects are covered in more detail in the nineteenth report of the WHO Expert Committee on Drug Dependence (7).

The important implications that can be drawn from laboratory studies of behavioural toxicity have already been discussed. However, this also requires a comprehensive description of the degree of drug involvement by the individual, which is usually best accomplished in a structured interview. Participant observation is another valuable technique. The extent and pattern of drug use over time need to be described in detail so as to permit an assessment of the overall role of drug use in the person's life. The more important indicators are summarized here. Descriptions of patterns of use by individuals should include the age at which each drug was first used and its source; age of first daily use where applicable; maximum frequency and amount used; current frequency and amount; sources of drugs currently used; and means by which money for purchases is obtained. Information that helps to determine the extent of involvement in the drug subculture include: proportion of close friends using drugs; sharing of living accommodation with other users; whether spouse, girl friend, or boy friend uses drugs; methods of obtaining drugs; and proportion of time spent in associating with other users. Other important indicators include the settings and times of drug use—whether used when working, in school, etc. The injection of drugs and sharing a syringe with others usually indicate a major escalation in involvement—whether from the use of oral to intravenous drugs or from experimental drug use to a commitment to drugs. Experience with withdrawal, treatment, arrests, and self-reported criminality should also be recorded, along with drug-dealing activities.

Whereas the impairment of work performance may be inferred from the presence of behavioural toxicity during times devoted to work, this variable may also be measured by comparing the length of time employed before and after the initiation of drug use. Stability of employment (number of changes and longest interval of work for the same employer) is also a good indicator of work behaviour. When attempting to attribute changes in work performance to drug use, one must control for differences in opportunity related to age or other factors. The assessment of the effects of use of a specific drug on employment is likely to require a relatively long period of time. Such
information could not reasonably be developed for decisions on the control of new drugs of abuse except on the basis of their pharmacological similarity to other drugs with a longer history.

There have been some controlled experiments on the effects of various drugs on work motivation and productivity (71–73). Subjects may be either given known amounts of the drug or permitted to consume it ad libitum while carrying out prescribed tasks. Each unit of work earns a monetary reward and productivity is measured under placebo and different levels of drug consumption. The results of such studies are of considerable interest, but they fail to simulate many of the variables related to drug use and work in the outside environment.

In a number of studies users have reported that acute drug consumption enhances work productivity. This is particularly true for stimulants, and improved performance has been confirmed for some tasks in laboratory experiments (86). Self-reports of manual labourers using cannabis and opium to increase the amount of work performed are also common, but this seems likely to be related to overcoming boredom or pain (74). An attempt to measure the effect of cannabis use on work performance among Jamaican ganja smokers did not support these claims.

Divorce rates and instability of living arrangements provide a measure of the impact of drug use on marital relations. The impact on parental performance can be partially measured by the failure to provide child support and the placement of dependent children with relatives or public agencies.

4.2.2 Criminal behaviour

Methods for assessing the extent to which drug use causes crime through direct pharmacological effects are limited. Systematic data are restricted primarily to information obtained in connexion with arrests and emergency facilities. Measures of aggression in human laboratory experiments are of limited usefulness, because the range of dose levels is restricted by ethical considerations. Interviews with spouses of drug users may be a source of information on drug-related domestic violence. Assessment of drug use to facilitate criminal behaviour can only be accomplished by means of interviews with users.

Property crime associated with the cost of heroin dependence may be estimated directly by interviewing users or through ethnographic studies (75, 76, 89). Alternative statistical approaches include com-
parison of arrest and self-reported crime rates before and after use (77, 78), or before and after its cessation, usually the result of entry into treatment (79, 80). It may also be possible to assess criminal activity during intervals of use and nonuse throughout the individual’s drug career (76). This method has greater validity than the first two.

4.2.3 Socioeconomic costs

The cost of enforcing drug laws is normally included in economic assessments of drug abuse, but it should perhaps be entered on the other side of the ledger when the decision to be taken is whether or not to place a specific drug under control. On the other hand, if control is successful, the need to incur the cost of enforcement may eventually disappear.

In any event, where enforcement costs are assessed, they normally include police, court, and incarceration costs. Police costs may be measured in terms of the average number of hours devoted to apprehending and making drug arrests or, more typically, by apportioning the police budget according to relative numbers of drug and nondrug arrests. Since the police function includes deterrence of crime as well as apprehending offenders, neither approach is very satisfactory. The court costs can be measured more accurately than those of the police. The average time consumed by the various court components on drug cases can be determined and converted into monetary terms. Similarly, the costs of incarceration, parole, and probation are readily available.

Treatment costs include those directly related to nonmedical drug use, such as costs of overdose and other emergency treatment, detoxification, long-term rehabilitation, and maintenance. Indirect medical costs are less easily assessed. They may be attributable to the treatment of hepatitis and other illnesses spread by unsterile injection, by malnutrition, and by other poor health practices. Drug abusers also typically suffer high accident rates. These treatment costs represent an utilization of goods and services that could be directed to other needs and thus are considered a loss to society. In countries where medical resources are in short supply, a drug epidemic may seriously tax the existing services that are needed for other groups of the population. It is useful to place the health costs attributable to a specific drug in the context of those resulting from tobacco and alcohol use.
The term “foregone production” is used by economists to reflect the work productivity that is lost for various reasons. In the case of drug abuse it may be related to absenteeism, hospitalization, incarceration, premature death, or general drug-related incapacity. It may be partially estimated by employment rates before and after dependence has developed. Such measurements would not necessarily reflect the effect of early drug abuse on education and maturation, nor its impact on subsequent employment or failure to realize potentials.

Where compulsive drug use persists under strict prohibition policies, income-generating crime to purchase the drug is often one of the major social costs. If the drug abuser is not considered to be outside society, the value of the goods is transferred from one individual to another but not lost to society. If the drug abuser is considered to be outside society but the eventual recipient of the goods inside, then the cost to society is the discounted amount paid for the stolen property rather than the actual value. Of course, if the money involved is eventually transferred outside the country, this represents a loss, even if the funds used to buy the drugs were obtained by legitimate means. In some instances, such balance of payment problems have influenced the type of drug policy adopted.

The time involved in property crime, drug trafficking, prostitution, gambling, etc. represents an economic loss in terms of foregone production. The enforcement costs generated by the need to control these activities are a further economic burden. So are the private expenditures, such as theft insurance, locks, alarms, lights, security guards, etc.

While the intangible costs of drug abuse cannot be assigned a monetary value, they should obviously be considered in the overall evaluation. Such costs include damage suffered by children and spouses of drug abusers, the contribution to cycles of deviance in subsequent generations, the fear and general deterioration of the quality of life caused by drug-related crime, the contribution to prostitution, gambling, etc., the support provided to organized crime and the associated corruption of government officials, and the “infection” of youth and other nonusers through peer-contact.

In the broader sense, the social and economic consequences of the abuse of psychotropic substances extend well beyond those attributable to the rather small proportion of the population that the dominant culture defines as drug abusers. Throughout history, societies have recognized the importance of drug abuse and have tried
religious, legal, and social sanctions and pressures in efforts to prohibit or control the use of drugs.

The lack of consensus from one country to another and the continuing changes concerning which substances are socially sanctioned attest to the complexity of the issue. Scientific advances have aided in the methods of assessment, but have also vastly increased the number of substances to be considered. Their contribution has also been greater in defining physical as opposed to social consequences. As a result, there is a continuing need to re-examine the broader consequences of both medical and nonmedical practices with respect to the use of psychotropic substances. This report has dealt primarily with nonmedical use, but the widespread adoption of medical or other socially sanctioned consumption could also have a significant impact on family relations, care of children, treatment of the elderly, motivation, learning, and other areas.

5. CONCLUSIONS AND GENERAL RECOMMENDATIONS

1. The Committee noted that a major problem is lack of uniform and reliable data on the extent of use of psychotropic substances, and of health and social problems arising therefrom. Therefore, reaffirming the ideas contained in recommendations 1, 2, and 3 of the twenty-first report of the WHO Expert Committee on Drug Dependence (II) and in response to operative paragraphs 7(3) and 7(5) of resolution WHA33.27 entitled “Action in respect of international conventions on narcotic and psychotropic substances: abuse of narcotic and psychotropic substances”, the Committee recommends that action be taken to establish a mechanism for monitoring the nonmedical use of psychotropic substances and for assessing the associated public health and social problems. This will require very close collaboration between WHO and the United Nations Division of Narcotic Drugs, the International Narcotics Control Board, and the United Nations Fund for Drug Abuse Control. A proposed mechanism for the performance of such monitoring activities is outlined in Annex 3.

2. Many developing countries have only limited resources and, because of other priorities, do not have the finances, personnel, technological capability, or the training facilities to effect collection of reliable data. On the other hand, many of the psychotropic drugs are
being exported in large quantities into these countries, where national control measures are inadequate. The Committee recommends the following measures by which WHO could improve this situation:

(a) Make available research findings in a form that can be readily utilized.

(b) Sponsor national and international workshops and seminars.

(c) Establish training programmes for national personnel playing, or expected to play, leading professional roles with respect to drug-related problems in their own countries. Special attention should be given to the training of personnel for acute treatment services, analytical and forensic medical services, and data collection and processing.

(d) Assist developing countries to obtain facilities.

3. The 1971 Convention on Psychotropic Substances lists only 36 substances, whereas there are numerous widely used psychotropic substances that, on the basis of their dependence-producing properties and their capacity to produce public health and social problems, should be considered for inclusion in the lists of substances controlled by the Convention. Therefore, it is recommended that WHO should expeditiously begin the review of the various groups of psychotropic substances to determine whether or not some further drugs should be proposed for control. This would require WHO’s close collaboration with its Member States to provide the necessary data.

4. There is a continuing need to coordinate, on an international basis, the collection and assessment of data on psychotropic substances by scientific techniques. The Committee recognizes that the United Nations Division of Narcotic Drugs has the facilities and the scientific resources to undertake such coordination functions. Therefore, it is recommended that appropriate use be made of these facilities and resources to facilitate a programme, in collaboration with WHO, to assist countries in developing the scientific techniques needed to improve the reliability of data collected and to permit more critical assessment of psychotropic substances, in conformity with Article 2, paragraph 4 of the 1971 Convention.

5. The widespread social and public health concerns in developing and developed countries regarding the relationship between road traffic accidents and psychotropic substances led the Committee to recommend that WHO, through its collaborating centres and other appropriate means, should strengthen its programme for investigating the relationship between alcohol and psychotropic substances, on the
one hand, and injury, disability, and death from road traffic accidents on the other. Further, the Committee recommends that the knowledge and methodology developed for this purpose be extended to investigations of industrial and other accidents.

The Committee also recommends that governments be urged to require studies of the effects of drugs and drug interactions on driving ability as a precondition for licensing new psychotropic drugs for use in their countries.

6. In order to assist in the definition and identification of social and public health problems consequent upon the use of psychotropic substances, the Committee recommends that WHO, through its programmes and relationships with collaborating centres and other organizations, address the issue of the adequate education of health care personnel with regard to psychotropic substances.

7. From a study of the literature, the Committee recognized that there are a number of terminological problems related to the definition of drug classes. It is therefore recommended that WHO play a leading role in standardizing terminology with respect to psychotropic drugs and in promoting the adoption of this terminology by governments, researchers, and other relevant groups in all countries.

8. The responsibilities assigned to WHO under Article 2, paragraph 4 of the 1971 Convention on Psychotropic Substances include the assessment of therapeutic usefulness. The Committee recommends that the principles and elements of such assessment be studied and clarified by a special group of advisors. It should be emphasized that therapeutic usefulness includes considerations beyond those related to the measurement of therapeutic efficacy and safety.

9. Nongovernmental organizations with relevant interests and potential have a role to play in facilitating the gathering of data that can assist in developing methods and instruments for assessing the public health and social consequences of the abuse of psychotropic substances (see Annex 2). The Committee recommends that this role be explored further, with a view to the utilization of the data-gathering potential of nongovernmental organizations.
WHO’S ACTIVITIES IN RELATION TO ITS INTERNATIONAL TREATY OBLIGATIONS

The WHO Expert Committee on Drug Dependence, in its twenty-first report (II), recommended “In order to fulfil its responsibility, under the Convention on Psychotropic Substances, for assessing the public health and social problems arising from the abuse of psychotropic substances, WHO should establish or strengthen mechanisms that will give it timely access to data relevant to the assessment of drugs likely to be covered by the Convention”.

Since that Committee met, WHO has sought to implement that recommendation. The Secretariat further strengthened its collaboration with the United Nations Division of Narcotic Drugs, the International Narcotics Control Board, the Customs Cooperation Council, Interpol, and the International Council on Alcohol and Addiction in obtaining the relevant data required by WHO for its scheduling decisions. WHO also held a planning session during the annual meeting of the International Council on Alcohol and Addiction in Warsaw in 1978 and presented data collected from a number of Member States relating to the cooperation between the medical profession and the government departments concerned with drug control. WHO now has 5 Collaborating Centres dealing with drug dependence, which are actively involved in this work, as are the WHO regional offices and through them a number of countries. The WHO Regional Office for Europe collaborates with a number of clinical pharmacologists in Europe who meet regularly and have developed drug utilization studies, including analgesic and psychotropic drugs. Members of WHO expert panels on mental health and drug dependence are regularly consulted for help in identifying psychoactive substances that have caused various problems. The various coordinating groups concerned with mental health—global, regional and national—and the International Union of Pharmacology have been actively involved. More formal relations have been established with a number of individual scientists and in particular with the Committee on Problems of Drug Dependence Inc. in the USA.

WHO has carried out an in-depth study in 5 countries of their response to the Convention on Psychotropic Substances, 1971. Two travelling seminars were held in the USSR in 1978 and 1979 to pro-
mote the safe use of narcotic and psychotropic substances, and re-
representatives of 35 countries participated.

Information gathered by WHO in the above activities formed the
basis of the reports of the Director-General to the sixty-fifth session
of the Executive Board and to the Thirty-third World Health As-
sembley. The Assembly adopted a resolution (WHA33.27), which, in
paragraph 7(3), requested WHO "to promote the initiation and
strengthening of national and international programmes for the assess-
ment, scheduling, control and appropriate use of narcotic and psycho-
tropic substances, including those of plant origin, and to support such
programmes by the development of appropriate guidelines in con-
sultation with the United Nations Division of Narcotic Drugs, Inter-
national Narcotics Control Board, and other United Nations organs
concerned".

Regional seminars were held in Manila and Buenos Aires, in which
representatives of the regions concerned discussed their problems and
their solutions.
Annex 2

THE ROLE OF NONGOVERNMENTAL ORGANIZATIONS

A number of nongovernmental organizations are especially concerned with problems of drug use and are therefore invited to meetings on subjects of common interest. The International Council on Alcohol and Addictions, for instance, has regularly participated in meetings of the WHO Expert Committee on Drug Dependence. The International Sociological Association has a special interest in sociological aspects of medical work, and the World Federation of Associations of Clinical Toxicology Centers and Poison Control Centers is particularly concerned with theoretical and clinical aspects of all toxic substances and other fields relevant to drug problems. Representatives of both these organizations also attended the meeting of the present Committee.

It would not be appropriate in the special context of this report to analyse in detail the areas of possible collaboration with nongovernmental organizations. However, examples of contributions from nongovernmental organizations relevant to the goals and aims discussed in this report are:

(a) to provide data of an informal kind, either on their own initiative or at the request of WHO;

(b) to inform their member organizations and individual members concerning the work of WHO in this field and about the requirements of the 1971 Convention, and thus facilitate the collection of data and improvement of data recording;

(c) to support individual members in cooperating with WHO.

The levels of staff and funding of nongovernmental organizations often limit the extent of the contribution that they are able to make. The relationship between nongovernmental organizations and WHO is a mutual one and nongovernmental organizations may need the support of WHO if they are to be of significant help.
Annex 3

PROPOSED MECHANISM FOR THE MONITORING OF PSYCHOTROPIC DRUGS

Article 16 of the 1971 Convention on Psychotropic Substances stipulates that "Parties shall furnish to the Secretary-General such information as the Commission [on Narcotic Drugs] may request as being necessary for the performance of its functions, and in particular an annual report regarding the working of the Convention in their territories including information on:

(a) Important changes in their laws and regulations concerning psychotropic substances; and

(b) Significant developments in the abuse of and the illicit traffic in psychotropic substances within their territories."

Article 16 proceeds in paragraphs 3 and 4 to specify the obligation of Parties to report to the Secretary-General and to the International Narcotics Control Board, respectively, data pertinent to illicit and licit transactions in psychotropic substances.

Wide variations between countries have been observed, regarding not only the national resources they can marshal for this purpose but also their readiness to meet such responsibilities. WHO and other appropriate United Nations agencies should find ways and means to alert governments to their responsibilities as defined in the Convention.

Some developing countries have limited resources, mainly because of other priorities in matters of finance, personnel, technological expertise, and training. This limits their capability to make the assessments required by the Convention under Article 2, paragraph 4, when reporting about psychotropic substances in their national territories. WHO is expected to assist those countries to overcome their difficulties.

Data on the nonmedical use of psychotropic drugs and their related public health and social problems are contained in the governmental reports routinely supplied to the United Nations Division of Narcotic Drugs and the International Narcotics Control Board by countries party to the 1971 Convention. There are, however, a number of drugs that have the potential for producing social and public health problems but are not under international control. Some of these drugs may have been put under national control but have not been proposed for international control.
Under Article 2, paragraph 4, of the Convention, WHO is obliged to communicate to the Commission on Narcotic Drugs "an assessment of the substance, including the extent or likelihood of abuse ... together with recommendations on control measures, if any, that would be appropriate in the light of its assessment." In order to provide the data necessary for recommending the selection of psychotropic drugs for appropriate levels of international control, some mechanism is needed for monitoring the use of psychotropic drugs and associated public health and social problems (see recommendation 1 of section 5, "Conclusions and general recommendations"). Several existing WHO projects and activities could furnish relevant data for this purpose, in particular:

(a) The WHO Collaborating Centres for Research and Training in Drug Dependence. These centres have cooperated with the WHO Research and Reporting Project on the Epidemiology of Drug Dependence. The original objective of this project, i.e., to assist the planning of prevention and treatment programmes, might be expanded to include the collection of information pertinent to the assessment of public health and social problems associated with the abuse of psychotropic drugs. The design of the project has already taken into account the need for obtaining certain data relevant to that task.

(b) WHO Collaborating Centres for Research and Training in Psychopharmacology. Several of these centres have been paying special attention to adverse reactions encountered in psychopharmacology. These centres could contribute to the early detection of a drug's dependence and abuse liability, whether observed during clinical trials or in routine clinical practice.

(c) WHO Project on International Monitoring of Adverse Reactions to Drugs. The design of this project lends itself to collecting and analysing data on all kinds of undesired reactions to therapeutic agents and cases of dependence and abuse, including their possible consequences, observed by practitioners or in hospitals.

The objectives of establishing the proposed mechanism would be:

(1) To provide WHO with the data necessary for the assessment of such psychotropic substances as have been notified (a) by parties to the 1971 Convention on Psychotropic Substances, or (b) by WHO for addition to or deletion from any of the lists annexed to that Convention.

(2) To provide governments with information needed to determine the level of national control of a psychotropic drug.
To permit the attainment of these objectives, the following tasks would have to be undertaken:

(1) Continuing and comprehensive review of data on the medical and nonmedical use of psychotropic drugs and their associated public health and social problems. This would have to be done in close collaboration with the United Nations Division of Narcotic Drugs, the International Narcotics Control Board, and other bodies concerned.

(2) Establishment of links with programmes for data collection concerning psychotropic drugs that are not under international control but have pharmacological properties similar to those of substances already controlled or that have the potential for abuse.

(3) The facilitation of the collection of the data needed to answer specific questions relevant to the actual or potential abuse-liability of specific psychotropic drugs.

The achievement of the objectives would necessitate the development of tools for the collection of comparable data for various drugs from different countries (e.g., the adoption of a master format for a questionnaire, suitable for administration in an interview when the need arises). An early task would also be to facilitate the development of new mechanisms at the national and regional levels to ensure the continuous flow of the required data from WHO Member States.

REFERENCES

4. PONCE, E. In: Workshop on reduction in demand for illicit drugs in South-East Asia, Colombo, Colombo Plan publication, 1976, pp. 73–82.


Recent reports:

<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Report Details</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>605</td>
<td>(1977) Chemotherapy of solid tumours</td>
<td>Report of a WHO Expert Committee (106 pages)</td>
<td>12.—</td>
</tr>
<tr>
<td>607</td>
<td>(1977) WHO Expert Committee on Leprosy</td>
<td>Fifth report (48 pages)</td>
<td>6.—</td>
</tr>
<tr>
<td>608</td>
<td>(1977) Criteria for the evaluation of learning objectives in the education of health personnel</td>
<td>Report of a WHO Study Group (47 pages)</td>
<td>6.—</td>
</tr>
<tr>
<td>609</td>
<td>(1977) Health needs of adolescents</td>
<td>Report of a WHO Expert Committee (54 pages)</td>
<td>7.—</td>
</tr>
<tr>
<td>610</td>
<td>(1977) WHO Expert Committee on Biological Standardization</td>
<td>Twenty-eighth report (133 pages)</td>
<td>11.—</td>
</tr>
<tr>
<td>611</td>
<td>(1977) Use of ionizing radiation and radionuclides on human beings for medical research, training, and nonmedical purposes</td>
<td>Report of a WHO Expert Committee (39 pages)</td>
<td>6.—</td>
</tr>
<tr>
<td>613</td>
<td>(1977) Child mental health and psychosocial development</td>
<td>Report of a WHO Expert Committee (71 pages)</td>
<td>7.—</td>
</tr>
<tr>
<td>614</td>
<td>(1977) WHO Expert Committee on Specifications for Pharmaceutical Preparations</td>
<td>Twenty-sixth report (53 pages)</td>
<td>7.—</td>
</tr>
<tr>
<td>615</td>
<td>(1977) The selection of essential drugs</td>
<td>Report of WHO Expert Committee (36 pages)</td>
<td>5.—</td>
</tr>
<tr>
<td>616</td>
<td>(1978) Neisseria gonorrhoeae and gonococcal infections</td>
<td>Report of a WHO Scientific Group (142 pages)</td>
<td>5.—</td>
</tr>
<tr>
<td>618</td>
<td>(1978) WHO Expert Committee on Drug Dependence</td>
<td>Twenty-first report (49 pages)</td>
<td>5.—</td>
</tr>
<tr>
<td>619</td>
<td>(1978) Steroid contraception and the risk of neoplasia</td>
<td>Report of a WHO Scientific Group (54 pages)</td>
<td>6.—</td>
</tr>
<tr>
<td>620</td>
<td>(1978) Chemistry and specifications of pesticides</td>
<td>Second report of the WHO Expert Committee on Vector Biology and Control (36 pages)</td>
<td>5.—</td>
</tr>
<tr>
<td>621</td>
<td>(1978) Epidemiology, etiology, and prevention of periodontal diseases</td>
<td>Report of a WHO Scientific Group (60 pages)</td>
<td>6.—</td>
</tr>
<tr>
<td>622</td>
<td>(1978) The promotion and development of traditional medicine</td>
<td>Report of a WHO meeting (41 pages)</td>
<td>5.—</td>
</tr>
<tr>
<td>No.</td>
<td>Title</td>
<td>Pages</td>
<td>Code</td>
</tr>
<tr>
<td>-----</td>
<td>----------------------------------------------------------------------</td>
<td>---------</td>
<td>------</td>
</tr>
<tr>
<td>626</td>
<td>(1978) WHO Expert Committee on Biological Standardization Twenty-ninth report (147 pages)</td>
<td></td>
<td>14.</td>
</tr>
<tr>
<td>634</td>
<td>(1979) Safe use of pesticides Third report of the WHO Expert Committee on Vector Biology and Control (44 pages)</td>
<td></td>
<td>5.</td>
</tr>
<tr>
<td>636</td>
<td>(1979) Controlling the smoking epidemic Report of the WHO Expert Committee on Smoking Control (87 pages)</td>
<td></td>
<td>9.</td>
</tr>
<tr>
<td>638</td>
<td>(1979) WHO Expert Committee on Biological Standardization Thirtieth report (199 pages)</td>
<td></td>
<td>20.</td>
</tr>
<tr>
<td>640</td>
<td>(1979) WHO Expert Committee on Malaria Seventeenth report (71 pages)</td>
<td></td>
<td>5.</td>
</tr>
<tr>
<td>641</td>
<td>(1979) The selection of essential drugs Second report of the WHO Expert Committee (44 pages)</td>
<td></td>
<td>3.</td>
</tr>
</tbody>
</table>