Diana Lynn Barnes *Editor*

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TO MY MOTHER
Who gave me life

Foreword

This book is about women's mental health across the reproductive lifespan. It covers puberty, the menstrual cycle, pregnancy and postpartum, and the menopause, as well as contraception, infertility, miscarriage and birth trauma, eating disorders, and other relevant topics. It is both interesting and unusual to examine all these together. Many of the same themes reappear. The biological bases, the importance of the social environment and social support, as well as the role of health professionals are rightly recurring themes.

In Genesis, Eve was told, "In sorrow you will bear children" (as Diana Lynn Barnes quotes in her chapter), and sadly, for too many women, this is still true. About 10–15 % of women experience anxiety and depression either during pregnancy or in the postnatal period, and often during both. Women in general have double the rate of depression than men, with the increase starting in puberty and continuing until the menopause. They also have increased rates of almost all the anxiety disorders when compared with men. Except for psychosis, women's mental health problems across the reproductive lifespan are common. Some women suffer especially in the premenstrual period, and this has been shown to occur worldwide. Many women have increased irritability, anxiety or depression, or mood lability during the menopause. Nearly a quarter of women in the USA in their 40s and 50s take an antidepressant. The peak time for a woman's admission as an inpatient to a psychiatric ward is immediately after childbirth, when she is much more likely to need hospital treatment for psychosis than at any other time in her life. All this suggests that there are periods in a woman's life, associated with reproduction, which make her especially vulnerable to mood changes and mental illness.

There is good evidence that levels of the reproductive hormones, estrogen and progesterone, as well as others, such as the stress hormone cortisol, change during these reproductive periods; their rise, and especially their withdrawal, can cause changes in mood in certain vulnerable women. However, it is clear that not all women are affected. For example, the interesting studies of Rubinow and his colleagues have shown that when high doses of estrogen and progesterone are withdrawn in nonpregnant women who have been given these hormones, some women become depressed, but only women who have a history of postnatal depression, but

it is only women who have a history of postnatal depression (Bloch, Daly, & Rubinow, 2003). Other women are not affected. This shows that reproductive hormone withdrawal can affect mood, but only in susceptible people. Some women are more sensitive to the withdrawal of these hormones than others, presumably at least in part due to their genetic makeup. Recent research is showing how complex the genetics of diseases such as schizophrenia and bipolar disorder are. More than 120 susceptibility genes have now been identified for schizophrenia, each contributing a very small part of the variance. The genetic component of sensitivity to reproductive hormone withdrawal is likely to be complex also.

The social and psychological environments are clearly very important too. The very early environment can affect susceptibility to the hormonal changes that occur later during a woman's life. Biological studies are showing the molecular basis of some of the long-lasting effects of the early environment in altered epigenetic profiles. Epigenetics means "on top of genetics." Epigenetic changes do not change the base sequence of the genes in the DNA, but control how much of each gene is turned on or off. Studies of early mothering, or early childhood trauma, have been shown to change the epigenetic makeup of the future child. This, in turn, may contribute to women's mood changes at particular times in their lives, such as during the premenstrual or postpartum period. Thus a women's early experience of how she was mothered or of early abuse or trauma can affect how she responds to hormonal or environmental changes for the rest of her life.

Indeed the environment which can predispose a woman to later affective disorders such as anxiety and depression can start in the womb. There is increasing evidence that if a mother is stressed, anxious, or depressed while she is pregnant, this increases the risk of her child suffering from a range of problems, including anxiety and depression, in later life. There is evidence from animal studies, as well as from studies allowing for a wide range of possible confounders, that this association is, at least in part, causal. Both animal and human studies are uncovering some of the underlying mechanisms, and show the importance of epigenetic changes here too. They show that if a woman is anxious or depressed while she is pregnant, this can alter the filtering capacity of the placenta with a reduction, for example, in the enzyme which breaks down cortisol. Thus the environmental contribution to a woman's vulnerability to mood problems throughout the lifespan starts before she is born.

As many of these chapters show, although her biology contributes to these mood disorders in women, the immediate emotional and social environments are very important too. The subject of this book is certainly one that demonstrates the interaction of genetics, hormonal fluctuations, and the social environment. A recurring theme is how protective social support can be, especially that of the partner. Social support has been shown to be important in protection against both prenatal and postnatal depression, as well as during the menopause. It is likely to be a protective factor in the prevention of affective disorders throughout the lifespan.

All this rightly raises questions about what should be done to help. Mental health care is still the poor relation of physical health care. And mental health care for women is very neglected. Health professionals need to be more aware of the

themes covered in this book. A history of depression at any time is a risk factor for depression during times of reproductive hormone fluctuation, and a history of emotional disturbance associated with one reproductive event can increase the risk for it to be associated with another, such as during the menopause.

A time when most women come into contact with health professionals is when they are pregnant. This should be a time for taking both a detailed history of their emotional problems associated with reproductive events, and a detailed examination of their current emotional state. Appropriate screening instruments, such as the Edinburgh Depression Scale, could be used more widely. Several studies have shown that both prenatal and postnatal depression are very under recognized by health professionals, and even when recognized are often not treated appropriately. Women themselves may not realize that they need help, and if they do, they can be scared of the attached stigma, or even of having their baby taken away. For severe depression, antidepressants are the most appropriate treatment, and there is now evidence that most of them do not harm the fetus, or the future child, when taken in pregnancy. Health professionals need to have up-to-date knowledge of this and to know which are safe to use in different situations. However, understandably, many women would rather have non-pharmacological treatments at this time, and more research needs to be carried out on these topics. As well as various talking therapies, we need to have more research on how effective other interventions can be, such as transcranial stimulation or music therapy.

As a society, we need much more public education about mental illness in general, and women's mental health problems across the lifespan, in particular. We need to try to reduce the stigma and fear of mental illness. Partners, relations, friends, and employers all need to know how they can assist by providing extra social support. A greater knowledge of the themes covered in this book will help.

London, UK Vivette Glover

Reference

Bloch, M., Daly, R. C., & Rubinow, D. R. (2003). Endocrine factors in the etiology of postpartum depression. *Comprehensive Psychiatry, 44*(3), 234–246.

Preface

In the last several decades, the subject of women's mental health, particularly as it relates to women's reproductive lives, has garnered substantial interest. There has been growing recognition and concern that especially during their childbearing years women are even more vulnerable to significant changes in mood. Perinatal mood and anxiety disorders have become the focus of numerous studies, and current statistics estimate that as many as 800,000 to 1 million women each year will experience some mood-related disorders in regard to their pregnancies and births. Research findings indicate a greater increase in psychiatric admissions during this period of a woman's reproductive life than at any other time in the female life cycle. Women with chronic mental illnesses, such as bipolar disorder or schizophrenia, are at even greater risk of complications regarding their mental health during pregnancy and the postpartum period.

There is growing confirmation that a mother's depression during pregnancy impacts the fetus in utero, disrupting the growing attachment relationship between mother and infant which, in turn, often compromises a mother's capacity and desire to provide sensitive and attuned caregiving during the postpartum period. Furthermore, women's mood disorders around childbearing often create discord in partner relationships and a decline in marital satisfaction with potentially adverse consequences for the stability of the marital relationships and the larger family. Maternal depression reverberates throughout the family system with potentially serious repercussions for the cognitive, social-emotional, and psychological health of the developing child across her lifespan.

In response to the evolving body of scientific and clinical literature that continues to substantiate the realities about women's psychological and emotional vulnerabilities around pregnancy and childbirth, legislation is being enacted at both the state and federal level with a push towards learning more about women's reproductive mental health and providing a structure by which women's risks can be identified. Consequently, the study of perinatal mood disorders has been a catalyst for research around other aspects of women's reproductive lives along with a much deeper understanding that the foundation of women's reproductive mental health begins

many years before a pregnancy is even contemplated. In fact, a woman's risks for mood and anxiety disorders around the childbearing years originate in a psychological and biological process that occurs as early as her own experience in utero.

My own interest in women's reproductive mental health dates back more than 21 years ago after my second child, my daughter, was born. Within hours of her birth, I suffered anxiety that became intolerable and paralyzing; within the first year of her life, I was hospitalized four different times and never even heard the word postpartum depression until the day of her first birthday. By that time I was in such a fragile emotional and physiological state that I continued to relapse and was continually in and out of the hospital for the next 2 years. In 1992 when my daughter was born, the idea of a woman's risks and her vulnerability to mood-related illness in the peripartum was never discussed or even considered, and certainly never mentioned during pregnancy, which at that time was believed to be protective against depression and anxiety. Upon my recovery from illness that proved to be life threatening, I began to delve into the field of women's mental health, perhaps out of a curiosity to understand more deeply what had happened to me and probably because of my growing fascination with the breadth of this field. It wasn't until many years later that I came to recognize how my own early reproductive history bore a significant connection to my later vulnerability to changes in mood around my childbearing years, first with the birth of my son and more critically with the birth of my daughter. Postpartum depression also laid the groundwork for heightening my vulnerability to fluctuations in mood, given some reproductive events that followed.

The psychological experience of womanhood is embedded in the fabric of a woman's reproductive life and exists not as a series of isolated events, but as a psychological continuum across her lifespan. The quality of women's mental health around reproductive issues and events that begin in the earliest years of their lives is inextricably linked to emotional well-being throughout their years. A woman's experience of her changing body as she approaches puberty, the advent of menstruation, her predisposition to conditions like premenstrual dysphoric disorder, or the impact of body image perceptions on eating disorders have a significant impact on her vulnerability to later episodic depression and anxiety. Even after the childbearing years come to a close, women's concerns about their reproductive health as it influences their mental health continue into the later years of their lives.

Divided into four parts, the following chapters look at the intersection between reproductive health and mental health across the continuum of women's lives. Because a woman's body and psyche are so delicately intertwined, *Women's Reproductive Mental Health Across the Lifespan* looks at the female experience through a biopsychosocial lens. The researchers and clinicians who have gathered throughout the pages of this book to share their wisdom are some of the top experts in their related fields. I hope you will take a closer look not only at their writings in this work, but also at the remarkable contributions each of these authors has made to their respective areas of study.

The conventional wisdom of the early to middle twentieth century accepted women's changes in mood as just a fact of life because after all, "we are women." The 1990s gradually saw the emergence of a profoundly different perspective about

the origins of women's mental health. Part 1, *The Early Years*, begins at the very beginning as Drs. Marcy Axness and Joel Evans, experts in perinatal psychology, discuss how a woman's own experience as a fetus in utero creates a psychological roadmap for the future of her reproductive mental health. Along with this increasingly important recognition that we all need "a good psychological head start," Dr. Melissa J. Johnson, founder of The Institute for Girls' Development, explains in chapter "Girls In-Between: Social, Emotional, Physical, and Sexual Development In Context" that the social, emotional, and physical experiences of girls as they move into womanhood continue to provide the context for stable psychological health as their bodies and psyches mature. A fundamental milestone for young women is the advent of menstruation. A known rite of passage, both physiologically and emotionally, the onset of menses can be a tenuous time of adjustment for many women; for those who are most at risk, menstruation can be a source of monthly emotional turmoil. Dr. Neil Epperson has written extensively on the subject of premenstrual dysphoric disorder and along with her coauthor Lisa Hantsoo explains in great detail both the science and the psychology of these extreme monthly changes in mood.

Part 2, *The Reproductive Years*, addresses the psychological experiences and vulnerabilities of women around pregnancy and the childbearing years, which have much broader dimensions than just the logistics of prenatal care, labor, and delivery. A woman's longing for a child and her wish to become a mother often begins many years before conception and eventually becomes an essential part of the outline of her life. Along with these plans, however, are her seemingly nonnegotiable expectations that becoming pregnant, staying pregnant, and giving birth will be automatic and seamless. When unanticipated events like infertility, pregnancy loss, or birth trauma disrupt this vision, it can be psychologically devastating. These experiences stand in stark contrast with what most women expect from their bodies—that they can create life, carry to term without pause, and deliver without incident.

In chapter 4 "The Psychological Gestation of Motherhood," I write about the trans- formation of a woman's psychological self as she steps into the unchartered emotional territory of new motherhood. The psychological gestation that accompanies the physiologic changes of pregnancy sets the stage for a woman's mental health during the peripartum period. Researcher Carol Henshaw has written numerous papers and books about the critical importance of risk assessment and screening. In chapter 5, "Screening and Risk Assessment for Perinatal Mood Disorders." she outlines the protocols for identifying a woman's risks for a perinatal mood or anxiety disorder so that treatment plans can be implemented in an effort to prevent the onset of a depression during the perinatal period. In the chapter "Postpartum Adjustment: What's Normal and What's Not," well-known reproductive psychiatrist, Lucy J. Puryear, distinguishes between the normal and not-so-normal anxieties of the postpartum period while in their chapter "Chronic Mental Illness in Pregnancy and Postpartum," Drs. Melissa L. Nau and Alissa M. Peterson discuss the impact of chronic and severe mental illness on women's experiences of pregnancy and childbirth. With the striking advances in reproductive technology, many women who struggle with infertility are now able to realize their capacity to conceive and bear

children. Alongside the newfound physical possibilities also lie any numbers of psychological and emotional challenges as Dr. Dorette Noorhasan describes in chapter "Does Psychiatric Diagnosis Affect Fertility Outcomes?" Does a psychiatric history affect fertility outcomes and/or do fertility treatments have a definitive impact on women's mental health? In chapter "The Reproductive Story: Dealing with Miscarriage, Stillbirth, or Other Perinatal Demise" Janet Jaffe, PhD takes a clinical look at the pain of pregnancy loss and the ways in which it disrupts women's stories about their reproductive lives. Part 2 ends with a chapter on birth trauma and post-traumatic stress, articulately explained by Dr. Kathleen Kendall-Tackett, a health psychologist, prolific writer, and a foremost expert on the varied experiences of women around childbearing and the potentially serious repercussions of these events on their psychological health.

Part 3 addresses the *Later Years* of women's reproductive lives and its connection to their experience of emotional and psychological stability. Born into a generation in which women routinely had babies in their twenties and a mom over 30 was considered "old," I am continually amazed by the gifts that reproductive technologies are able to provide in terms of extending the childbearing years well into a woman's 40s. Does that mean, however, that we can prolong reproduction indefinitely, a question that fertility specialist Dr. Nurit Winkler answers in her chapter on the ticking of the biological clock. As women move into the final chapter of their reproductive lives, they are especially vulnerable to fluctuations in mood. In chapter "Risk Factors for Depression During Perimenopause," Dr. Zoe Gibbs and Dr. Jayrashi Kulkharni identify those risk factors that predispose women to mood disorders around perimenopause, drawing specific connections between earlier reproductive mental health concerns, like premenstrual dysphoric disorder, PMDD, or perinatal depression and heightened risks for depression as they transition into menopause.

Although this work establishes a timeline for the reproductive events that can compromise women's mental health as they age, there are also those issues that affect women across the lifespan as delineated in the chapters of Part 4. Stephanie Zerwas, PhD and Elizabeth Claydon, MPH discuss the potentially grave impact of body image issues and eating disorders on women's mental health from menstruation through menopause. Choosing hormonal contraception is a concern for many women at varying junctures across the lifespan, such as when they become sexually active or after giving birth. There has been ongoing discussion in the scientific and psychological communities about whether hormonal contraception has any direct impact on women's moods, as obstetrician Dr. Lauren Schiff outlines in chapter "The Use of Hormonal Contraception and Its Impact on Women's Moods." In addition to addressing this question, Dr. Schiff discusses the current biological basis for mood fluctuations, and describes in depth the current contraception options available to women in the USA, highlighting the indications, risks, and common side effects of these contraceptives. She presents several case scenarios, and outlines treatment recommendations that consider a woman's unique mental health history in concert with the available scientific literature. Any conversation about women's moods in relation to their reproductive lives would not be sufficient without a chapter on the impact of cancer on a woman's mental health. Current statistics estimate

that in 2014, there will be approximately 14 million cancer survivors, and 30 % of those who survive will be women with breast and other gynecological cancers. The word cancer is infused with a range of emotions that exist independently of any woman's preexisting mental health history. However, a previous history of trauma often exacerbates the shock already associated with the word cancer. With an emphasis on the psychosocial impact of a cancer diagnosis, oncology expert Dr. Doreen L. Wiggins along with her co-authors Dr. Carmen Monzon and researcher Beth R. Hott address the physiologic implications of cancer treatments and surgery on a woman's psychological health. They look at the psychological ramifications for women at any age. In chapter "The Impact of Reproductive Cancers on Women's Mental Health," they also examine the emotional impact of genetic testing as markers of heightened risk for breast and ovarian cancers and speak to the literature on posttraumatic growth as a potentially positive outcome for a woman with cancer. Reproductive psychiatry is an emerging and evolving medical specialty that often plays a critical role in managing women's mental health across the lifespan. Reproductive and perinatal psychiatrist Dr. Emily C. Dossett discusses the significant partnership between pharmacology and psychology in treating women's mood disorders. In chapter "The Role of Reproductive Psychiatry in Women's Mental Health," she takes a look at this growing specialty with an emphasis on case examples as a way of understanding current symptoms within the context of women's mental health history and the overall impact on the complexities of clinical decision-making.

Women's emotional lives are shaped by the relationship between biology, culture, and psychology. *Women's Reproductive Mental Health Across the Lifespan* brings current research and clinical application together through the varied perspectives of prominent experts in the field of women's reproductive mental health. Because this text intends to deepen the understanding of the indelible link between women's psychology and their reproductive timeline, it has interdisciplinary relevance to all health care practitioners who treat women.

Sherman Oaks, CA Diana Lynn Barnes

Acknowledgments

This book would not have come to life without the extraordinary contributions of the distinguished authors whose insight, knowledge, and vast experience in the field of women's reproductive mental health fill the pages of this work. I offer each of you my deepest appreciation for your enthusiasm about this project, your availability, and your patience in moving around your incredibly packed schedules in order to meet the requirements of mine.

I also want to recognize my friends and colleagues in maternal mental health who have devoted a lifetime of their energies to increasing awareness about women's mental health and changing perception about the emotional challenges women face around the childbearing years. To the members of the Los Angeles County Perinatal Mental Health Task Force, the statewide Maternal Mental Health Collaborative and 2020 Moms, and Postpartum Support International—over the years we have worked together, your passion continues to inspire me and the remarkable inroads you have made have helped shape the direction and course of my own thinking about women's mental health.

I am forever grateful to my dear friend and colleague Sonia Murdock of the Postpartum Resource Center of New York who has been an ongoing source of support and encouragement since the day we met at a Marcé Society Conference in Iowa City and to Dr. Margaret Spinelli who has mentored my work in ways she could not possibly imagine.

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To my partners in life, my children David and Danielle, and my husband Jerry Cohen, you have always been my cheerleaders, voicing your pride, continually motivating me to learn more and to follow the paths that move me.

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Author Biographies

Marcy Axness, Ph.D. is internationally recognized for her work on prenatal development and is the author of *Parenting for peace: Raising the next generation of peacemakers*. A member of *Mothering* Magazine's expert panel, Dr. Axness has been featured in several documentary films as an expert in adoption, prenatal development, and Waldorf education.

Elizabeth Claydon, M.P.H. has her degree in Social and Behavioral Sciences from Yale School of Public Health. Her primary research interests include the simultaneous prevention of obesity and eating disorders in children and adolescents as well as the role that eating disorders play in maternal health and parenting.

Emily C. Dossett, M.D., M.T.S. is the founder and director of the Maternal Wellness Clinic at Los Angeles County University of Southern California Medical Center. In addition to a private practice in Pasadena, California specializing in reproductive psychiatry, Dr. Dossett is an Assistant Clinical Professor of Psychiatry at USC's Keck School of Medicine. She has served on the Executive Committee of the Los Angeles County Perinatal Mental Health Task Force, a consortium of over 30 individuals and agencies dedicated to policy change and service improvement for perinatal mood and anxiety disorders.

C. Neill Epperson, M.D. is Associate Professor of Psychiatry and Obstetrics and Gynecology and the Director of the Penn Center for Women's Behavioral Wellness at the Perelman School of Medicine of the University of Pennsylvania. Dr. Epperson's research interests are in the neuroendocrine basis for mood, behavior, and cognitive changes across the female lifespan. As the Co-Director for the Penn Center for the Study of Sex and Gender in Behavioral Health, Dr. Epperson also investigates the contribution of sex to the pathogenesis and treatment of psychiatric and substance use disorders and cognitive aging.

Joel Evans, M.D. is the founder and director of The Center for Women's Health in Stamford, Connecticut. The author of *The whole pregnancy handbook* (Gotham, 2005), Dr. Evans is Assistant Clinical Professor in the Department of Obstetrics, Gynecology and Women's Health at the Albert Einstein College of Medicine and

the Founding Diplomate of the American Board of Holistic Medicine. He serves on the editorial advisory board of Bottom Line/Women's Health and as a peer reviewer for the Journals *Alternative Therapies in Health and Medicine* and *Global Advances in Health and Medicine.*

Zoe Gibbs, Psy.D. specializes in the impact of perimenopause on women's moods and her research has been published in a number of journals, including the *Archives of Women's Mental Health*. In addition to her work as a researcher in women's mental health, Dr. Gibbs is a practicing clinician in Melbourne, Australia.

Vivette Glover, M.A., Ph.D., D.Sc. is a Professor of Perinatal Psychobiology on the faculty of medicine at Imperial College in London, England. She has a long-standing interest in biological psychiatry, including the impact of perinatal depression on fetal development. An honorary Senior Lecturer at the Institute of Psychiatry at King's College in London, Dr. Glover has authored over 400 papers, over 200 of which are in peer-reviewed journals. She is the Director of the Fetal and Neonatal Stress Research Group, a multidisciplinary center which aims to study fetal and neonatal stress responses, methods to reduce them and their long-term effects.

Liisa Hantsoo, Ph.D. is a postdoctoral fellow in the Perelman School of Medicine of the University of Pennsylvania, Penn Center for Women's Behavioral Wellness. She completed her undergraduate degree in neuroscience at the Johns Hopkins University, and her doctorate in clinical psychology at Ohio State University. Dr. Hantsoo's research interests lie in stress biology across the female lifespan, genetics, and immune function.

Carol Henshaw, M.B., Ch.B., M.D., F.R.C.Psych. is a consultant in perinatal mental health at Liverpool Women's Hospital and an honorary visiting fellow at Staffordshire University in the UK. A former president of the International Marcé Society, Dr. Henshaw is internationally recognized for her contributions to the field of perinatal mental illness and women's reproductive mental health. She has authored a number of papers and books, including *Screening for perinatal depression* (Jessica Kingsley, 2009).

Beth R. Hott, B.A. has worked in the academic research field for 20 years with a special focus on psychiatry, pregnancy, and women's health. She has coauthored several articles and prepared numerous presentations for national and international medical conferences. She is currently working alongside Dr. Doreen L. Wiggins at the Women's Medicine Collaborative at the Miriam Hospital in Providence, Rhode Island.

Janet Jaffe, Ph.D. is the co-founder and co-director of the Center for Reproductive Psychology in San Diego, California. Her clinical practice focuses on issues of loss and bereavement related to miscarriage, infertility, and other reproductive trauma. Dr. Jaffe is the coauthor of two books on the subject of reproductive loss—*Unsung lullabies: Understand and coping with infertility* and *Reproductive trauma: Psychotherapy with infertility and pregnancy loss clients*.

Melissa J. Johnson, Ph.D. is the founder of the Institute for Girls' Development in Pasadena, California. An expert on child and teen development, she has served on the faculty of the University of LaVerne and the University of Southern California. Her articles on raising strong girls have been published in a number of academic journals, including *The Journal of Humanistic Psychology and Professional Psychology* and *Professional Psychology*.

Kathleen Kendall-Tackett, Ph.D., I.B.C.L.C., F.A.P.A. is a health psychologist and an International Board Certified Lactation Consultant. Dr. Kendall-Tackett is a Clinical Associate Professor of Pediatrics at Texas Tech University School of Medicine in Amarillo, Texas. She is a Fellow of the American Psychological Association in both the Divisions of Health and Trauma Psychology and is President-Elect of the APA Division of Trauma Psychology. Dr. Kendall-Tackett has authored more than 320 journal articles and book chapters and is the author or editor of 22 books in the fields of trauma, women's health, depression, and breastfeeding, including *The hidden feelings of motherhood: Coping with stress, depression and burnout* (New Harbinger, 2001), and *Depression in new mothers, 2nd Edition* (Routledge, 2010).

Jayashri Kulkarni, M.D. is a Professor of Psychiatry at The Alfred and Monash University in Australia where she directs a large psychiatric research group, the Monash Alfred Psychiatry Research Center with approximately 150 staff and students. Before deciding to specialize in psychiatry, Dr. Kulkarni worked in Emergency Medicine. In 1989, she became a Fellow for the Royal Australian and New Zealand College of Psychiatrists. Dr. Kulkarni has pioneered the novel use of estrogen as a treatment for schizophrenia and is internationally acknowledged as a leader in the field of reproductive hormones and their impact on mental health.

Carmen Monzon, M.D. is a psychiatrist in Women's Behavioral Medicine at the Women's Medicine Collaborative in Providence, Rhode Island. A Clinical Assistant Professor of Psychiatry and Human Behavior at The Warren Alpert Medical School of Brown University in Providence, Dr. Monzon received a medical degree from National University Pedro Henriquez Urena in Santo Domingo, Dominican Republic, and completed a residency at Yale University School of Medicine in New Haven, Connecticut. Dr. Monzon is board certified in psychiatry and psychosomatic medicine. She is the 2013 recipient of the Dean's Excellence in Teaching Award at Alpert Medical School. Her clinical interests include perinatal psychiatry, oncology, and consultation-liaison psychiatry.

Melissa L. Nau, M.D. is a graduate of the Columbia College of Physicians and Surgeons and completed her residency in psychiatry at the University of California, San Francisco where she served as chief resident in 2009. She also completed a fellowship in Forensic Psychiatry at the University of California, San Francisco in 2011. Dr Nau is recognized as a national expert on violence and mental illness and is a frequent presenter on this topic. Her recent publications include Postpartum Psychosis and the Courts published in the *Journal of the American Academy of*

Psychiatry and the Law, a book chapter on Risk Assessment published in the *Encyclopedia of Neurological Sciences*, and an article on Substance-induced Psychosis published in the DSM V casebook. Dr. Nau has also worked in international mental health, helping to develop a mental health program in Sierra Leone in 2010.

Dorette Noorhasan, M.D. is Board Certified in both Obstetrics and Gynecology and Reproductive Endocrinology and Infertility. She is a physician at the Fertility Specialists of Texas. She earned her Doctorate in Medicine from Boston University School of Medicine. Dr. Noorhasan subsequently completed her Obstetrics and Gynecology residency at University of Texas—Houston, and her subspecialty training in Reproductive Endocrinology and Infertility at New Jersey Medical School—University of Medicine and Dentistry of New Jersey. While in medical school, Dr. Noorhasan participated in medical missions to Guatemala and Mexico and is conversant in Spanish. She has received numerous awards including the David Rothbaum, M.D. Award in Obstetrics and Gynecology, the Southern Medical Association Research Grant Award, and the George Schneider Second Prize presented by the American College of Obstetrics and Gynecology. Dr. Noorhasan has published several articles in *Human Reproduction*, *Fertility and Sterility*, and *Women's Health Issues*. She is a member of the American Society of Reproductive Medicine, and the Society for Reproductive Endocrinology and Infertility.

Alissa M. Peterson, M.D. is an Assistant Clinical Professor of Psychiatry at the University of California, San Francisco. A graduate of UCSF medical school and psychiatry residency training program, Dr. Peterson has worked in a variety of settings including primary care, psychiatric jail units, and in the legal system testifying in conservatorship hearings. In 2009, she returned to academic medicine as the attending physician for the women's focus inpatient psychiatry team at San Francisco General Hospital. She is currently one of the primary educators for UCSF medical students and residents on the topic of women's mental health.

Lucy J. Puryear, M.D. known nationally for her testimony in the Andrea Yates trial and re-trial is a psychiatrist in private practice and specializes in women's reproductive mental health. The Maureen Hackett Endowed Chair in Reproductive Psychiatry, Dr. Puryear is also Associate Professor of Psychiatry at Baylor College of Medicine in Houston, Texas. The author of *Understanding your emotions when you're expecting: Emotions, mental health and happiness—before, during and after pregnancy*, Dr. Puryear received her BS in Nursing from Baylor University and her MD from Baylor College of Medicine.

Lauren Schiff, M.D. received her medical degree from Mount Sinai Medical School in New York City and completed her Obstetrics and Gynecology residency at the Boston Medical Center of Boston University. She is a current fellow at Henry Ford Hospital in Detroit where she specializes in minimally invasive gynecologic surgery. Her research focuses on improvement in patient safety and quality of care in gynecologic surgery.

Doreen L. Wiggins, M.D., F.A.C.O.G., F.A.C.S. received her medical degree from Brown University where she currently is an Assistant Clinical Professor. In 1999, she founded the Center for Obstetrics & Gynecology at the University. In 2003, she was chosen to be 1 of 26 cyclists in the Tour of Hope, a transcontinental bicycling relay with Lance Armstrong to promote cancer research and clinical trials. Dr. Wiggins has continued her relationship with the Lance Armstrong Foundation serving as a delegate to meet with members of Congress to support cancer research. She has published numerous books and journal articles in her areas of expertise that include breast cancer surgery, gynecologic surgery, female cancer genetics, female sexuality, and cancer survivorship.

Nurit Winkler, M.D. is Board Certified in Obstetrics and Gynecology as well as Reproductive Endocrinology and Infertility and is in practice at the Center for Fertility and Gynecology in Tarzana, California. She completed her residency in obstetrics and gynecology at Brown University School of Medicine and a fellowship in Reproductive Endocrinology from the University of Texas Southwestern Medical Center in Dallas. Dr. Winkler has authored numerous papers in the field of reproductive medicine and is the recipient of a number of awards, including *Excellence in teaching Medical Students* Award from both Brown University School of Medicine and the Sackler School of Medicine at Tel Aviv University in Israel. She is a member of the American College of Obstetrics and Gynecology and the American Society of Reproductive Medicine.

Stephanie Zerwas, Ph.D. is a nationally recognized researcher in the developmental psychopathology of eating disorders and disordered eating. Assistant Professor and Associate Research Director of the UNC Center of Excellence for Eating Disorders housed in the Department of Psychiatry, School of Medicine at the University of North Carolina at Chapel Hill, Dr. Zerwas has published numerous articles on prognostic factors for the course of eating disorders across the lifespan. In addition to clinical practice which focuses on the family-based treatment of eating disorders, she serves on the social media committee for the Academy for Eating Disorders. Dr. Zerwas' work on maternal eating disorders and infant temperament has been honored by the *International Journal of Eating Disorders* and she is the recipient of a ridging Interdisciplinary Research Careers in Women's Health Award given by the National Institute of Child Health and Human Development.

Editor's Biography

Diana Lynn Barnes, Psy.D., L.M.F.T. is an internationally recognized expert in women's reproductive mental health. A past president of Postpartum Support International, she currently sits on the President's Advisory Council for that organization. She is a member of the Los Angeles County Perinatal Mental Health Task Force, a core faculty member of their training institute, as well as a member of the statewide California Maternal Mental Health Collaborative. In 2009, she co-founded "The Motherhood Consortium," an interdisciplinary network of professionals working with mothers, infants, and young families.

In addition to private practice, Dr. Barnes is often called upon by defense counsel to consult and testify on criminal cases involving infanticide, pregnancy denial, neonaticide, child abuse, and neglect. Coauthor of *The Journey to Parenthood—Myths, Reality and What Really Matters*, Dr. Barnes is a fellow of the American Psychotherapy Association, and a clinical fellow of the California Association of Marriage and Family Therapists and the American Association of Marriage and Family Therapists. She is also a member of the Marcé Society and the North American Society of Psychosocial Obstetrics and Gynecology. In 2007, she received an award from Postpartum Support International for her work in maternal mental health and in 2009, she was the recipient of a Lifetime Achievement Award presented by the Eli Lilly Foundation for her outstanding contributions to the field of mood disorders and childbearing illness.

Part I
The Early Years

Pre- and Perinatal Influences on Female Mental Health

Marcy Axness and Joel Evans

Introduction

The human being is a story whose beginnings foretell countless later chapters. Just as the womb serves as the point of origin for the physical body—where it develops from a single fertilized ovum into a human in infant form—it is clear that the womb is also ground zero for myriad developmental trajectories related to both physiological and psychosocial health. Female mental and psychological well-being is shaped through a dynamic interplay of multiple factors beginning in utero.

The fetal origins of adult physiological health and disease are well established, as are the fetal origins of psychosocial well-being. A fetus's in utero experiences can foreshadow her gestational age, birth outcome, and her behavior as a neonate, infant, toddler, and beyond. It is therefore essential to consider pre- and perinatal experiences and exposures when exploring female mental health. Attachment, one of the most potent agents on lifelong mental health, is also theorized to begin in the womb.

We are in the midst of a historic sea change of expanding role and scope of obstetric care. No longer are the obstetrician's or midwife's[1] primary goals a vigorous baby (defined by a high Apgar score) and a mother free from prolonged pregnancy or birth complications. With a wide array of literature accumulating in the areas of "Developmental Origin of Adult Disease" (Barker, 2007) and "Environmental Influences on Fetal Development" (Swanson, Entringer, Buss, & Wadhwa, 2009),

[1] To avoid the cumbersome dual reference throughout, whenever we refer to "obstetrician" we include midwives as obstetrical care professionals.

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