

***SUMMIT
ON
WOMEN AND DEPRESSION***

***PROCEEDINGS
and
RECOMMENDATIONS***

Wye River Conference Center

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Carolyn M. Mazure, PhD

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PROGRAM AGENDA

SUMMIT Opening Session

Welcome and Introductory Comments:

- Sharon Barrett, MS, Director, Office of Minority and Women's Health, Health Resources and Services Administration, Bureau of Primary Health Care (HRSA/BPHC)
- Raymond D. Fowler, PhD, Executive Vice-President and Chief Executive Officer, American Psychological Association (APA)
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The Importance of Studying Women and Depression:

- Steven E. Hyman, MD, Director, National Institute of Mental Health (NIMH)

SUMMIT SESSIONS

ETIOLOGY OF SEX AND GENDER DIFFERENCES IN DEPRESSION

“Integration of Epidemiology, Risk Factors, and Course”

Integrative Speaker: Susan Nolen-Hoeksema, PhD; University of Michigan

Developmental Changes in the Phenomenology of Depression in Girls and Young Women From Childhood Onward

Maria Kovacs, PhD; University of Pittsburgh

Genetic Contributions to the Development of Depression: Are There Gender Differences?

Laura J. Bierut, MD; Washington University in St. Louis

Towards an Animal Model of Female Depression

Tracey J. Shors, PhD; Rutgers University

Psychosocial and Cultural Contributions to Depression in Women

Vicki S. Helgeson, PhD; Carnegie Mellon University

Interpersonal Stress and Depression in Women

Constance Hammen, PhD; University of California, Los Angeles (UCLA)

Poverty, Inequality, and Discrimination as Sources of Depression Among Women

Deborah Belle, EdD; Boston University

Depression, PTSD, and Health Problems in Survivors of Male Violence: Research and Training Initiatives to Facilitate Recovery

Mary P. Koss, PhD; University of Arizona

Hormones and Mood: From Menarche to Menopause

Meir Steiner, MD; McMaster University

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Vickie M. Mays, PhD; University of California, Los Angeles (UCLA)

TREATMENT AND PREVENTION OF DEPRESSION IN WOMEN

“Treatment and Prevention of Depression in Women”

Integrative Speaker: A. John Rush, MD; Southwestern Medical Center

Psychotherapy for Women With Depression

Steven D. Hollon, PhD; Vanderbilt University

Pharmacotherapy of Depression in Women

Kimberly A. Yonkers, MD; Yale University

Personality and Depression in Women: Implications for Treatment

Thomas A. Widiger, PhD; University of Kentucky

Sex Differences in Depressed Substance Abusers

Bruce Rounsaville, MD, and Rajita Sinha, PhD; Yale University School of Medicine

Preventing Depression in Women

Ricardo F. Munoz, PhD; University of California San Francisco (UCSF)

Alternative Treatments for Depression: The Quest for Empirical Support

Rachel Manber, PhD; Stanford University

Hormones and Depression in Women

Patricia D. Kroboth, PhD; University of Pittsburgh

Lesbians and Depression: Emerging Issues in Research on Morbidity, Treatment, and Prevention

Susan D. Cochran, PhD; University of California Los Angeles (UCLA)

Facilitators:

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Susan F. Wood, PhD; Office on Women’s Health, Department of Health and Human Services (OWH/DHHS)

TREATMENT AND PREVENTION OF DEPRESSION IN SPECIAL POPULATIONS OF WOMEN

“Treatment and Prevention of Depression in Women/Targeted Populations”

Integrative Speaker: Ellen Frank, PhD; University of Pittsburgh

Chronic Depression in Women

Susan G. Kornstein, MD; Medical College of Virginia Campus, Virginia Commonwealth University

Depression During Pregnancy and the Postpartum Period

Katherine L. Wisner, MD; Case Western Reserve University

Premenstrual Disorders: Bridging Research With Clinical Reality

Kimberly A. Yonkers, MD; Yale University

Depression During the Perimenopause

Nancy E. Avis, PhD; Wake Forest University Medical Center

Aging Women and Depression

Margaret Gatz, PhD; University of Southern California

What Research Suggests for Depressed Women With Children

Myrna M. Weissman, PhD; Columbia University

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SERVICES FOR WOMEN WITH DEPRESSION

“Effective Integration of Services for Women With Depression”

Integrative Speaker: Jeanne Miranda, PhD; Georgetown University

The Epidemiology of Women and Depression

Ronald C. Kessler, PhD; Harvard University

The Economics of Depression in Women

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Women With Depression: Changing Barriers to Access

Sherry Glied, PhD; Columbia University

Women, Depression, and Disability: Exploring the Interconnections

Judith A. Cook, PhD; University of Illinois at Chicago

Women, Depression, and the Workplace

Mary Clare Lennon, PhD; Columbia University

Treatment of Ethnically Diverse Women With Depression in Primary Care Settings

Charlotte Brown, PhD; University of Pittsburgh

Cost-Effectiveness of Primary Care Interventions for Depressed Women

Kathryn Rost, PhD; University of Colorado Health Sciences Center

Assessment and Treatment for Depressed Women in Drug and Alcohol Treatment

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Improving Services for Women With Anxiety and Depression in Primary Care Settings

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INTRODUCTION

Women and Depression

Depression is a common disabling disorder affecting more than 19 million Americans per year (Regier et al., 1993), and women are at least twice as likely as men to experience a major depressive episode within a lifetime (Kessler, McGonagle, Swartz, Blazer, & Nelson, 1993; Weissman, Leaf, Bruce, Florio, & Holzer III, 1988). Depression may occur at any stage during a woman's life, and it occurs across educational, economic, and racial/ethnic groups. Significant personal costs are associated with depression, including loss of life by suicide, increased morbidity from medical illness, and attendant risk for poor self-care and reduced adherence to medical regimens.

Major depression, even without concurrent medical illness, impairs social and physical functioning, in some cases more severely than serious medical conditions such as hypertension, diabetes, and arthritis (Wells et al., 1989). Furthermore, depression incurs a significant economic burden resulting from disability and consequent loss of income (Greenberg, Stiglin, Finkelstein, & Berndt, 1993). In fact, a recent World Health Organization report examining "The Global Burden of Disease" indicates that depression presents the greatest disease burden for women when compared with other diseases (Murray & Lopez, 1996).

Consequently, it is critically important to understand what has been learned from empirical investigation about depression, its treatment, and prevention,

and apply that knowledge to reducing risk for depression and maximizing interventions. Of equal importance are the incorporation of this new knowledge into health policy and the creation of a research agenda that will advance our knowledge on women and depression.

Summit on Women and Depression

Ten years ago, the American Psychological Association (APA) convened its first meeting of the Task Force on Women and Depression to review the knowledge base in this field (McGrath, Keita, Strickland, & Russo, 1990). Since that time, there have been great strides in depression research. Recognizing the need to update these findings and continue to move the field forward, the American Psychological Association convened a *Summit on Women and Depression* on October 5-7, 2000.

This *Summit* brought together over 35 internationally renowned experts from a variety of disciplines to provide a state-of-the-art review of research findings on women and depression, make recommendations on how these findings can be reflected in health policy and incorporated into practice, and generate a targeted research agenda on women and depression. The form of depression on which we focused was non-psychotic, that is, clinical major depression, which is the most common form of mood disorder and among the most disabling.

Prior to the *Summit*, each expert was asked to prepare a manuscript on his or her area of expertise that would present state-of-the-art knowledge on women and depression; identify the conceptual and methodological challenges in studying women and depression; highlight the implications of available research in depression for treatment, prevention, service delivery, and mental health policy; and identify gaps in our knowledge that must be addressed through future research.

Within this framework, the goal of the *Summit on Women and Depression* was to answer three critical questions:

- What empirically based research findings need to be implemented to improve treatment and enhance prevention of depression in women?
- What research findings are available to inform health care policy and enhance service delivery for women with depression?
- What research studies should be funded in the next 5 years that would result in practical benefits for women with depression?

Work of the Summit and Guiding Principles

The work of the *Summit* was framed within four major discussion sessions: the etiology of sex and gender differences in depression; treatment and prevention; treatment and prevention for special populations of women; and services for women with depression. Formal presentations were limited to four “integrative” speakers — one for each session — to permit extensive exchange among

participants. The integrative speakers highlighted findings from each paper, discussed them in relation to the three major questions, and set the stage for the audience participation that followed. Following these sessions, the participants met in four smaller groups to consolidate and prioritize recommendations made in the general session. Each group then reported back to all participants in a final session.

The *Summit on Women and Depression* resulted in a stimulating, enriching, and highly informative interaction among the assembled interdisciplinary group of experts. More importantly, it resulted in a renewed commitment to translate research knowledge into practical applications and health policy and to recommend future research directions that will advance our knowledge on women and depression.

As rapporteurs of this meeting, we have highlighted material from each presentation that we believe represents critical findings. We have also provided key recommendations from presentations and group discussions for future directions in research, treatment, and policy for women with depression.

Carolyn M. Mazure, PhD

Chair, *Summit on Women and Depression*

Gwendolyn P. Keita, PhD

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THE ETIOLOGY OF SEX AND GENDER¹ DIFFERENCES IN DEPRESSION

Depression is associated with significant personal and economic costs (Greenberg et al., 1993) and is the leading cause of disability among women in the world today (Murray & Lopez, 1996). Depression is more prevalent in women, a finding that has been consistently replicated in many well-designed epidemiological studies conducted in the United States (Kessler et al., 1994b; Robins & Regier, 1990) and throughout the world (Wolk & Weissman, 1995). Absolute rates of depression vary during adulthood and are highest in midlife; however, the relative difference in the rates of depression between women and men are maintained. Women have a higher risk of an initial or first onset episode of depression (Eaton & Muntaner, 1997; Kessler et al., 1993). and, although risk of recurrence is the same for women and men (Kessler et al., 1994a; H. B. Simpson, Nee, & Endicott, 1997), there are more women in the “pool” of those who could have a recurrence.

Childhood onset depression appears to confer similar risk of subsequent depression for girls and boys (Kovacs, *Summit*, 2000)². However, earlier onset in boys is associated with greater comorbidity of psychiatric disorders, while earlier onset in girls is not associated with

comorbidity and suggests a “purer” form of depressive disorder. Depressed girls report higher levels of mood disturbance and neurovegetative symptoms than do boys, while boys report more irritability, which may have interpersonal ramifications and thus increase the rates of subsequent comorbid conditions. Gender differences in rates of depression emerge in early adolescence, at puberty (Nolen-Hoeksema & Girgus, 1994), raising questions about the role of biological factors, specifically sex hormones, as well as sociocultural influences in the etiology of depression (E. Frank & Young, 2000).

To improve the diagnosis, treatment and prevention of depression in women, we must better understand the etiology of depression for women, specifically the biological, psychological, and social origins of depression, and better integrate data across these perspectives.

BIOLOGICAL FACTORS

Ample and increasing evidence indicates that biological factors contribute to the etiology of depression, and an array of biological factors have been the focus of study.

¹ We acknowledge contrasting opinions about the use and meaning of the terms sex and gender. For purposes of explicating the discussion undertaken during the *Summit*, we use sex to connote the biological attributes of the individual and gender to encompass a combination of biological, psychological, social, and situational factors that vary across culture as well as within a particular culture over time. Gender is a multilevel construct that has been defined as the cultural package of factors assigned to the social categories of male and female. These factors are assigned by sex in most cultures (Bourne & Russo, 1998).

² Within the text, references are made to the manuscripts written by *Summit* participants specifically for the *Summit on Women and Depression*. These manuscripts are currently in press in various journals across disciplines. For a current list of publications or more information, please contact the APA Women’s Programs Office at <http://www.apa.org/pi/wpo/>.

Genetics

Based on data that major depression clusters in families and that depression in a first degree relative is a risk factor for depression (Gershon & Nurnberger, 1982), researchers have sought to identify factors causing depression and, more recently, to determine if genetics may account for the higher rates of depression in women than men. To date, no specific genes responsible for depression have been identified nor have results of family and twin studies been conclusive in showing the exact genetic contribution to depression. However, accumulating data (Kendler, Neale, Kessler, Heath, & Eaves, 1992; Kendler, Thornton, & Gardner, 2001; Lyons et al., 1998) implicate genetic risk as an important factor in depression. Bierut et al. (1999) have also suggested that genes may play a larger role in the development of depression in women. Studies currently underway may clarify the role of genetics and help determine whether different genes contribute to depression in women versus men or whether the same genes have a differential impact for women versus men in the development of depression. However, research on the role of genetics in depression is particularly labor intensive and must be carried out over generations.

Sex Hormones

Based on the perspective that the unique biology of women may explain, in part, the higher prevalence of depression, other investigators have focused on the role of sex hormones in initiating certain forms of depression. The obvious difference in sex hormones between women and men, and the link between increased rates of depression for women after puberty, as well as the link between mood and the menstrual cycle or reproduction, suggest that gonadal (or sex) hormones may contribute to differences in depressive onset.

Of particular interest is whether a disturbance in the interaction between the hypothalamic-pituitary-gonadal (HPG) axis and neuromodulators (e.g., serotonin) is a key contributor to depression in women. It has been hypothesized that women may be vulnerable to such dysregulation because of the neuroendocrine rhythmicity engendered in menstrual cyclicality or reproduction, and then subsequently more sensitive to psychosocial, environmental, and other physiological factors (Dunn & Steiner, 2000; Steiner, 1992; Steiner & Dunn, 1996). This hypothesis is supported by data indicating that depressive symptoms and syndromes are associated with periods when gonadal hormones are undergoing considerable change, mainly during the premenstrual period, the postpartum period, and at the initiation of menopause.

Epidemiological studies estimate that as many as 75% of women experience some premenstrual emotional and behavioral symptoms (Johnson, 1987), and the recent inclusion of premenstrual dysphoric disorder (PMDD) in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; 1994) is based on increasing data showing that some women can have significantly disabling depressive symptoms premenstrually. Although the etiology of PMDD is not known, it is increasingly hypothesized that normal cyclic ovarian function rather than hormone imbalance may trigger biochemical changes within the central nervous system or other sites (e.g., thyroid) in women vulnerable to mood disorders (Steiner, *Summit*, 2000). The positive response of women with PMDD to treatment with selective serotonin reuptake inhibitors (SSRIs) clearly suggests that serotonin may be altered in women with PMDD and supports the promising line of research investigating hormone-neurotransmitter interactions.

The finding that ovarian axis functioning (i.e., estrogen and progesterone) is apparently normal during premenstrual symptomatology has expanded interest in the role of the metabolite of progesterone, allopregnanalone, as well as the role of androgens in depression. Some treatment studies have indicated that progesterone may provoke the cyclic symptoms of PMDD (Hammarback, Bäckström, Holst, von Schoultz, & Lyrenal, 1985), while allopregnanalone may produce an anxiolytic effect (Rapkin et al., 1997). Some preliminary studies suggest that women with PMDD have higher levels of serum testosterone in the luteal phase compared with controls, which may contribute to some symptomatology such as irritability (Dunn, Macdougall, Coote, & Steiner, 2001).

Depressive symptoms and syndromes associated with postpartum and perimenopausal periods have also begun to be studied with regard to hormonal influences and the interaction of hormones with neurobiological systems. It is well known that there are significant shifts in sex hormones and major changes in the hypothalamic-pituitary-adrenal (HPA) axis during these periods. Pregnancy and delivery produce dramatic changes in estrogen and progesterone levels, as well as major shifts along the HPA axis, and perimenopause results in critical fluctuations in estrogen as well as changes in other hormones (i.e., lutenizing hormone and follicular stimulating hormone). Although the direct and indirect effects of these changes have not been clearly linked to the onset of mood disorders, investigations continue to focus on the effects of neuroendocrine changes on mood.

Animal Models

Some investigations have used animal models to elucidate underlying mechanisms of depression and to test

hypotheses about the higher incidence of depression in females. In particular, stress-inducing paradigms have been used to invoke behaviors in animals that mimic depressive symptoms. One series of studies found that exposure to acute stress induces dramatic and diametrically opposed effects on associative learning in males versus females (Shors & Horvath, *Summit*, 2000). Specifically, acute inescapable stressors facilitate learning in males but impair conditioning in females (Wood & Shors, 1998). Interestingly, these negative effects of stress on conditioning are most apparent when there are extreme changes in estrogen levels either as a function of cyclicity or through chemically induced means. Furthermore, stress increases estrogen levels (Shors, Pickett, Wood, & Paczynski, 1999), and the effect of stress on learning is prevented when ovarian hormones are removed via oophorectomy (Beylin, 1998) or by administering an estrogen antagonist, such as tamoxifen.

Biology clearly affects the risk for depression and biology is changed by depression. The biological maturation that occurs during puberty along with intensification of gender-specific social roles are believed to be key interactive processes in the emergence of sex differences in depression (Kovacs, *Summit*, 2000). Contemporary research is actively examining how biological factors may differ for women and men and identifying the psychosocial factors that likely mediate or moderate the risk incurred by biological influences.

PSYCHOLOGICAL AND SOCIAL FACTORS

Psychological and social variables of particular interest in understanding the etiology of depression and sex differences in rates of depression are the effects of stress and the relational and cognitive styles that increase vulnerability to depression.

Life Stress and Trauma

Serious adverse life events are clearly implicated in the onset of depression. Both case-control and community-based studies, which have shown that more than 80% of community cases of major depression were preceded by a severe adverse life event have consistently demonstrated this relationship. Recent work, using multivariate models that account for other risk factors, also has confirmed the role of serious events in precipitating the onset of depression (Kendler, Neale, Kessler, Heath, & Eaves, 1993; Mazure, Bruce, Maciejewski, & Jacobs, 2000). Interestingly, most work investigating the relationship of stressful life events and major depression has largely or exclusively employed samples of women (Mazure, 1998), and few studies have examined sex differences in regard to stress and depression. However, initial research in this area has demonstrated that women are three times more likely than men to experience depression in response to stressful events (Maciejewski, Prigerson, & Mazure, 2001).

Traumatic stressors, such as childhood sexual abuse (Weiss, Longhurst, & Mazure, 1999), adult sexual assault, and male partner violence (Koss, *Summit*, 2000) also have been consistently linked to higher rates of depression in women, as well as to other psychiatric conditions (e.g., post traumatic stress disorder [PTSD]) and physical illnesses (Scholle, Rost, & Golding, 1998). As Koss points out (*Summit*, 2000), because approximately 85% of the victims of nonfatal intimate assault are women (Greenfield, Rand, & Craven, 1998), this is certainly a women's health issue.

Pretrauma characteristics of the survivor of sexual assault often predict subsequent health consequences (Koss, Figueredo, & Prince, 2001). However, features of the abuse, including duration of exposure to abuse, use of force, and relationship to the perpetrator, are important factors in predicting outcome (Koss, *Summit* 2000), as are mediators such as event-related appraisals and beliefs (e.g., self-blame) (Barker-Collo, Melnyk, & McDonald-Miszczak, 2000; Wyatt & Newcomb, 1990). The National Violence Against Women Survey (Tjaden & Thoennes, 1998) estimated that approximately 15% of adult women in the United States had been raped and another 3% had been victims of attempted rape. The psychological impact of rape is severe and includes major depression, long-term depressive symptoms (i.e., dysthymic disorder), PTSD, increased rates of smoking, alcohol use, reduced activity, and physical injury (Koss, Koss, & Woodruff, 1991). Characteristics of sexual assault such as degree of physical force, use of weapons, and perceived fear of death or injury significantly affect psychological outcome (Acierno, Kilpatrick, Resnick, Saunders, & Best, 1999).

Depression is also highly prevalent among women who experience male partner violence (Golding, 1999; McCauley et al., 1995) — the greatest single cause of injury to women requiring emergency medical treatment (Stark et al., 1981). Among the more worrisome aspects of this form of trauma is that it is repetitive. As Stark and colleagues have shown, nearly 1 in 5 abused women has presented for medical treatment of trauma more than 11 times, and another 23 % have been treated 6 to 10 times previously. Ongoing abuse is particularly pernicious in maintaining depressive symptom severity.

Other chronic forms of severe stress that have been linked to higher rates of depression in women, include poverty, inequality, and discrimination. Women are more likely than men to have incomes below the poverty line, and depressive symptoms are common among low-income persons, particularly mothers with young children (Belle, *Summit*, 2000). Furthermore, adults in poverty are twice as likely to experience new episodes of major depression as adults who are not poor (Bruce, Takeuchi, & Leaf, 1991). Poverty is a pathway to depression for women in part because poor women have more frequent and uncontrollable adverse life events than the general population (G. Brown, Bhrolchain, & Harris, 1975; Dohrenwend, 1973), including increased exposure to crime and violence (Belle, 1982). Poverty also often brings with it including inadequate housing, dangerous neighborhoods, and financial uncertainties (Belle, *Summit*, 2000), and these stressors strain marital and parent-child relationships that otherwise would be sources of support (G. Brown & Moran, 1997).

Other contemporary research suggests that economic inequality, not just dire poverty, contributes to negative health outcomes (Adler et al., 1994; Wilkinson, 1996) and is associated with depression in women (Kahn, Wise, Kennedy, & Kawachi, in press). Differences between women and men in economic, social, and political status have also been correlated with female mortality and morbidity (Kawachi, Kennedy, Gupta, & Prothrow-Stith, 1999).

Sex discrimination in the workplace and elsewhere is associated with well-being and increased depressive and anxiety symptoms (Klonoff, Landrine, & Campbell,

2000). Women of color can face the dual problem of sexual and racial/ethnic discrimination, thus, raising the level of stress associated with discrimination (Reskin, 2000).

Interpersonal Relationships and Cognitive Styles

Many psychological and biological perspectives on depression have adopted a stress-diathesis model that focuses primarily on the vulnerability factors that predispose some individuals to depression in the face of an apparent life stressor. As pointed out by Hammen (*Summit*, 2000), the major stress-diathesis models stemming from a cognitive approach to depression have focused on dysfunctional beliefs, learned helplessness, and, more recently, hopelessness (e.g., Abramson, Alloy, & Metalsky, 1989; Beck, 1967; Ingram, Miranda, & Segal, 1998) as the diatheses provoked by the stressor. These models have provided insight into the types of cognitive or relational styles that are associated with depression, as well as greater understanding of the complex interplay of stress and depression with regard to cognitive mediators. One cognitive style that has been consistently shown to confer increased risk for depression and that is more common in women is ruminative thinking, that is, a repetitive and passive mental focus on symptoms of distress and their possible causes and consequences. Those who ruminate excessively in response to distress have longer periods of depressive symptoms, are more impaired in their problem solving, and are less likely to engage in instrumental behaviors that might help one regain control. Rumination is also associated with longer and more severe episodes of depression and an increased likelihood of being diagnosed with major depressive disorder (Nolen-Hoeksema, 2000).

Another style that may confer risk for depression has been termed “unmitigated communion.” This concept is built upon the notion that relationships are more central to women’s self-concept than men’s and that this interpersonal orientation is one of the most consistent psychological differences found between women and men (Helgeson & Fritz, 2000; Nolen-Hoeksema, 2000). The combination of sensitivity to relationship-based stressors and dependence on the external environment for validation of self-worth may create a focus on others to the exclusion of the self. Women with this characteristic (i.e., unmitigated communion) become unduly upset at the stressful events of others, take on others’ problems as their own, and neglect the self in efforts to please and serve others. This style has been associated with depression and also may help to account for the gender difference in depressive symptoms.

In addition to focusing on what happens within the individual, there is a growing interest in understanding the interpersonal context in which depression occurs. As noted, poverty, discrimination, and inequality are examples of contextual factors; interpersonal functioning is another important factor. Studies of the nongenetic transmission of depression have shown that many depressed mothers were raised in dysfunctional families with parental psychopathology (Hammen, 1991a). Also, women with histories of depression tend to be more critical toward their adolescent children, and this finding mediates the association between maternal depression and children’s behavior disorders (Nelson, Hammen, & Brennan, 2001). Consequently, dysfunctional parenting that is secondary to active depressive symptoms (e.g.,

hopelessness, irritability, fatigue, etc.) is associated with depression in children, and this pattern may be replicated across generations.

Depressed women also experience more marital discord and divorce (Hammen, 1991a), in part because of their own difficult course, but also because depressed women are more likely to marry men with psychiatric disorders (Hammen, Rudolph, Weisz, Rao, & Burge, 1999). A woman’s problematic marital, family, and friendship relationships can also persist even when she is no longer depressed. Her enduring motivations, beliefs, and expectations about herself and others and her strategies for interpersonal interactions constitute “interpersonal vulnerability,” which may put the woman at risk for developing depression when negative interpersonal life events occur (Hammen & Brennan, 2001; Weissman & Paykel, 1974). Furthermore, data now show that depressed women, even in remission, report significantly more stressful events to which they have contributed in part by their own action or attitudes (Hammen, 1991b). Thus, in turn, negative interpersonal events may precipitate depressive reactions (Davila, Hammen, Burge, Daley, & Paley, 1995), contributing to a cycle of continuing difficulty.

The etiology of differential rates of depression in women and men almost certainly results from complex and reciprocal interactions of biological, psychological, and social factors. At this juncture, researchers are moving in the direction of developing models that integrate these factors to explain both the epidemiological data on sex differences in depression and the emergence of gender differences in early adolescence.

TREATMENT OF DEPRESSION IN WOMEN ACROSS THE LIFE SPAN

Among the overall aims of the *Summit* was encouraging translation of research on depression into improved interventions for women with depression. Because the literature in this area is particularly rich, the papers on treatment solicited for the *Summit* were divided into two major sections. The first section was devoted to general issues in intervention research. A second section focused more intensively on treatment issues in special populations of women defined in terms of demographics, clinical characteristics, or developmental life span phase. The following summary provides highlights from the papers and the panels on these topics with particular reference to the role of sex and gender in moderating course of depression and response to therapeutic intervention.

PSYCHOTHERAPEUTIC TREATMENTS FOR DEPRESSION

The efficacy of a variety of psychotherapies in treating depression has been clearly demonstrated. Controlled clinical trials have provided strong evidence for the efficacy of interpersonal and cognitive behavioral interventions. Evidence also suggests that some structured behavioral marital and family therapies are effective in the treatment of depression (Hollon, *Summit* 2000). Dynamic and eclectic therapies have been less frequently studied, and data are limited for these forms of treatment. There is also some evidence that psychotherapy may be useful in the prevention of relapse or recurrence of major depression in patients successfully administered acute antidepressant treatment. Cognitive behavior therapy appears to have an enduring effect that prevents

subsequent onset or symptom return regardless of whether medications are used. An National Institute of Mental Health (NIMH) funded study of recurrent depression (Ellen Frank, Primary Investigator; Study No. MH 49115) is currently underway to assess the utility of maintenance interpersonal psychotherapy in patients who have remitted from an acute episode of depression.

In reviewing the literature on psychotherapy of depression, Hollon (*Summit*, 2000) found little indication for gender differences in moderating psychotherapy outcomes. Yet, as Hollon points out, there are a number of possible explanations as to why gender differences have not been found. For example, it may be that despite the difference in rates of depression between women and men, once depressed, the genders respond similarly to psychotherapies. Or it is possible that men and women do respond differently but that most empirically supported interventions are flexible enough to allow therapists to adjust their interventions to the different needs of males and females. Few studies have looked explicitly for gender differences, so they may exist but are yet to be detected. The sexes differ in co-occurring conditions such as anxiety disorders and PTSD (more common in depressed women), which may complicate outcome of depression treatment. Comorbidities have traditionally been grounds for exclusion from depression trials. A promising future line of research will be to study therapies in patients with co-occurring disorders. Nonetheless, there is no doubt that psychotherapies are currently available that are effective interventions for women with depression.

PHARMACOLOGICAL TREATMENTS FOR DEPRESSION

The efficacy of antidepressant pharmacotherapies for treating depression has been clearly demonstrated. Emerging evidence indicates gender may moderate response to antidepressants (Yonkers, *Summit*, 2000). These differences in response to antidepressant agents may be due to sex differences in endogenous central nervous system levels of serotonin (Nishizawa et al., 1997). This hypothesis is consistent with findings that women with chronic depression respond preferentially to selective serotonin reuptake inhibitors (SSRIs) and men to tricyclics (Kornstein, *Summit*, 2000). This difference is accounted for by the superiority of the SSRIs in premenopausal but not postmenopausal women. There is also evidence that hormone replacement therapy in postmenopausal women restores this preferential response to the SSRIs (Thase, 2001).

Psychotherapy and antidepressants have been found to be equally effective for mild to moderate depression in a number of studies in which the two were directly compared (Elkin et al., 1989).

HORMONAL TREATMENTS FOR DEPRESSION

Epidemiological studies show increased risk for depression in females at the time of puberty and evidence of increased mood lability in relation to menstruation, perimenopause, and childbirth (Epperson, Wisner, & Yamamoto, 1999). Despite the face validity of estrogen as a factor in mood modulation in women, until recently few studies have examined its utility as a monotherapy or as an adjunct to other treatments. Evidence, however, is emerging of its possible utility as a treatment in

perimenopausal and postpartum depression (Gregoire, Kumar, Everitt, Henderson, & Studd, 1996).

In addition to estrogens, Fabian and Kroboth (*Summit*, 2000) reviewed evidence for the role of other hormones in the treatment of depression in women. They found a small literature on the mood modulatory effects of progesterone or its metabolites on central nervous system (CNS) activity. Studies (Majewska, Harrison, Schwartz, Barker, & Paul, 1986; McAuley, Reynolds, Stiff, & Kroboth, 1991) have indicated that binding of progesterone metabolites at the gamma aminobutyric acid (GABA) receptor complex, a locus on neurons responsible for CNS inhibitory effects, produced an anxiolytic hypnotic effect similar to that experienced from administration of benzodiazepines.

Fabian and Kroboth also identified a few studies on the mood elevating influence of an adrenal steroid, dehydroepiandrosterone (DHEA), and its sulfated conjugate, DHEA-S. There are both age and sex differences in levels of DHEA-S in that levels decline with age, and concentrations of DHEA-S in women are only about 50% to 70% of those in men. Despite some controversy regarding the exact role of endogenous DHEA in depression, several studies have demonstrated beneficial effects of DHEA administration to women on mood (Morales, Nolan, Nelson, & Yen, 1994), well being (Wolf, Kudielka, Hellhammer, & Kirschbaum, 1998; Arlt et al., 1999), and as either monotherapy or adjunctive treatment for dysthymia (Bloch, Schmidt, Danaceau, Adams, & Rubinow, 1999), and depression (Wolkowitz et al., 1999). Though encouraging, the beneficial effects of DHEA administration must be interpreted with caution until further research has been conducted. Additional studies are needed to evaluate rigorously the potential

antidepressant effects of DHEA and to identify which patient populations will benefit most from administration of these hormones. The relative importance of absolute concentrations versus diurnal variations and whether or not there is a therapeutic range for DHEA and/or DHEA-S is yet to be determined.

ALTERNATIVE TREATMENTS FOR DEPRESSION

Depression is among the most common conditions for which alternative treatments are sought. Approximately 30% to 35% of individuals completing research protocols involving antidepressant drugs do not respond to treatment (Keller, Gelenberg, & Hirschfeld, 1998; Keller et al., 2000). Many patients terminate prematurely because of adverse effects or intolerance. Reasons for discontinuing psychotherapy differ from those for discontinuing medication; nonetheless, discontinuation rates are similar (Keller et al., 2000). For other persons with depression, treatments may be inaccessible or too expensive. Therefore, many individuals turn to alternative remedies. Alternative treatments in common use include meditation and relaxation, exercise, acupuncture, and herbal agents (Manber, *Summit*, 2000).

Stress management, in the form of meditation, relaxation and massage, is the most common alternative treatment sought by individuals with symptoms of depression (Eisenberg et al., 1998). However, there are few randomized trials testing the efficacy of these methods. Therapeutic massage has short-term effects on depressive symptoms, but there is no evidence that it has longer-term benefits or that it helps those with DSM-IV major

depression. Similarly, with few exceptions, evidence for meditation and relaxation in the treatment of depression is limited.

Exercise is commonly viewed as an antidepressant, and many individuals engaging particularly in aerobic exercise report an enhanced feeling of well-being. Research indicates that exercise elevates mood and reduces other depressive symptoms (North, McCullagh, & Tran, 1990), but there is little evidence for the efficacy of exercise in clinical major depression. The limited evidence available in clinical depression indicates smaller effect sizes than those observed for standard antidepressant treatments. Motivation and adherence issues, inherent to the depressive illness, often hinder the utility of exercise as a single intervention for depression. This limitation may be overcome by integrating exercise with psychotherapy. Some evidence supports the efficacy of acupuncture in depression. In China, acupuncture is commonly used to treat what is diagnosed as “neurasthenia,” a condition reported to be present in about 50% of psychiatric outpatients in that country. However, empirical evidence of its utility in the clinical management of major depressive episodes is limited, with only one randomized double-blind pilot study supporting its efficacy as a single modality (Allen, Schnyer, & Hitt, 1998) and another randomized controlled study concluding that it does not improve standard clinical management with a tetracyclic antidepressant medication (Roschke, et al., 2000). A federally funded study is currently underway to test the efficacy of acupuncture in a controlled trial (John Allen, Primary Investigator; Study No. NCT00010517).

St. John's Wort is the most commonly used herbal treatment for outpatient depression. The evidence for its efficacy appears moderate, based on European literature and two randomized control trials (Harrer, Schmidt, Kuhn, & A. B., 2000; Philipp, Kohnen, & Hiller, 1999). A meta-analysis (Linde, 1996) and a recent selective review (Gaster & Holroyd, 2000) found St. John's wort to be superior to placebo controls, and comparable to standard tricyclic antidepressants. However, the latter study noted several major methodological limitations in the studies reviewed. Two large scale multi-site double-blind randomized control trials completed since these meta-analyses/reviews found conflicting results. The first (Philipp, Kohnen, & Hillier, 1999), found that hypericum extract (one of the variety of compounds contained in St. John's wort) was superior to placebo and statistically indistinguishable from imipramine. The other study (Harrer, 2000) found no difference between St. John's wort extract and placebo. Consequently, the published literature to date regarding the efficacy of St. John's Wort in the treatment of major depression is inconclusive and awaits additional empirical evidence.

The popularity of alternative treatments, many of which are untested or not sufficiently tested, creates an urgent need for research examining efficacy, effectiveness, and safety of these methods and agents. Optimal treatment strategies, including dosing, frequency, and duration of single modality or combination treatments, require attention. Moreover, research ought to pay special attention to efficacy, safety, and other implementation issues that are specific to women across the life span, because women are more frequent users of alternative therapies than men and because use of alternative treatments during pregnancy, lactation, and concomitant

hormone replacement regimens introduce additional treatment challenges.

PREVENTIVE INTERVENTIONS FOR DEPRESSION

Treatment interventions alone may not be sufficient to reduce the high prevalence of major depression in women. Some experts recommend a concerted effort to develop, evaluate, and implement interventions that will prevent the onset of major depressive episodes (Muñoz & Ying, 1993). Munoz and colleagues (*Summit*, 2000) suggest prioritizing three groups of women in whom prevention would have a major public health impact: (a) adolescent females; (b) women about to become mothers; and (c) women at risk for substance abuse problems, especially smoking.

Epidemiological and prospective studies have established that the risk for depression increases for many women entering adolescence and suggest that prevention efforts during these years are likely to yield an important payoff. In addition, the negative consequences of having an antenatal and postpartum depression have been well-documented (e.g., Field, 1995), indicating the need for prevention of depression during those periods. Because most pregnant women have access to health care, screening for depression in health care settings has considerable promise.

Women using or at risk for abusing substances also require prevention interventions for depression as well as substance abuse interventions. Among the substances linked to depression is nicotine. Depression can increase the risk for smoking, and vice versa (Choi, Patten, Gillin, Kaplan, & Pierce, 1997; Rao, Daley, & Hammen, 2000).

Smokers with a history of depression have greater dependency on nicotine (Breslau, 1995), more difficulty quitting smoking (Abrams, Monti, Pinto, & Elder, 1987), and higher relapse rates following initial smoking abstinence (Anda et al., 1990; Kinnunen, Doherty, Militello, & Garvey, 1996) than never depressed smokers. Recent evidence suggests that depression and depressive symptoms affect success with smoking cessation in women more so than men (Blake, Klepp, Pechacek, & Folsom, 1989; Borrelli et al., 1999; Royce, Corbett, Sorensen, & Ockene, 1997; Wetter et al., 1998). Because of the high rate of depression among smokers and the importance of managing depressive symptoms during initial smoking abstinence, smoking cessation interventions targeting depression have yielded up to twice the quit rate of interventions without this component (Hall et al., 1998; Muñoz, Marin, Posner, & Pérez-Stable, 1997; Prochaska, 2000).

Future depression prevention research should target women across the life span. The identification of groups at imminent high risk for major depressive episodes may be effective in increasing the utility of preventive interventions. Studies should explicitly observe effects on collateral public health problems, such as smoking, other substance abuse, unplanned pregnancies, marital problems, school performance, job performance, and physical health. These preventive interventions may need to address multiple outcomes, including healthy development as well as prevention of psychopathology, and involve the collaboration with community and multiple systems settings, in order to provide the maximal benefit for participants.

TREATMENT AND PREVENTION OF DEPRESSION IN SPECIAL POPULATIONS OF WOMEN

WOMEN WITH CHRONIC DEPRESSIONS

Chronic depressions, more common in women than men, are among the most underidentified, undertreated, treatment-resistant, and functionally impairing types of mood disorder (Hirschfeld et al., 1997; Keller & Boland, 1998; Shelton, Davidson, Yonkers, & Koran, 1997). Onset is usually early, prognosis is poor, suicide attempts are frequent, and occupational and social impairment are common (Klein & Shih, 1998). Chronic depression is associated with enormous economic costs due to lost productivity and high absenteeism (Greenberg, Stiglin, Finkelstein, & Berndt, 1993).

Both antidepressant medications and psychotherapy have been shown to be efficacious in treating chronic depression, with combination treatment showing significantly higher response rates than either modality alone (Keller et al., 2000). Research that examined gender differences in response to treatment of chronic depression found that women responded preferentially to a selective serotonin reuptake inhibitor (SSRI) and men to a tricyclic agent (Kornstein et al., 2000). Young women should be screened carefully for depression and treated vigorously to prevent the enormous morbidity and psychosocial consequences of chronic depression (Kornstein, Summit, 2000).

WOMEN WITH DEPRESSION AND SUBSTANCE USE DISORDERS

Women are more likely to be diagnosed with depression, and men with substance use disorders, with the exception of nicotine dependence, which is about equal between

women and men; and women are more likely to receive prescription drugs (Substance Abuse and Mental Health Services Administration, 1995). Nonetheless, a significant number of women present with comorbid depression and substance abuse, and these women are a particular challenge for treatment (Sinha & Rounsaville, *Summit*, 2000). However, even within comorbid samples, there are some differences in course of disorders between the genders that have implications for understanding etiology and for treatment.

For the majority of women with depression and substance abuse disorders, the depression is the “primary” disorder, evidence that women are using substances to modulate the effects of negative mood (Benowitz & Hatsukami, 1998). However, there is a smaller group of women for whom depression may be a consequence of a primary substance use disorder. In the past, the majority of clinical trials of psychotropic agents used to treat depression have excluded individuals with comorbid substance abuse disorders, so that there is little evidence to inform their treatment and even less evidence to inform approaches to the treatment of depression in these women.

Based on the evidence demonstrating the importance of depressed mood in initiating substance abuse, it is important that depressed mood be treated in drug treatment programs (Sinha & Rounsaville, *Summit*, 2000). However, standard substance abuse treatment tends to focus on avoidance of drug use, with only secondary emphasis on stress management or negative affect

reduction (Carroll, 1998; Kadden, Litt, & Cooney, 1994; Newinski et al., 1994). This may explain why psychosocial treatments for substance abuse have not shown specific efficacy for substance abusers with moderate to high psychiatric severity (Crits-Christoph et al., 1999; Project MATCH Research Group, 1997). Depression is also a major risk factor for treatment failure in nicotine dependence and women are more likely to present with depression and to fail in smoking treatment, regardless of smoking status. Given the magnitude of the problem of depression comorbid with substance use disorders, it is important to distinguish between men and women in the analysis of clinical trials, identify comorbid disorders, and devise appropriate interventions for women with comorbid depression and substance use disorders.

WOMEN WITH DEPRESSION AND PERSONALITY DISORDERS

Personality disorder diagnoses have come under considerable criticism for their potential to stigmatize women and their failure to consider the context of women's lives. However, personality disorders are likely to be important moderators of treatment efficacy for depression— influencing such key aspects of treatment as adherence and compliance. Personality disorders can be difficult to diagnose when an individual presents with an episode of depression, and can be resistant to treatment. A number of studies have established the ephemeral nature of personality disorders diagnosed during acute depression (Widiger, Verheul, & van den Brink, 1999) and suggest the value of assessing personality in remitted high-risk groups, such as women with recurrent episodes of depression, in order to understand the difference between depressive symptoms and personality disturbance. Widiger (*Summit*, 2000) singles out neuroticism as a

personality characteristic that is important to consider in depression. In population studies, women score more highly on neuroticism than do men, and neuroticism is a risk factor both for dependent personality disorder and for depression.

The presence of certain personality traits (and disorders) need not lead to a therapeutic nihilism. Evidence suggests that drugs used for acute treatment of depression as well as cognitive-behavioral therapy may moderate the negative affect that underlies certain personality disorders (Perry, Banon, & Ianni, 1999) and may have some impact on the depressive symptoms characteristic of many personality disorders that are more common in women.

LESBIANS WITH DEPRESSION

As women, lesbians experience an elevated risk for depression. But in addition, recent findings from several population-based surveys suggest that lesbians may have an even greater risk for depressive episodes than other women (Cochran & Mays, 2000; Cochran, & Mays, 1999; Gilman et al., 2001; Sandfort, de Graaf, Bijl, & Schnabel, 2001). Presumably this is due to differences in life experiences and the pervasive and harmful effects of anti-homosexual bias (Mays & Cochran, 2001). When lesbians do enter treatment for depression, these differences may lead to somewhat different patterns of morbidity, including comorbidity, and issues to be addressed during the course of treatment. Over the last two decades, the affirmative therapies have been developed to address the specific psychotherapy needs of individuals with minority sexual orientation. Affirmative therapy assumes that lesbians, like others, incorporate learned negative attitudes and beliefs about homosexual-

ity and considers this internalized homophobia, which leads to psychological problems with self-image and social functioning, as an important target for therapeutic intervention. Case reports indicate that these approaches may be especially effective for treatment of depression in lesbians. But, to date, controlled trials establishing the efficacy of the approach and its effectiveness in general practice settings have not been done (Cochran, *Summit*, 2000).

In general, the field has failed to appreciate lesbians' heightened risk for depression, possible differences in presentation of symptoms and therapeutic issues, and greater propensity to use mental health services as compared with other women (Cochran, 2001). For example, there is evidence that lesbians are at higher risk for developing alcohol dependency than heterosexual women, though the reasons for this are not known (Cochran, Keenan, Schober, & Mays, 2000). There is also some evidence that lesbians are more likely to engage in moderate illicit drug consumption, primarily marijuana and cocaine use, although results in this regard are inconsistent (Cochran & Mays, 1999; Sandfort et al., 2001).

WOMEN WITH PREMENSTRUAL DYSPHORIC DISORDER (PMDD)

PMDD is diagnosed in approximately 5% of menstruating women and is distinguished from the much more common premenstrual syndrome (PMS) by virtue of its more severe symptoms and associated functional impairment. Although premenstrual conditions have not historically been the focus of serious attention, new findings show that women with PMDD have functional

disability similar to that found with other mood disorders such as dysthymic disorder and major depressive disorder (Pearlstein et al., 2000; Yonkers et al., 1997).

Randomized controlled trials of PMDD consistently show that SSRIs are beneficial in treating symptoms (Dimmock, Wyatt, & O'Brien, 2000; Steiner, 2000). Current studies also show that the illness may be managed differently than other mood disorders. Treatment of premenstrual dysphoric disorder with SSRIs is efficacious if medication administration is limited to the luteal phase of the menstrual cycle. This strategy can be of benefit to women, since costs and side-effects are thereby limited (Yonkers, *Summit*, 2000). A shortfall in the treatment research is the lack of work assessing non-medication remedies such as exercise and psychotherapy.

An ongoing challenge to both women who suffer from moderate to severe premenstrual conditions and clinicians overseeing the well-being of their female patients is detection of the illness and treatment with empirically proven therapies. For a variety of reasons, including stigma, women will neglect to consult a physician if they have moderate to severe premenstrual symptoms, including PMDD (Hylan, Sundell, & Judge, 1999; Robinson & Swindle, 2000). On the other hand, clinicians frequently fail to ask patients whether moderate to severe PMS is affecting their mood and well-being. Clinicians may recommend over the counter medications or hormonal remedies, which lack evidence of efficacy. Also, women with an ongoing mood disorder may experience exacerbation of symptoms from PMDD (during the luteal phase of the menstrual cycle). Further, PMDD incurs heightened risk of relapse in

women who had previously remitted (Yonkers & White, 1992). Given the substantial personal burden of the illness, and the pivotal role women have in relation to their family, friends, and co-workers, increased attention to the illness may translate into pronounced personal and societal benefit.

DEPRESSED PREGNANT AND POSTPARTUM WOMEN

The psychiatric status of childbearing women is a major public health issue. Depression during pregnancy is associated with biological dysregulation that can be detrimental to fetal development (Wisner, *Summit*, 2000). Depression in the period after birth can disrupt the attachment of mother and child, as well as affect other family interactions. Both human and animal studies have shown an association between maternal prenatal stresses, such as major depressive disorder, and low infant birth weight and prematurity.

Although the effect of antidepressant drug treatment during pregnancy on the fetus has received attention, information about the effectiveness of different pharmacotherapies is still limited. Interpersonal therapy (IPT) is considered an important treatment option during pregnancy and the postpartum period because of its focus on role transition and interpersonal function. Electroconvulsive therapy (ECT) appears to be safe and effective, although it is a less commonly used treatment. It is a particularly powerful intervention for the most serious depressions, especially psychotic depressions in the postpartum period.

Despite the face validity of hormones as factors in postpartum depression, relatively few studies have examined their utility in treatment either as an adjunct to

therapy or as monotherapy. One study (Majewska, Ford-Rice, & Falkay, 1989) suggested that falling levels of progesterone metabolites postpartum along with changes in the density of the GABA-receptor complex may lead to the insomnia, anxiety and depression that characterize postpartum depression.

In more recent research, women with postpartum depression described in terms of prominent anxiety and mood symptoms responded to high-dose beta estradiol (Gregoire et al., 1996). Two other studies found that estrogen postpartum was useful in the treatment and prevention of postpartum psychosis (Ahokas, Kaukoranta, Wahlbeck, & Aito, 2001; Sichel, Cohen, Robertson, Rutenber, & Rosenbaum, 1995).

DEPRESSION AND PERIMENOPAUSE

The belief that most women suffer severe mood disturbances or depression during the period surrounding the onset of menopause is not supported by epidemiological data. Avis (*Summit*, 2000) noted that epidemiologic studies of menopause and depression do not consistently show an association between menopause and depression among the general population of women. Community- or population-based studies consistently show that only a minority of peri- or postmenopausal women experience depression. Although some studies have found negative mood among perimenopausal women, it appears that the majority of depression seen at the time of menopause can be attributed to prior depression, vasomotor symptoms, or non-menopause-related factors such as health problems or social circumstances.

While there is no evidence that menopause is associated with increased depression on a population level, an unanswered question is whether some women may be

more vulnerable to mood effects of hormonal changes. Researchers have suggested women with a history of premenstrual mood changes may have an increased sensitivity to hormonal changes at perimenopause, and women with previously diagnosed mood disorders that are cyclic or associated with reproductive events may be at higher risk for depressive symptoms or perimenopause. However, it is premature to conclude that increased vulnerability is related to a hormonal imbalance. Since most studies involve retrospective reporting of reproductive and psychiatric history, there may be selective recall among women experiencing problems at the time of study. Recommendations for treating clinical depression during perimenopause vary little from those for other forms of depression. They include antidepressants or psychotherapy if the mood disorder reaches clinical proportions and hormone replacement therapy for mood lability and sleep disturbances related to perimenopausal symptoms.

AGING WOMEN AND DEPRESSION

Being a woman 65 years or older does not, in and of itself, put a woman at greater risk for depression. In fact, epidemiological surveys suggest that older adults have lower rates of depressive disorder than do other age groups (Copeland et al., 1987), and there may be a narrowing of the gender gap in depression with old age (Veijola et al., 1998). However, an estimated 10 % to 20 % of older women do experience clinically significant depressive symptoms (Blazer & Koenig, 1996). High rates are particularly common among medical inpatients and outpatients. As well, there is evidence that caregiving for older relatives, particularly family members with dementia, may pose a special risk for depression in elderly women (Lutzky & Knight, 1994).

Recognition of depression can be difficult for both clinicians and researchers because it may be difficult to distinguish symptoms of depression from health problems, cognitive decline, and dementia. Reciprocal relationships among those factors may also result in underrecognized and undertreated depression (Lebowitz et al., 1997). The most important risk factor for the onset and persistence of depression in older women appears to be physical health problems. Depression may result from a direct physiological effect, side effects of medications, pain, or functional limitations (Zeiss, Lewinsohn, & Rohde, 1997).

A subset of late-onset depression has been found to be associated with structural brain changes, vascular risk factors, and cognitive impairment, sometimes referred to as vascular depression. These conditions may be more resistant to treatment with antidepressants or ECT and may have a more chronic course than other forms of depression (S. Simpson, Baldwin, Jackson, & Burns, 1998). Some evidence also indicates that late onset depression may be a precursor to dementia (Hickie & Scott, 1998).

Treatments for late life depression include antidepressant medication and psychotherapy, with cognitive, behavioral, brief psychodynamic, and interpersonal therapies all having some empirical support (Fiske, Kasl-Godley, & Gatz, 1998). Drugs and psychotherapy appear comparable in efficacy (Niederehe & Schneider, 1998).

When depression in older individuals is appropriately treated, remissions are comparable to those seen in midlife patients without major health problems. Even those with several different chronic health problems benefit from treatment for depression.

SERVICES FOR WOMEN WITH DEPRESSION

It has been well-established that women use mental health services more than men. However, the number of women coming for care still represents only a portion of those women who are depressed, as demonstrated by community-based prevalence rates (Blazer et al., 1994). Even when depression is recognized and care is sought, a range of barriers can impede women from receiving the treatment they need. These barriers include lack of consumer or provider knowledge about mental health services and treatments; stigma; level of insurance copayments, deductibles, and limits; inability to obtain adequate time off from work and other responsibilities to obtain treatment; the unavailability of transportation; and issues surrounding lack of child and elder care for which women are disproportionately responsible (National Institute of Mental Health, 2000). For these reasons, the final segment of the *Summit* focused on services for depressed women. This section included not only issues of access to care and the economic cost of depression, but services for women in different settings and different populations of women.

ACCESS TO CARE

The financial burden of seeking help is a significant factor affecting women's access to and utilization of mental health and substance abuse services (Collins, Rowland, Salganicoff, & Chiat, 1994). Health insurance

coverage is a consistently strong predictor of mental health service utilization, with better insurance benefits associated with increased levels of service utilization (Greenley & Mullen, 1990). However, health insurance coverage does not guarantee the inclusion of mental health benefits or comprehensive benefits for these services. Historically, mental health benefits have been more limited than medical/surgical benefits with higher copayment rates and stricter limits on the number of visits and hospital days (Sharfstein, Stoline, & Goldman, 1993; R. G. Frank, Goldman, & McGuire, 1992). The Mental Health Parity Act of 1996 was meant to alleviate some of these financial barriers.³

Mental health services have also been a particular target for managed care cost cutting. Spending on mental health services has declined more than 54% over the past decade (McCarthy, 1998), and reimbursement for mental health services has decreased far more than for any other area of health care (The Hay Group, 1998). Concerns also have been raised about certain aspects of managed care that make it difficult for women with depressive symptoms to access appropriate care. With the growth of managed care systems and carve-outs during the last two decades, there have been marked changes in how mental health services are provided within these systems. Women are more likely than men to receive care for a

³ This Act mandates that covered plans offering mental health services (the Act does not mandate mental health coverage) may not impose different lifetime or annual dollar limits on those services than are applied to medical services. Covered plans include any nongovernmental group health plan with more than 50 employees. Plans demonstrating that their health insurance premiums increased by at least 1% because of the parity requirement may apply for a waiver. Existing state parity laws are not preempted by the Act. The Mental Health Parity Act of 1996 was to expire on September 30, 2001, but was extended until September 2002.

mental health problem from a general practitioner (Alvidrez & Azocar, 1999), and, despite improvements in diagnosing depression, primary care physicians diagnose depression less often. This in turn raises concerns about the frequent use of primary care gatekeeping — that is, requiring a referral from a primary care physician — on access to treatment in managed care plans.

The growing number of plans in which mental health specialty care is carved out to a dedicated behavioral health provider also raises concerns. By separating the delivery of mental health care from physical health care, carve-outs may pose significant obstacles to the provision of psychological services, even when these services have been demonstrated to reduce medical costs (e.g., reductions in primary care visits through providing appropriate mental health treatment) (Reed, Levant, Stout, Murphy, & Phelps, 2001). Data have shown a direct correlation between the structure of an insurance plan and the type of care received. Compared with women covered under fee-for-service insurance plans, those with HMO coverage are much more likely to receive medications and much less likely to receive psychotherapy (Glied, 1998). People covered by plans that require utilization review for mental health services have significantly shorter stays for inpatient mental health treatment (Wickizer & Lessler, 1998).

Comparison of data over time (from 1987 to 1996) by Glied and colleagues indicates that the treatment and diagnosis of depression in women have improved, although problems identified in 1987 have not been eradicated. The rate of diagnosis of depression has increased substantially, yet continues to remain well below rates suggested by epidemiologic estimates. Total

spending on mental health care for women with depression has fallen due to very large reductions in spending on outpatient (and to a lesser extent inpatient) service use. Some of this decline can be attributed to lower fees paid to providers, but most of the decline results from a decrease in the number of psychotherapy visits delivered. Spending on psychopharmaceuticals has more than doubled (Glied, *Summit*, 2000).

DEPRESSION, DISABILITY, AND REHABILITATION SERVICES

Accumulated research clearly demonstrates the significant correlation between depression and disability (Armenian, Pratt, Gallo, & Eaton, 1998; Ormel et al., 1999). As noted previously, depression is the leading cause of disability among women in the world today (Murray & Lopez, 1996).

Individuals with major depression report more impairment in physical, social, and role functioning compared with individuals without chronic health conditions (Wells et al., 1989), as well as compared with individuals with several chronic medical conditions, including hypertension, diabetes, and back problems (Wells & Sherbourne, 1999). Depressed individuals are also more likely to be receiving disability payments (Kessler et al., 1999), with women comprising the majority of workers disabled due to depression (Broadhead, Blazer, George, & Tse, 1990; Conti & Burton, 1999).

Although research addressing women's experiences of disability and depression is limited, higher levels of depression-related disability have been documented among women than among men. This greater disability often occurs in the more gender-stereotypical areas of

social, marital, and familial functioning, but has also been documented in the employment realm, in activities of daily living, and instrumental activities of daily living as well (Cook, *Summit*, 2000). Further research is needed to better understand the relationship between depression and disability.

Research on rehabilitation services for women with severe depressive disorders is also limited (Cook & Pickett, 1994). The majority of depressed women do not require residential services or independent living supports. However, rehabilitation services, including residential services and independent living supports are much less developed for the psychiatrically disabled than for those with physical disabilities (Cook, 1999). Comprehensive treatment models combining clinical and rehabilitation services have been developed to meet the specific needs of individuals with disabling psychiatric disorders. These “psychiatric rehabilitation” or psychosocial rehabilitation models emphasize a more biopsychosocial approach and have been found to be superior to treatment as usual in helping clients avoid rehospitalization (Arana, Hastings, & Herron, 1991), work at jobs for pay (Bond, Dietzen, McGrew, & Miller, 1995), and enhance social skills (Leiberman, Wallace, Blackwell, Eckman, Vaccaro, & Juehnel, 1993). Even these programs have failed to address the particular needs of women, including the need for parenting rehabilitation, relationship difficulties, and issues around the caretaking of adult family members. Similarly, there is a critical lack of rehabilitation services during pregnancy and the postpartum period, as well as following menopause (Cook & Steigman, 2000; Mowbray, Oyserman, & Ross, 1995).

DEPRESSED MOTHERS WITH CHILDREN

Major depressive disorder (MDD) is highly prevalent in women of child-bearing and child-rearing ages, and the rate may be increasing in younger cohorts (Cross National Collaborative Group, 1992). These findings have focused attention on the need to better understand the impact of MDD on the offspring of depressed mothers and the implications for service delivery.

The offspring of women with MDD are at high risk for MDD in childhood and adolescence. The risk for offspring occurs whether the depressed mothers are identified in psychiatric or medical clinics. The risk begins early, often before puberty, with a marked increase for girls at adolescence, and is transmitted across the generations. Depression that begins in childhood and adolescence is often continuous into adulthood and is associated with substantial morbidity and risk of suicide.

Most estimates of the cost of depression on work performance have focused on work for pay, ignoring the impact on nonpaid work at home, which is predominantly done by women. In fact, few or no economic projections have taken childcare or the effects of a mother’s depression on children into consideration. Weissman and colleagues (*Summit*, 2000) have conducted longitudinal research in this area and provide important information for this discussion.

Data show that parental depression has costly economic consequences. Offspring of depressed, compared with nondepressed, parents have a significantly increased risk for major depressive disorder, anxiety disorders, and

markedly poorer overall functioning (Weisz & Jensen, 1999). A history of parental depression increases the risk of general medical problems and psychiatric hospitalizations, which is consistent with numerous studies that have found increased risk of medical problems among depressed patients (Jaffe, Froom, & Galambos, 1994). These findings support the need for early detection in the offspring of depressed parents. Weissman (*Summit*, 2000) notes that studies investigating the effects of maternal symptom remission on offspring are only now in the planning and implementation stages.

Opportunities for intervention and prevention are numerous, for example, in primary care, pediatric, and obstetric-gynecological practices and in child psychiatry and school-based clinics. However, more research on effective treatments for children and adolescents with depression is urgently needed.

WOMEN, DEPRESSION, AND THE WORKPLACE

Gender differences in paid work activities have been one of many factors proposed to explain women's greater risk for depression. Likewise, the workplace has been proposed as fertile ground for prevention and intervention efforts. Work plays a critical role in women's lives — the number of women in the labor force almost doubled between 1960 and 1998 (from 31.9% and 61.2%, respectively) and tripled for married women with children under 6 (from 18.6% to 63.7%, respectively) (U.S. Bureau of the Census, 2000).

Depression is associated with significant performance decrements at work (Berndt et al., 2000; Martin et al., 1996), as well as with more work disability claims.

Lennon (*Summit*, 2000) notes that research on work and depression seems to reflect four broad themes: depression as a barrier to employment, as a consequence of unemployment, as a consequence of job characteristics, and as a consequence of work/family stress. Most existing research has been in the last three areas.

Women in jobs combining little skill discretion, job control, and self-direction (Link, Lennon, & Dohrenwend, 1993) with high demands (Bromet, et al., 1988; Niedhammer et al., 1998) are more likely to be depressed. Although research is less definitive, job discrimination, sex discrimination (Landrine, Klonoff, Gibbs, Manning, & Lund, 1995), and sexual harassment (Fitzgerald, 1993) have also been associated with more depressive symptoms. Work-family conflict also correlates with higher levels of depressive symptomatology, including among women with difficulties arranging, managing and paying for child care (Lennon, Wasserman, & Allen, 1991; Ross & Mirowsky, 1988).

While work can contribute to depression, the workplace also offers an ideal opportunity for prevention and for intervention. Jobs can be designed to alleviate or minimize those factors linked to depression and job conditions that may promote depression can be improved. Moreover, research has indicated that treatment for depression enhances job retention and performance.

ECONOMIC COST OF DEPRESSION

In addition to evaluating the cost of depression to the individual, researchers and economists have begun to measure the tremendous impact of depression in societal economic terms as well, in particular, the cost to employers in terms of health care coverage and employee productivity. It is well-known that depressed individuals utilize the health system more than their

nondepressed counterparts (Birnbaum et al., 1999). Less attention has been paid to gender differences in utilization patterns or gender differences in other areas of cost to employers. However, Birnbaum and colleagues (*Summit*, 2000) analyzed data from a national Fortune 100 company on medical, prescription drug, and disability employer payments for women and men with major depressive disorder and found that the average female employee with depression cost the company \$9,265, compared with \$8,502 for male employees with depression. As expected, depressed patients, both male and female, generally used more services than the average nondepressed beneficiary. However, the services utilized by men and women differed significantly, with depressed men using inpatient services about 45% more than depressed women, and depressed women using more outpatient and office services (26% and 37%, respectively) than depressed men. Depressed men were 62% more likely than depressed women to have received their first treatment for depression in an inpatient setting, lending support to the hypothesis that men are not treated for depression until more serious, inpatient care is required.

The key differences in the gender-specific costs of depression seem to be due to greater work absence cost of depressed women as compared to depressed men, with depressed women costing significantly more. The work absence cost for employed women treated for depression was \$4,602, compared with \$3,541 for employed men — nearly 30% higher. This differential more than offset the approximately 10% lower medical costs of these women compared with men, which may reflect their less frequent use of often costly, inpatient services (Birnbaum, *Summit*, 2000).

IMPROVING SERVICES FOR WOMEN WITH ANXIETY AND DEPRESSION IN PRIMARY CARE SETTINGS

The Epidemiologic Catchment Area Study and National Comorbidity Study (Kessler, Olfson, & Berglund, 1998) suggest that just one third of those with depressive disorders are receiving treatment. With almost half of treatment for depressive disorders occurring in primary care settings (Kessler et al., 1994b), and only one third to one half of major depression being accurately diagnosed by primary care physicians (Depression Guidelines Panel, 1993), improving services for women with depression in primary care settings is of particular importance.

A number of research programs have attempted to improve depression outcomes in primary care. Katon's (*Summit*, 2000) review of these programs found that a range of intervention programs improve symptomatic and functional outcomes generally for patients with depression. These programs all provided increased support to help educate and activate patients to be more knowledgeable partners in the care of illness. They provided either mental health professionals or other allied health professionals, such as nurses as "care extenders," to help with patient education and support and to increase the frequency of follow-up visits. They also closely monitored and provided feedback to primary care physicians on adherence and outcomes and facilitated referral to specialists for patients with adverse outcomes. Finally, interventions have also been developed to address relapse prevention. These models have also been found to be successful in increasing adherence to antidepressant medication, increasing exposure to evidence-based effective psychotherapies, and improving depressive symptom and functional outcomes (Katon, *Summit*, 2000).

DIFFERENTIAL EFFECTIVENESS OF INTERVENTIONS TO IMPROVE PRIMARY CARE TREATMENT FOR WOMEN

Little information exists about the differential effectiveness of these interventions in improving primary care treatment for depressed women versus men. However, this is particularly important to determine given women's greater probability of being depressed and their greater use of primary care services for mental health care (Horgan, 1985; Leaf & Bruce, 1987; Shapiro et al., 1984). Rost and colleagues (*Summit*, 2000) focused on this issue by examining an intervention to improve the recognition and treatment of depression in primary care clinics, specifically by training office nurses to supplement the primary care physician's efforts to provide antidepressant medication treatment or referral to specialty mental health counseling/therapy. Preliminary results suggest the intervention (compared with usual care) significantly decreases depression symptom severity and increases quality-adjusted life years for women, but not for men. Other early indications are that the intervention is particularly cost-effective for women and that men have more adverse reactions to aspects of the intervention, including medications prescribed (Pyne, Smith, Fortney, Zhang, Williams, & Rost, *Summit*, 2000). These results will need to be further examined in future studies.

SERVICES FOR ETHNICALLY DIVERSE WOMEN

Although ethnic minority women experience rates of depression comparable to White women, ethnic minorities are at greater risk than Whites of having their depression go unrecognized (Borowsky, Rubenstein, Meredith, Camp, Jackson-Triche, & Wells, 2000) and inadequately treated (Green-Hennessy & Hennessy, 1999;

Wang, Berglund, & Kessler, 2000). Providers' inability to appreciate the differences between and within the different ethnic minority groups in the United States has been proposed as an important contributing factor. Even within a single ethnic group, women show considerable variation. Additionally, symptom patterns and expression of psychological distress are likely to be influenced by culture. Brown and Abe-Kim (*Summit*, 2000) in their review of this research provided examples of the difficulties and the costs for these ethnic minority women. For example, practitioners, particularly primary care physicians, often misdiagnose the depression of ethnic minority women because these women are more likely to express their psychological distress through somatic symptoms. Primary care physicians are most likely to recognize depression when there are reports of psychological distress and impaired functioning (Coyne, Schwenk, & Fechner-Bates, 1995; Schwenk, Coyne, & Fechner-Bates, 1996). This is of particular concern as ethnic minority women are more likely to be seen in the general medical sector than by mental health professionals.

Degree of acculturation is also an important factor in depression rates for Latina and Asian Pacific Island (API) women, with the more highly acculturated women most likely to experience major depression (Burnam, Hough, Karno, Escobar, & Telles, 1987; Moscicki, Locke, Rae, & Boyd, 1989).

Despite research demonstrating the effectiveness of enhanced treatments for depression in primary care settings, few studies have enrolled sufficient numbers of ethnic minority women to evaluate treatment response in these populations (Brown & Abe-Kim, *Summit*, 2000).

Several studies suggest that empirically validated depression treatments can be effective (V. B. Brown, Huba, & Melchoir, 1995; Miranda & Munoz, 1994). Of particular concern, however, is the rate of nonadherence to psychotropic medication treatments by ethnic minority women, possibly related to medication side effects. In fact, there is growing evidence that Asians, African Americans, and Latinos require lower doses of psychoactive drugs because they metabolize these drugs more slowly (Lin, Poland, & Nakasaki, 1993).

WOMEN WHO ABUSE SUBSTANCES

It has only been within the last two decades that substance abuse research has begun to recognize gender differences in the use and abuse of alcohol and other drugs and in addiction treatment. Recent attention to this topic is now made more urgent by clear evidence that substance abuse is a problem of considerable concern for women, and that women in substance abuse treatment settings have higher rates of depression as compared with women in the general population and with men in treatment (Kosten, Rounsaville, & Kleber, 1985). Studies also have shown that women are more likely than men to have a dual diagnosis of a substance use disorder and a psychiatric disorder, particularly depression (Anthony & Helzer, 1991; Helzer, Burnam, & McEvoy, 1991).

Furthermore, as noted by Fleming (*Summit*, 2000) women tend to be at greater risk for early termination of treatment and poor outcome even when they do remain in treatment for longer periods. The presence of additional psychosocial and health burdens, such as housing

instability, homelessness, physical health problems, and problems with childcare, increases the likelihood of misdiagnosis and inadequate intervention (V. B. Brown, Huba, & Melchoir, 1995).

Three major models of service delivery for dually diagnosed women have been identified: sequential, parallel, and integrated. In the sequential treatment model, a woman is first treated by either a mental health or substance abuse system and then by the other. In parallel treatment, a woman is simultaneously involved in separate mental health and substance abuse interventions. The integrated model, in which intensive and specific treatment for both mental health and substance abuse are provided within one program, is the most widely advocated approach. Unfortunately, outcome studies of the model's effectiveness are limited.

Although innovations in service delivery have occurred for women with both substance abuse and depression, including the availability of a limited number of facilities that include child care accommodations, much work remains in this area. Particular needs include services for adolescent girls and pregnant women, and relapse prevention for women.

RECOMMENDATIONS

The following recommendations for research and funding; prevention, treatment and services research; public education; and prevention, treatment, and service delivery resulted from the sessions of the Summit on Women and Depression convened by the American Psychological Association.

Research and Funding

To advance knowledge in the field and improve the lives of millions of women and their families, researchers and research and funding agencies must focus on understanding the effects of sex and gender on etiology, diagnosis, treatment, and prevention of depression in women.

- Encourage basic science and pre-clinical investigations to consider the effects of sex/gender when designing and implementing studies and reporting results.
- Encourage journal editors to require articles on depression using human subjects to indicate whether sex and gender effects were evaluated; if not, why not; and to describe and discuss implications of results by sex/gender. Likewise, conference presentations should be held to the same reporting requirement.
- Coordinate the development of new investigations with ongoing or proposed multi-site studies to examine sex and gender effects, thus, optimizing efforts and resources to study sex-specific factors in depression.

Women are a heterogeneous group; their heterogeneity and the context of their lives need to be considered in research design and interpretation of findings.

- Encourage multivariate and interdisciplinary research models of depression.
- Determine how social, cultural, psychological, environmental, work-related, and economic factors influence the prevention, development, diagnosis, and treatment of depression in women.
- Determine how the existence of co-occurring disorders influence the prevention, development, diagnosis, and treatment of depression in women.

A life-span perspective is critical for understanding depression in women.

- Conduct investigations into how life-span related variables affect prevention and treatment outcomes.
- Investigate periods of high risk for depression in women (e.g., puberty, the childbearing years, the post-partum period, and perimenopause), life experiences unique or more common to women within specific developmental periods (e.g., childhood sexual assault; becoming a caregiver to an older relative), and conditions placing women at higher risk (e.g., a prior history of depression).

The etiology of depression in women must be understood in order to advance knowledge in the field.

- Evaluate the various causal hypotheses underlying depression in women.
- Investigate the role of genetic factors in depression.
- Investigate the role of hormones (e.g., cortisol, estrogen, progesterone, and dehydroepiandrosterone) in relation to the neurobiology of depression in women and integrate biological and psychosocial models of depression.
- Examine the role of stress, including early trauma and stressors throughout the life span of women, in depression.
- Examine the relationship between substance use/abuse and depression.

Prevention, Treatment and Services Research

Prevention and intervention research is critical to a better understanding of depression, its prevention and treatment. Improved knowledge of factors affecting access to treatment, relapse, and relapse prevention will be required if prevention and treatment efforts are to be successful.

- Investigate the mechanisms underlying effective therapies for depression in women.
- Investigate the effectiveness of longer term treatments and secondary prevention initiatives to reduce relapse, recurrent depression, and refractory depression.
- Develop brief screening tools for depression to be used in community settings where women are commonly found (e.g., schools, stores, and long term care facilities).
- Evaluate practical benefits on multiple functional levels (including educational, employment and economic, social interactions) from prevention initiatives, treatment interventions and rehabilitative services for depression.
- Determine effective strategies to increase access to services, particularly for ethnic minority women and for populations who underutilize available services (e.g., older women).
- Investigate strategies for reducing stigma associated with depression to reduce barriers to treatment. The stigma associated with mental illness makes it difficult for many women to accept that they suffer from depression and obtain the mental health services they require.

Public Education

Public education is required to improve recognition and understanding of depression in women and to increase the number of women who receive treatment. Professional organizations, the media, federal agencies, foundations, private industry, labor unions, health care organizations, and other stakeholders must commit to educating the public on depression.

- Utilize educational strategies targeting women and their families to reduce the stigma associated with mental illness, in general, and depression, in particular. The stigma associated with mental illness makes it difficult for many women to accept that they suffer from depression and obtain the mental health services they require.

- Educate women and their families about the higher prevalence of depression among women than men and about biological, developmental and psychosocial risk factors for depression in women (e.g., stress, medical illness, disability, early abuse, and violence). Inform them about the recurrent nature of depression and its co-occurrence with other disorders (e.g., anxiety, and substance abuse) that may mask its presentation.
- Encourage women to be knowledgeable consumers, for example, by developing and disseminating widely a consumer guide to psychotherapy. Inform the community about the availability of effective treatments and what to expect from treatment (e.g., in terms of likely duration and frequency of psychotherapy and/or medication regimens).
- Target specific locations (e.g., primary care settings and work sites) for distributing educational materials on depression to women.
- Assist women in making treatment for depression a priority. Educate them on the functional benefits to themselves and their families when depression is treated.
- Develop collaborative outreach efforts with other professional organizations, employers, the media, federal agencies, foundations, industry and labor unions, health care organizations, and other shareholders in women's mental health, including nontraditional partners such as religious organizations and various organizations for ethnic minority women.

Prevention, Treatment, and Service Delivery

Policy makers, professional organizations, educational and training institutions, and providers should develop policy and implement practices which ensure those individuals with depression and other mental health and substance abuse problems are recognized and have access to empirically validated and cost-effective treatment.

- Develop partnerships among researchers, practitioners and the community (e.g., through primary care settings, schools, workplaces, and social service agencies) to engage women in treatment, rehabilitative services, and in research. Use empirically validated brief screening tools for depression widely in community settings where women are commonly found.
- Emphasize the need for maintenance treatment, and the importance of continuing psychotherapy and/or medication over prolonged periods of time when indicated by patient presentation and history. Advocate for delivery and reimbursements systems that use a sustained, chronic disease management approach. Include patient and family education/management skills training from the beginning of the treatment process.
- Employ the variety of empirically validated psychotherapeutic and psychopharmacologic treatments for depression.
- Support gender- and culture-specific treatments, especially for various populations of women. Develop treatment manuals in diverse languages, with adaptation to diverse cultures and age groups.
- Advocate for continuing education on depression for mental health and primary care practitioners.

- In schools, implement mood management training for preadolescents, especially girls, as part of their educational experience. Use other venues to gain access to this population known to be entering a period of risk with the onset of puberty. Provide information as to where to get help if symptoms occur.
- Develop prevention and treatment interventions for children of depressed mothers who are at increased risk for depression.
- Reduce stigma, cost, and language barriers to seeking treatment, and increase access to mental health services, particularly for women of color, older women, adolescents, and poor women.
- Take actions to ensure that funding and programs are available for depression research, prevention efforts, public education, and treatment for women with depression and other mental health and substance abuse problems.
- Increase funding for mental health research, mental health care, and substance abuse prevention and treatment services for women who need them.
- Support third-party reimbursement for long-term maintenance treatment and secondary prevention treatment.
- Support mental health parity in health insurance coverage and encourage research on the effects of mental health treatment (or lack of such treatment) on productivity and other outcomes.

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BIOGRAPHICAL INFORMATION FOR SUMMIT PARTICIPANTS

Nancy Avis, PhD is a health psychologist/epidemiologist who is a Professor of Public Health Sciences at Wake Forest University School of Medicine. She has worked in the area of menopause for many years and has written numerous papers on menopause, including menopause and depression. She currently serves as a Co-Investigator on the Study of Women's Health Across the Nation (SWAN), a multisite, multiethnic study of women transitioning through menopause.

Dr. Avis has been the Principal Investigator on several grants from the National Institute on Aging (NIA) related to menopause, frequently gives presentations on menopause to health professionals and the general public, and has served on various consensus panels. She also serves on the Editorial Boards for Menopause and Menopause Management and is active in the North American Menopause Society. Dr. Avis is also Fellow of the American Psychological Association. Other research areas include quality of life and psychological factors related to breast cancer.

Dr. Avis received her PhD in social psychology from the University of Michigan and an MS in epidemiology from the University of Pittsburgh.

Deborah Belle, PhD is an associate professor of psychology at Boston University and a fellow of the American Psychological Association. She did her undergraduate work at the University of Chicago and earned her doctorate in human development at the Harvard Graduate School of Education. Her research has focused on economic stress, social support, parental employment, and gender. She has been a William T. Grant Foundation Faculty Scholar in the Mental Health of Children, Evelyn Green Davis Fellow in Psychology at the Bunting Institute of Radcliffe College, and a fellow of the Radcliffe Public Policy Institute. With Marcia Guttentag and Susan Salasin she edited *The mental health of women*. Her other books are *Lives in stress: Women and depression*, *Children's social networks and social supports*, and *The after-school lives of children: Alone and with others while parents work*. Her current research explores the ways in which people think about poverty, wealth, and economic inequalities.

Laura Jean Bierut, MD is an Assistant Professor of Psychiatry at Washington University in St. Louis. She received her B.A. in Biochemistry and Molecular Biology from Harvard-Radcliffe Colleges and her M.D. from Washington University in St. Louis. She then completed her residency training in psychiatry and post-doctoral training in genetics at Washington University in St. Louis.

Dr. Bierut's research focuses on the genetics of psychiatric illnesses. This work includes the study of gender differences, secular trends in rates of illnesses, comorbid psychiatric illnesses, and environmental factors in order to better understand genetic influences on psychiatric illnesses. She is the recipient of a career development award from the National Institute on Alcohol Abuse and Alcoholism (NIAAA) and her work is funded by the National Institute on Drug Abuse (NIDA).

In addition to research, Dr. Bierut is the Co-Director of the Psychiatric Resident Clinic, a clinic for the training of residents in psychiatry. She also is the Coursemaster for the medical student preclinical curriculum in psychiatry.

Howard Birnbaum, PhD is a vice president in the health economics practice of Analysis Group/Economics, and is involved in both health outcomes and litigation support research. An applied microeconomist who has specialized in the health care sector for over 20 years, Dr. Birnbaum's areas of specialty include pharmacoeconomics, the costs of illness and impact of treatment, and health care claims data analysis. He has consulted to pharmaceutical companies, third party payers, government organizations, employers, and has served as an expert witness in litigation. His research has been published in numerous leading medical, health economics, and managed care journals, including *Archives of Internal Medicine*, *Health Affairs*, *PharmacoEconomics*, *Disease Management*, *Medical Care*, *Health Care Financing Review*, and the *American Journal of Public Health*. Dr. Birnbaum has managed engagements involving the design of effective health financing strategies and tools to optimize the process and outcomes of care, as well as the development of software applications that model the cost effectiveness of specific managed care technologies. Dr. Birnbaum holds a Ph.D. in Economics from Harvard University.

Mary C. Blehar, PhD directs the Women's Mental Health Program at the National Institute of Mental Health (NIMH). In this position she chairs a research consortium and coordinates the Institute's portfolio of women's mental health and gender differences research. Previously she held program director and branch chief positions at NIMH in the Adult Psychopathology and Prevention Branch and the Mood and Anxiety Disorders Research Branch and also served as NIMH staff collaborator on a multi-site genetic study of bipolar disorder. Dr. Blehar has written extensively about mental health issues and has made presentations at national and international scientific meetings on women's mental health. Prior to coming to NIMH, Dr. Blehar conducted research on infant-mother attachment and its impact on early personality and social development. With Mary Ainsworth, she co-authored *Patterns of Attachment*, a book that detailed findings from a research program on infant-mother attachment and provided validity data for a widely used research method for assessing security of the infant-mother relationship. Dr. Blehar received a PhD in psychology from Johns Hopkins University.

Charlotte Brown, PhD is Assistant Professor of Psychiatry at the University of Pittsburgh School of Medicine, Western Psychiatric Institute and Clinic. She received her Bachelor of Arts degree, cum laude, from Boston University, Master of Science Degree from Howard University, and PhD from The American University in Washington D.C. Charlotte completed her clinical training at McLean Hospital, Harvard Medical School, and Post Doctoral training at the Western Psychiatric Institute and Clinic. Prior to moving to Pittsburgh in 1993. She is a former recipient of a National Institute of Mental Health Scientist Development award, and is currently the principal investigator of the NIMH-funded study "Improving primary care services: Personal illness models." This four-year project will examine the impact of patient attitudes and beliefs about the nature of depression on antidepressant adherence and illness management strategies. Charlotte's other research interests include: psychosocial factors affecting women's health and the impact of race and ethnicity on depression recognition and management.

Susan D. Cochran, PhD, MS is currently a Professor in the Department of Epidemiology at UCLA School of Public Health and a Professor of Statistics in UCLA's Department of Statistics. She received her PhD in Clinical Psychology from UCLA.

Dr. Cochran's research centers on the analysis of social variables that may affect the mental and physical health of populations, in particular the health consequences of social, racial/ethnic and cultural influences. In recent years, she has

examined social, racial/ethnic, and intrapsychic determinants of high risk HIV-related sexual behavior and sexually transmitted diseases, mental and physical health consequences of social stigma, including difficulties in access to health care services and participation in disease prevention and early detection programs, and the role of social discrimination in physical and mental health outcomes, particularly among lesbians, gay men, and ethnic minority group members. She has published a number of papers examining prevalence of psychiatric disorders, such as depression and substance abuse, and access to care and treatment needs in these diverse populations.

Judith A. Cook, PhD is a Professor at the University of Illinois at Chicago (UIC), Department of Psychiatry. She received her PhD in sociology from The Ohio State University and completed an NIMH post-doctoral training program in clinical research at The University of Chicago. She directs the Mental Health Services Research Program (MHSRP) which houses two federally funded centers, a statewide training institute, and a number of research and evaluation studies. With staff at the MHSRP, Dr. Cook has created a series of training manuals and curricula in areas such as community safety for women with mental illness, peer support for women recovering from trauma following physical and sexual abuse, experiences of people living with HIV and psychiatric disability, and outreach to minority mothers and fathers of persons with mental illness. Her published research includes studies of women's mental health outcomes, access of HIV-seropositive women to the latest antiretroviral therapies, bereavement among mothers following a child's death from cancer, feminist methodology and epistemology, and coping among mothers of adult offspring with severe psychiatric disorders.

Candace Fleming, PhD (Kickapoo/Oneida/Cherokee) was raised on the Northern Cheyenne Reservation in southeastern Montana. She received her PhD from University of North Carolina at Chapel Hill. Dr. Fleming served the Confederated Salish and Kootenai Tribe by directing their Indian Health Service (IHS) funded mental health program from 1979-86. For a brief time she was chief of IHS mental health/social service programs for ten tribes in the Puget Sound area of Washington state. In 1987, Dr. Fleming joined the staff of the National Center for American Indian and Alaska Native Mental Health Research as the Alcohol Research Scholar (1987-95) and the Associate Director for Training (1990-present). She is an associate professor in the Department of Psychiatry. She and her colleagues at the University of Colorado Health Sciences Center developed the first American Indian specific psychology internship training program in the nation. Dr. Fleming's interests are in the areas of indi-

vidual, family and community resiliency. Another area of expertise is program evaluation of both intervention and prevention efforts in Indian and Native communities.

Ellen Frank, PhD is Professor of Psychiatry and Psychology at the University of Pittsburgh School of Medicine and Director of the Depression and Manic Depression Prevention Program at Western Psychiatric Institute and Clinic. Dr. Frank has just completed a major NIMH-sponsored study of women with recurrent depression addressing how biology, life stress, and different “doses” of psychotherapy interact in increasing or decreasing vulnerability to new episodes of depression.

Other projects include a controlled trial of interpersonal and social rhythm therapy (IPSRT) an adjunctive psychotherapy for patients with bipolar I disorder, an imaging study of the relationship between depressive symptoms and cardiovascular disease, and a psychotherapy development project, adapting interpersonal psychotherapy to patients suffering from depression complicated by panic symptomatology. An expert in mood disorders and their treatment, Dr. Frank was a member of the American Psychiatric Association Task Force on DSM-IV. She is an Honorary Fellow of the American Psychiatric Association and was elected to the National Academy of Sciences Institute of Medicine in 1999.

Margaret Gatz, PhD is Professor of Psychology, Gerontology, and Preventive Medicine at the University of Southern California; and Foreign Adjunct Professor at the Karolinska Institute in Stockholm, Sweden. Dr. Gatz is past Chair of the Behavioral and Social Sciences Section of the Gerontological Society of America. She has been recognized by the Master Mentor Award of the Retirement Research Foundation and Division 20 of the American Psychological Association, the Distinguished Mentorship Award from the Gerontological Society BSS section, and by the Kunskapens äpple för betydelsefulla insatser för utveckling av forskning (Apple of Knowledge for Important Contributions to the Development of Research) through the University College of Health Sciences, Jönköping, Sweden. Dr. Gatz received her BA from Rhodes College in Memphis, Tennessee, and her PhD in clinical psychology from Duke University. Her research interests encompass age-related change in depressive symptoms, risk and protective factors for Alzheimer’s disease, and evaluation of the effects of interventions.

Sherry Glied, PhD is Associate Professor and Chair of the Department of Health Policy and Management of Columbia University’s Mailman School of Public Health. She holds a BA in economics from Yale University, an MA in economics from the University of Toronto, and a PhD in economics from Harvard University.

In 1992-1993, she served as a Senior Economist to the President’s Council of Economic Advisers, under both President Bush and President Clinton. She also participated in President Clinton’s Health Care Task Force. Her principal areas of research are in health policy reform and mental health care policy. Her book on health reform, *Chronic Condition*, was published by Harvard University Press in January 1998. Her work in mental health policy has focused on the problems of women and children. She is an author of two reports to the Commonwealth Commission on Women’s Health on mental health services use by women and has published several studies in this field. She has also written extensively on children’s mental health service utilization.

Connie Hammen, PhD is Professor of Psychology at UCLA, and holds a joint appointment in the Department of Psychiatry and Biobehavioral Sciences. She is currently Chair of the Clinical Psychology program at UCLA. Dr. Hammen’s research has focused on mood disorders for many years. She has studied children and adolescents with depression, young women’s risk for depression in the transition from adolescence to adulthood, and adult mood disorders. Her focus is the study of life stress, interpersonal, cognitive, and family aspects of depression and bipolar disorder. Presently, she is involved in a long-term follow-up of youth at risk for depression due to maternal depression, and a study of psychosocial factors predicting course of illness and functioning in patients with bipolar disorders. She has written several books on depression, including *Depression Runs in Families* (1991); *Psychological aspects of depression: Toward cognitive and interpersonal integration* (1992; with I. Gotlib); *Depression* (1997), and is currently involved in contributing to the Goodwin and Jamison 2nd Edition of *Manic-Depressive Illness*.

Vicki S. Helgeson, PhD graduated from Valparaiso University in 1982. She received her masters degree from the College of William and Mary and her PhD from the University of Denver in 1987. From there, she became a postdoctoral fellow at UCLA. She began as an assistant professor at Carnegie Mellon University in 1990. In 2002, she was promoted to Full Professor.

Dr. Helgeson’s research interests focus on gender, relationships, and health. She has received a number of grants from the National Institutes of Health (NIH) to study how people adjust to chronic illnesses such as heart disease, breast cancer, and prostate cancer. Her work on gender focuses on the gender-related traits of unmitigated agency and unmitigated communion and how they differ from agency and communion. She has shown that unmitigated communion, but not communion, is associated with depressive symptoms and accounts for sex differences in depressive symptoms.

Dr. Helgeson has elaborated a theory of unmitigated communion that articulates some of the mechanisms by which it is linked to poor health.

Wayne Katon, MD is a Professor and Vice-Chair of Psychiatry and Director of the Division of Health Services and Epidemiology at the University of Washington. He directs an NIMH-funded National Research Service Award Primary Care fellowship program for psychiatrists and primary care physicians preparing for academic leadership positions. Dr. Katon's research on the prevalence of anxiety and depressive disorders in primary care and the relationship of psychiatric disorders to medically unexplained symptoms is internationally recognized. His latest research has focused on developing innovative models of integrating mental health professionals into primary care to improve the care of patients with major depression and panic disorder.

Dr. Katon has won the American Academy of Family Practice Award for Excellence in Teaching in Primary Care numerous times. In addition, he has received an Academy of Psychosomatic Medicine Research Award (1993) and an American Psychiatric Association Senior Scholar Health Services Research Award (1999).

Dr. Katon has published over 200 journal articles, chapters and books, including *Panic Disorder in the Medical Setting* and *Depression: Self-Care Companion for Better Living*.

Gwendolyn Puryear Keita, PhD is the Director of the Women's Programs Office and Associate Executive Director of the Public Interest (PI) Directorate of the American Psychological Association (APA). She encourages the generation, dissemination, and application of psychological knowledge on issues of importance to women; promotes the equitable and just treatment of women through the science and practice of psychology; and monitors and develops strategies to assure representation of women within APA and the profession.

Dr. Keita provided staff support for the APA Task Force on Women and Depression and co-authored their report, *Woman and Depression: Risk Factors and Treatment Issues (1990)*. She is a leader in efforts to increase recognition of psychosocial and behavioral factors in women's health and has convened three interdisciplinary conferences on women's health. Dr. Keita is the coauthor of *Health care and women: Psychological, social and behavioral influences* and *No safe haven: Male violence against women at home, at work, and in the community*.

Dr. Keita was instrumental in developing the field of occupational health psychology. In conjunction with the National Institute for Occupational Safety and Health (NIOSH), she

convened four international conferences on occupational stress and workplace wellness. She has co-authored several books and journal articles on occupational stress and health. She holds a PhD from Howard University.

Ronald C. Kessler, PhD is a Professor of Health Care Policy at Harvard Medical School. He is the Principal Investigator of the National Comorbidity Survey, a landmark study of over 8,000 men and women in the United States that investigates the psychosocial risk factors for and consequences of psychiatric morbidity and comorbidity, as well as of a series of NCS replication and follow-up surveys. Dr. Kessler is a Co-Director for both the World Health Organization's (WHO's) International Consortium in Psychiatric Epidemiology, a cross-national collaborative group founded to foster comparative studies of psychological disorders throughout the world, and of the WHO World Mental Health 2000 Initiative.

His research deals broadly with the psychosocial determinants and consequences of mental illness. In addition to the aforementioned national and international projects, other current studies include investigations of gene-environment interactions for common psychiatric disorders among twins and the workplace costs of psychiatric disorders.

Susan G. Kornstein, MD is Professor of Psychiatry and Obstetrics and Gynecology at the Medical College of Virginia Campus, Virginia Commonwealth University, where she serves as Chair of the Division of Ambulatory Care Psychiatry. She is also Executive Director of the VCU Institute for Women's Health and Executive Director of the VCU Mood Disorders Institute.

Dr. Kornstein is a nationally recognized leader in mental health issues for women. She has authored numerous articles, chapters, and abstracts on topics related to depression and women's health. She has also coedited a comprehensive textbook on women's mental health. She serves on several editorial boards and national advisory boards, and has given many presentations at national and international meetings. She has been a principal investigator on over 30 research studies in the areas of depression, anxiety disorders, and premenstrual syndrome. She has been the recipient of many awards for her research, service, and leadership. She is a Fellow of the American Psychiatric Association and a member of the American College of Psychiatrists.

Maria Kovacs, PhD, Professor of Psychiatry, at the University of Pittsburgh School of Medicine, Department of Psychiatry, and Director, Childhood Depression Program, WPIC, has conducted research on affective disorders for several decades. She initially studied depression and suicidal behaviors in adults, and played a central role in testing the efficacy of cognitive therapy. These experiences led to

groundbreaking longitudinal research on juvenile-onset affective disorders in various pediatric populations. Her work has focused on characterizing the presentation, correlates, outcomes, consequences, and public health implications of these psychiatric conditions. Based on her findings, Dr. Kovacs also has developed a new treatment (“Contextual Psychotherapy”) for depressed youths. In recent years, Dr. Kovacs has moved into multidisciplinary research involving studies of genetics, psychophysiology, and behavioral interaction, in order to identify and characterize risk factors for affective disorders that onset in the pre-adult years. Dr. Kovacs has been a member of various NIMH study sections, NIMH and other work groups that defined nosologic, treatment, and related research priorities in the field, and has been involved with international research initiatives.

Patricia D. Kroboth, PhD is Professor and Chairman of Pharmaceutical Sciences at the University of Pittsburgh School of Pharmacy. She received a BS in Pharmacy from SUNY at Buffalo and a PhD in Pharmaceutical Sciences from the University of Pittsburgh School of Pharmacy, where she has been a faculty member since 1980. She has served as Department Chair since 1988. Dr. Kroboth’s efforts in research and education fostered the development of the Clinical Pharmaceutical Scientist PhD Program and the establishment of the Pharmacodynamic Research Center at the University of Pittsburgh School of Pharmacy. In addition to her research publications, she has authored several papers regarding excellence in graduate education. Dr. Kroboth is an elected Fellow of both the American College of Clinical Pharmacy and the American Association of Pharmaceutical Scientists; she has held elected office in the latter organization as well as the American Association of Colleges of Pharmacy.

Mary Clare Lennon, PhD is Associate Professor of Clinical Public Health in Columbia University’s Mailman School of Public Health and Director of Research of the Research Forum on Children, Families, and the New Federalism at the National Center for Children in Poverty. She earned her from Columbia University. Most of her research examines the relation of gender to physical and mental health problems and their treatment, with a focus on the role of the family and the workplace. Using nationally representative samples and community-based samples, she has studied the importance of work and family conditions for psychological well-being and mental disorders (primarily, depression, demoralization, and alcohol use/abuse).

In recent years, her research interests have focused on the well-being of low income women and children. Her work has been published in the *American Journal of Sociology*, *the Journal of Health and Social Behavior*, *Social Science and Medicine*, *Journal of Personal and Social Psychology*,

as well as in other peer-reviewed journals and edited collections.

Rachel Manber, PhD is a clinical Psychologist on the faculty at Stanford University Medical School. Her research has focused on women’s mental health with special emphasis on depression and on sleep. She has been studying the efficacy of both traditional (psychotherapy, antidepressant medications, and their combination) and alternative (acupuncture and massage) treatments for depression. Of particular relevance is her on-going study, funded by the Agency for Healthcare Quality and Research (AHRQ), comparing acupuncture and massage in the treatment of depression during pregnancy.

Carolyn M. Mazure, PhD is a Professor of Psychiatry, Associate Dean for Faculty Affairs at Yale School of Medicine, and Director of *Women’s Health Research at Yale* - the largest interdisciplinary women’s health research program in the country. Dr. Mazure’s research has focused on determining predictors of illness onset and treatment response, particularly in depression. Her current research uses multivariate models to examine stress as a precipitant for depression and, more recently, addictive disorders. She is the Principal Investigator (PI) for Yale’s NIH-funded BIRWCH program on *Women and Drug Abuse*, and a Core PI for Yale’s NIH-funded Tobacco Use Research Center studying sex-specific factors in nicotine-dependence. Dr. Mazure has been interviewed by ABC’s “Prime Time Live” regarding depression, and by the BBC for their documentary on the *Science of Stress*. She has been invited to lecture at NASA and at the Smithsonian Institution on stress and depression. Dr. Mazure has provided testimony to the U.S. Congress for two consecutive years regarding research on women’s health, is a fellow of the APA, and is on the editorial boards of *The Journal of Women’s Health*, and *Experimental and Clinical Psychopharmacology*.

Jeanne Miranda, PhD received her PhD in Clinical Psychology from the University of Kansas in 1986. She completed a two year pre- and post-doctoral fellowship at UCSF working at San Francisco General Hospital. She completed a two-year NIMH funded post-doctoral fellowship in mental health services research. Dr. Miranda was on faculty in Psychiatry and Internal Medicine at UCSF from 1988 to 1995 when she joined the Department of Psychiatry at Georgetown University. Dr. Miranda is currently Professor of Psychiatry and Biobehavioral Sciences, University of California, Los Angeles.

Dr. Miranda’s research interests involve care for depression in low-income and minority patients. She has headed three NIMH funded projects evaluating care for depression in low-

income medical patients, care for depression in disadvantaged gynecology patients and improving mental health services for disadvantaged women.

Dr. Miranda was the Senior Scientific Editor for the Surgeon General's Report on Mental Health: Culture, Race, and Ethnicity (HHS, 2001).

Ricardo F. Muñoz, PhD is Professor of Psychology in the Department of Psychiatry at the University of California, San Francisco (UCSF) where he is director of the Clinical Psychology Training Program, chief psychologist at San Francisco General Hospital (SFGH), and Director of the UCSF/SFGH Latino Mental Health Research Program. His BA is from Stanford, and his PhD from the University of Oregon. His research program focuses on the prevention and treatment of major depression. He is a fellow of both the American Psychological Association and the American Psychological Society and has been a member of the Institute of Medicine's Board on Health Promotion and Disease Prevention and of the Committee on Prevention of Mental Disorders, which published *Reducing Risks for Mental Disorders*. His publications include *Control Your Depression* and *The Prevention of Depression: Research and Practice*. His current projects include the "Spanish/English Web Site for Smoking Cessation Trials" and the "Mamás y Bebés/Mothers and Babies: Mood and Health Project," a bilingual study of the effects of a depression prevention intervention on the health of low-income pregnant women and their babies.

Susan Nolen-Hoeksema, PhD is Professor of Psychology at the University of Michigan. She received her PhD in clinical psychology from University of Pennsylvania. Her research focuses on emotion regulation, stress and coping, depression, and the role of gender differences in emotion-regulation strategies in producing gender differences in depression and other health problems.

Dr. Nolen-Hoeksema is the recipient of an early career award from the American Psychological Association, numerous research grants, and two major teaching awards. Dr. Nolen-Hoeksema has published 5 books and over 50 research articles in the last 16 years. Dr. Nolen-Hoeksema currently directs the Gender and Mental Health Training Program at the University of Michigan, which trains predoctoral and postdoctoral students to do research on the intersection of gender and mental health.

Kathryn Rost, PhD is Professor of Family Medicine at the University of Colorado Health Science Center in Denver, Colorado. During the last 15 years, Dr. Rost has conducted research examining how individuals might better be able to get help for depression. A large community study on this

topic demonstrated that depressed women with a recent history of physical abuse were far more likely to seek help in the primary care setting than the mental health setting, compared to other depressed women. Dr. Rost will be presenting the results of her current study which tested an intervention to improve depression recognition and management in the primary care setting. In particular, Dr. Rost and her associate Dr. Pyne will examine whether the intervention was differentially cost-effective for women as compared to men. Dr. Rost's current interests focus on increasing payor interest in interventions which improve the quality of depression treatment so that innovative interventions can more easily be integrated into healthcare. She is currently collaborating with business coalition groups interested in using this approach to improve employee retention and productivity.

Since he joined the Yale faculty in 1977, **Bruce Rounsaville, MD** has focused his clinical research career on the diagnosis and treatment of patients with alcohol and drug dependence. Using modern methods for psychiatric diagnosis, Dr. Rounsaville was among the first to call attention to the high rates of dual diagnosis in drug abusers. As a member of the Work Group of revise DSM-III, Dr. Rounsaville was a leader in the adoption of the drug dependence syndrome concept in the DSM-III-R Substance use Disorders Section. Dr. Rounsaville has played a key role in clinical trials on the efficacy of a number of important treatments, including outpatient clonidine/naltrexone for opioid detoxification, naltrexone treatment for alcohol dependence, cognitive-behavioral treatment for cocaine dependence, and disulfiram treatment for alcoholic cocaine abusers. Dr. Rounsaville's work currently focuses on development and efficacy testing of improved psychosocial treatments for substance abusers.

For over 30 years, **A. John Rush, MD** has conducted clinical investigations that span both biological and psychosocial issues in mood disorders in adults, children, and adolescents, and promoted the application of clinical research findings to improve the diagnosis and treatment for these patients. Publications include over 300 papers and chapters and 10 books.

He is a graduate of Princeton (BA Biochemistry, 1964); Columbia University College of Physicians and Surgeons (MD, 1968); Northwestern University (Internship in Internal Medicine, 1969); and the University of Pennsylvania (Psychiatric Residency, 1972-1975). Dr. Rush is a Fellow of the American Psychiatric Association, the American College of Neuropsychopharmacology, the American College of Psychiatry. He has served as President of the Society for Psychotherapy Research, and the Society of Biological Psychiatry. He chaired the DSM-IV Workgroup on Mood

Disorders, and the Panel on Practice Guidelines for Depression in Primary Care for the Agency for Healthcare Quality and Research.

He is the recipient of many awards from both professional and advocacy groups (NAMI, NDMDA) in recognition of his research, teaching, clinical work, and advocacy for the mentally ill.

Tracey J. Shors, PhD is an Associate Professor in the Department of Psychology and Center for Collaborative Neuroscience at Rutgers University in Piscataway, New Jersey. Dr. Shors' research program focuses on mechanisms of memory formation and its modulation stressful experience and sex differences in the brain. She also studies the role of adult neurogenesis in learning and memory. Dr. Shors received Bachelors of Science in biology and psychology from University of Alabama, Masters and Ph.D. in Physiological Psychology from the University of Southern California (USC). She was a post-doctoral fellow at USC, Assistant Professor at Princeton University and visiting scientist at Genentech, Inc. Dr. Shors has over 75 publications and is funded by the National Institute of Mental Health (NIMH), National Science Foundation (NSF), and National Alliance for Research on Schizophrenia and Depression. Dr. Shors has served as a reviewer for NIMH, NSF, numerous journals, and is President of the Pavlovian Society. She has received several awards including the Pavlovian Investigator Award for meritorious achievement toward understanding factors in normal and abnormal behavior.

Meir Steiner, MD, PhD, FRCP graduated magna cum laude receiving his MD from Tel Aviv University where he also completed his residency in Psychiatry. He earned his PhD in Neurosciences from the University of Michigan and was a Clinical Research Fellow with Distinction.

He is a professor of Psychiatry and Behavioural Neurosciences, and professor of Obstetrics and Gynecology at McMaster University, and a professor at the Institute of Medical Sciences at the University of Toronto.

Dr. Steiner's primary areas of research and publications are the pathophysiology and psychopathology of affective disorders and mental disorders related to women's reproductive cyclicity. His studies focus on the psychoneuroendocrinology of premenstrual dysphoric disorder, postpartum depression, and menopausal depression. His research also focuses on the psychobiology of dysthymic disorder and he has been involved in or directly responsible for more than 600 publications, abstracts, preliminary communications and panel discussions.

Professor Steiner is a member of many professional societies and received the Heinz Lehman Award to recognize his outstanding contributions to research in neuropsychopharmacology. He is the immediate-past-president of the North American Society for Psychosocial Obstetrics and Gynecology.

Myrna Weissman, PhD is a Professor of Epidemiology in Psychiatry, College of Physicians and Surgeons and the School of Public Health at Columbia University and Chief of the Department in Clinical-Genetic Epidemiology at New York State Psychiatric Institute.

Dr. Weissman received a PhD in chronic disease epidemiology from Yale University. Her current research is on the epidemiology of psychiatric disorders in the community, and the treatment and the genetics of affective and anxiety disorders.

Dr. Weissman has been a consultant to many private and public agencies, including the World Health Organization, the White House Office of Science and Technology Policy, the John D. and Catherine T. MacArthur Foundation, and the Institute of Medicine, National Academy of Science. She is also on the editorial board of several journals, including Archives of General Psychiatry. She has been the author or co-author of over 400 scientific articles and chapters, and 7 books, including *The Depressed Woman: A Study of Social Relationships* with Eugene S. Paykel; *Interpersonal Psychotherapy of Depression* with her late husband, Gerald L. Klerman, Bruce J. Rounsaville, and Eve S. Chevron, and *A Comprehensive Guide to Interpersonal Psychotherapy* with Gerald L. Klerman and John Markowitz.

Thomas A. Widiger, PhD is a Professor of Psychology at the University of Kentucky. He received his PhD from Miami University. He has been an active researcher as well as clinician. He is currently Associate Editor to both the *Journal of Abnormal Psychology* and the *Journal of Personality Disorders*, a consulting editor to 8 additional journals (including *Psychological Bulletin*, *Journal of Personality and Social Psychology*, and *Clinical Psychology: Science and Practice*) and a member of the National Institute of Mental Health (NIMH) clinical psychopathology (BPPP-5) review committee. He was also a member of the American Psychiatric Association's Task Force that developed DSM-IV, serving as its Research Coordinator, and is an Honorary Fellow of the American Psychiatric Association. He has published extensively in the areas of personality, personality disorder, and gender bias. His private clinical practice is confined largely to the treatment of personality disorders,

which then keeps him busy (as he believes that few persons lack clinically significant maladaptive personality traits) and frustrated (as maladaptive personality traits are among the most difficult to treat).

Katherine L. Wisner, MD, is the Gottfried and Gisela Kolb Professor of Psychiatry and Behavioral Sciences, Obstetrics and Gynecology, and Pediatrics, and Director of Women's Mental HealthCARE, University of Louisville. Her main focus is the treatment of women of childbearing age. She is recognized as an expert in the treatment of depression during pregnancy and the postpartum period, is widely published, and lectures both nationally and internationally.

Dr. Wisner has served on multiple National Institute of Mental Health (NIMH) Interventions Research Review Committees and was a founding member of the NIMH Data Monitoring and Safety Board. She was the Helen C. Levitt Visiting Professor at the University of Iowa for the year 2000. She serves on the Committee on Research on Psychiatric Treatments of the APA, the Committee on Revisions of the FDA Classification System for Drug Use During Pregnancy and Lactation, and as a consultant to The American Academy of Pediatrics on Drugs and Breast Feeding. Dr. Wisner feels that her greatest qualification for this work is that she is the mother of two children! Dr. Wisner holds a Medical Degree from Case Western Reserve University.

Kimberly A. Yonkers, MD is nationally recognized as a leader in the etiology and treatment of mood and anxiety disorders in women and women's health. She ranks among the top experts in the nation in the area of premenstrual dysphoric disorder (PMDD). Her contributions in this area focus on course of illness, pathophysiology and treatment.

Dr. Yonkers is an Associate Professor in the Department of Psychiatry at Yale School of Medicine. After earning her medical degree at the Columbia College of Physicians and Surgeons, Dr. Yonkers completed her residency in psychiatry at McLean Hospital in Belmont, Massachusetts. She is an ad hoc reviewer for National Institutes of Health, a Board Examiner for the American Board of Psychiatry and Neurology, and Trustee-At-Large for the North American Society for Psychosocial Obstetrics and Gynecology. Dr. Yonkers has published and lectured widely, and is co-editor of several books including *Depression in Women*, *Mood Disorders in Women* and *The Management of Psychiatric Illness in Pregnancy*.