Research Directions and Opportunities

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INTRODUCTION

The major focus of all the topics presented at this conference can be subsumed under the general rubric of the demise of male-only research. Future research cannot neglect females as it has in the past, and despite the wealth of information presented during this conference, and some promising findings, unfortunately, there still are more research gaps than findings. Research that has a male-only approach cannot continue. And it cannot be assumed that the results from research based exclusively on male subjects can be extrapolated confidently and generalized safely to females. The U.S. Public Health Service guidelines on the inclusion of women and minorities in research are an important step in redressing past decades of research that was predominantly male-focused. The question is how these guidelines will be implemented in the future.

The National Institute on Drug Abuse (NIDA) is entering a new era. NIDA's 20th anniversary in 1994 provided the opportunity to look not only at accomplishments but also at research gaps and goals and priorities for the future. NIDA has a long history of studying women and sex differences; however, most of these studies have been among pregnant women and their offspring. Now it is necessary to look at females as independent individuals, not just in their roles as mothers.

In recent years, NIDA has taken a number of important steps in an attempt to fill the gaps in drug abuse-related women's health issues. For example, Dr. Loretta Finnegan was enlisted to serve as the senior adviser on women's health and research issues and to head the Women's Health Issues Group. The Women's Advisory Committee was also established, comprising representatives from each of the Institute's major organizational components. In June 1993 a technical review on drug abuse and HIV infection and their effects on women and children was conducted. Also that year, two program announcements were issued seeking applications for research directly focused on women in two areas: first, the etiology, consequences, and behavioral pharmacology of female drug abuse,

and second, drug abuse treatment for women of childbearing age and their children. In June 1994 a technical review was conducted on methodological issues involving the etiology and consequences of drug abuse among women. In addition, some AIDS program announcements have focused indirectly on women. These include notification of partners of HIV-infected drug users and strategies to reduce high-risk sexual practices among drug abusers.

NIDA has released videos, NIDA Capsules, and brochures on the subject of women's health. In addition, dozens of NIDA-funded grants have been awarded that have focused on women's issues and sex differences. In fact, most of the presenters at this conference have been or are NIDA grantees.

Although the activities NIDA has instituted are an important beginning, much remains to be done, and help is needed in two specific ways. First, research on women and addiction must include biological and behavioral sex-related differences and the effect of drug abuse prevention and treatment on women. NIDA wants and needs to receive grant applications from all areas of research that can address women and sex differences.

Second is the need to know what the research agenda should be. The feedback and recommendations of those attending this conference present an opportunity to determine that agenda. Research and clinical practice are a two-way street. Clinicians and practitioners can enhance the effectiveness of their services by using state-of-the-science practices identified through research, and research professionals benefit from the clinical judgment, wisdom, and insights of clinicians and practitioners because such inclusion ensures that the research addresses clinical concerns.

INVESTIGATIONAL AREAS

Conference participants identified several areas of investigation. In epidemiology, research should be conducted on the role of sex differences and women's vulnerability to drug use, the progression from initial drug use to abuse and dependence, and the implications of sex differences for prevention and treatment approaches and strategies.

Replication of the initial findings of intergenerational transmission of smoking behaviors from women who smoke during pregnancy to their

female offspring (Kandel et al., this volume) must be accomplished. These findings hold promise related to dopamine system regulation and drug use. At the same time, it is necessary to avoid the too-common practice of placing blame on women for their behaviors and their pregnancy outcomes.

A caveat heard in most discussions of female drug abusers, whether in reference to epidemiology, treatment, or prevention, is that women constitute a heterogenous group of people; different strategies must be used for different women and at different times in their lives. There is no "one size fits all" in terms of prevention, treatment, etiology, or any research area.

Another major research gap relates to the lack of information about minority women, lesbians, and bisexual women. This deficiency is compounded by the fact that when information exists on so-called minority women, too often the data are aggregated without attention to subgroups; for example, the term "Latinas" is used without regard to whether women are Puerto Rican, Mexican-American, or Cuban by heritage.

Biological and behavioral mechanisms that need study include cocaine's effect on reproductive function, the effect of the estrous cycle on cocaine self-administration, sex differences in response to serotonergic neurotransmission, and sex-specific considerations in the use of psychoactive medications.

In the fields of etiology and prevention, more information is needed about sex differences and child and adolescent precursors of drug abuse, personality pathways that lead to drug use and progression to abuse and dependence, protective factors, and resiliency and what constitutes invulnerability, as well as how to prevent drug use and related adverse health and medical consequences.

Rates of anxiety and depressive disorders, considered precursors to drug use and dependence, are reported to be higher for women than for men (Moras, this volume). Such findings demand greater attention not only by NIDA but also by its prevention and treatment partners so that better treatment of anxiety and affective disorders can be offered and drug dependence can be delayed or prevented.

Prevention and treatment programs must be designed to address the specific research-based risk factors in women, such as sexual and other childhood abuse and posttraumatic stress disorder. Research should

examine the relationship between victimization and drug abuse among women and whether partner violence is a consequence of drug use. Many of these research issues relate to intergenerational models of violence and alcohol and other drug problems and go beyond drug abuse research, treatment, and prevention.

SEX DIFFERENCES

Information presented at this conference addressed treatment-relevant sex differences; barriers, including legal barriers; fears about losing child custody; the need for comprehensive services—not just drug abuse services but also health care services, child care services, and perinatal programs; prenatal care; the need for vocational education; housing; raising low self-esteem; and overcoming feelings of worthlessness, hopelessness, and helplessness and, therefore, the need for counseling and treatment for depression. There have been reports of different rates of recruitment and retention for men and women seeking drug treatment, and what these differences predict and portend, particularly in relation to AIDS.

Research on sex differences relevant to treatment suggests that women and men may respond differently to some treatments. These differences emphasize the need for (1) comprehensive services, (2) attention to the effects of violence, (3) recognition of the effects of exposure to victimization and stress, and (4) health services, including mental health and social services and case management. Male-oriented and -dominated treatment programs may constitute poor or inappropriate treatment for females, even if they result in successful treatment outcomes for males.

Women are reported to be less likely to accept random study assignments (Wallen, this volume); this refusal has tremendous implications for research, recruitment of individuals, and the interpretation of data. Females are less likely to do well in male-oriented, male-dominated, male-theory-based programs. In addition, information is needed about the components necessary for parental skills training and family therapy.

AIDS

AIDS and its epidemiology constitute another area of critical need for more research related to women. Drug abuse by women is the vector

for AIDS much more often than it is for men. Data as of September 1993 (Centers for Disease Control and Prevention 1993) indicate that 51 percent of AIDS cases in men resulted from men having sexual relations with men; for women, 46 percent of the cases resulted from women being injection drug users (IDUs), and another 38 percent were attributable to heterosexual sex. Of this 38 percent, more than half the cases were the result of heterosexual sex with IDUs (Selwyn, this volume). The lack of epidemiological data about lesbians has implications for AIDS epidemiology and therefore prevention and treatment.

Risk factors for HIV infection are different for women. For example, among crack users, the adjusted odds ratio of acquiring HIV infection for a male is 2.8-fold; but for a female, it is 4.7-fold. Female prostitutes have 4.6 times the odds of being infected with HIV compared with men who frequent prostitutes, who have 1.5 times the odds of being infected. There is a need for research to investigate the possible mechanisms that can explain these differences and, from this information, identify interventions that can prevent this outcome.

In the median survival time from AIDS diagnosis to death, women die sooner than men, and some of the hypotheses and the implications of this fact are startling, striking, and sad. There is a need to know whether women present later than men, and if so, the reasons for and the implications of this behavior. In addition, women's barriers to entry and treatment need to be better understood, as well as why women are underscreened for HIV infection and substance abuse compared with men and what good medical practice is where women are concerned.

Another question relates to the implications of the AIDS definition, now broadened by the Centers for Disease Control and Prevention to include women with HIV infection who have cervical cancer (Centers for Disease Control 1992; Selwyn, this volume). There is a need to determine whether that definitional change alone will affect the numbers and how they are perceived.

AZT is offered to men more frequently than to women. The implications of this practice, particularly given the findings of a study on AZT and transmission of HIV infection from mothers to newborns (Selwyn, this volume), are potentially profound. In the control group, 25.5 percent of the women gave birth to infants with HIV infection, whereas the rate was only 8.3 percent in mothers who had taken AZT. The study was terminated early because of these results, but there is still a need to know

whether more women are being given access to AZT and what changes in practice have been made because of that study. Community alerts are needed about this new information and this medication should be incorporated into our treatment and demonstration programs.

NIDA's health services research agenda must be broadened to include prevention as well as treatment, and treatment should include not only drug abuse treatment but also AIDS treatment and primary care treatment. Research should address the issues of HIV and AIDS detection, access to care, engagement into prevention or treatment, and utilization of services, as well as questions related to specific subgroups of women, such as women of color, lesbians, and bisexual women.

Conference participants identified the need to develop different care models as well as integrated approaches linking health care, drug treatment, and HIV services. Also highlighted were other consequences of drug abuse in the wake of HIV infection, AIDS, and drug abuse, including other sexually transmitted diseases, tuberculosis, and hepatitis.

There is a known association of alcoholism with mental health problems, poor pregnancy outcomes, and adverse social and behavioral consequences on coping and self-esteem. Also known is the role of social supports as protection against drug abuse, high-risk sexual behaviors, and psychiatric sequelae. The importance of the context in which people live has been stressed: social, cultural, and economic factors; sex-related issues; factors of race, ethnicity, and sexual orientation; program philosophy; the effects of racism and internalized racism; and the effects of societal violence, partner violence, and living in a community where violence pervades daily life.

Conference presenters also highlighted the need to focus on individuals' strengths, not only on their deficits, and the need to look at genetic, environmental, social, and cultural factors and combinations and aggregations of these factors. Biological and behavioral approaches and the implications for intervention for outreach also were identified for further study.

TERMINOLOGY

Presenters emphasized the lack of clear-cut definitions. For example, what are licit and illicit drugs? For minors, it must be remembered that alcohol and tobacco are illicit drugs.

Why is Congress not convinced that drug abuse is a priority in terms of funding? Perhaps the answer to some extent lies in the lack of measures of outcomes. And what are the goals? What are seen as "good" outcomes? Must drug-free status be demanded, or can reductions in use and harmful consequences be accepted as indicators of the success of treatment?

In reference to drug abuse, the term "relapse" is used. Professionals in other health disorders and diseases speak about the "recurrences" or "perturbations" expected of chronic disorders. Drug abuse can be compared with hypertension and diabetes because they also are chronic disorders characterized by poor patient compliance with diet, medication, and behavior change. But with hypertension and diabetes, relapse is not mentioned; the terms used are "expected and normal recurrences." There is a lesson to be learned—if we are listening and attentive.

INSTITUTIONAL RESPONSIBILITY

People should have access to treatment even if they are not totally abstinent. But acceptance of this fact requires educating Congress, the Administration, medical doctors, the academic community, the media, the public, and practitioners in the treatment community.

On the issue of including women and pregnant women in clinical trials, there has been discussion about institutional review boards. But the issue was not pursued in terms of what that inclusion means for finding the efficacy of candidate medications in nonpregnant women before the medications are administered, what it means about the paternalism that has existed for so long, and what it means in relation to the lack of empowerment of women to make their own decisions about whether they should be included as research subjects.

Whether the proliferation of agencies with drug abuse programs is good has not been decided; it can be seen as fragmentation. For example, NIDA deals with research; the Center for Substance Abuse Prevention deals with prevention; the Center for Substance Abuse Treatment deals with treatment; and individual States deal with the direct delivery of treatment. NIDA sees its training role primarily in research training, looking to the Substance Abuse and Mental Health Services Administration (SAMHSA) and the Health Resources and Services Administration for clinical training.

NIDA, the National Cancer Institute, the National Heart, Lung, and Blood Institute, and the Centers for Disease Control and Prevention all have programs that address smoking. For children, there are programs within NIDA, SAMHSA, the National Institute of Child Health and Human Development, and the Administration on Children, Youth, and Families. To address violence and posttraumatic stress disorder, anxiety, and affective disorders, there are programs within the National Institute of Mental Health; for alcohol abuse and alcoholism, there are programs in the National Institute on Alcohol Abuse and Alcoholism and the Indian Health Service.

RESEARCH NEEDS

- Initiatives and collaborations with multiple interactions and partnerships. Although many organizations are involved, none of them has taken ultimate responsibility. Everyone—inside and outside Government—must recommit to focusing on individuals and on restoring lives—productive, healthy lives of promise for the next generation.
- More information about research dissemination and application models that are effective in getting research-based information out, applied, adopted, adapted, and used in clinical practice. Much more information is needed about effective communication and education.
- In addition to more research on women and women's health, more female researchers, including women of color and women of all sexual orientations.

This list is not an exhaustive one, but it does present some research needs, opportunities, and directions and the beginnings of a structural framework for a program that will ultimately enable the drug abuse field to better address and fulfill the long-neglected needs of women's health.

REFERENCES

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