

The skinny on body fat and vasomotor symptoms

► Rebecca C. Thurston, PhD

Vasomotor symptoms (VMSs), or hot flashes and night sweats, are sensations ranging from warmth to intense heat around the face, head, and neck, and are often accompanied by flushing and sweating. Estimates vary, but 60% to 75% of US women experience VMSs at some point during the menopausal transition,¹ with 26% to 60% of women rating them as severe. The prevalence and frequency of VMSs peak in the years preceding and following the final menstrual period. However, newer findings from the Penn Ovarian Aging Study, the Heart and Estrogen/Progestin Replacement Study (HERS),

and the Women's Health Initiative (WHI) show that a third of late reproductive-aged premenopausal women and 20% to 30% of women in their 60s and 70s report VMSs. Thus, VMSs may begin earlier and persist longer than previously thought.

VMSs are an important health issue among midlife women. Women with VMSs have greater sleep disturbance, fatigue, irritability, depressed mood, and poorer memory performance than do women without VMSs. Women with VMSs score lower on quality-of-life indices across physical, emotional, and social domains. Given the impact that VMSs have on women's lives, about 60% of midlife US women seek health care for their menopausal symptoms, principally VMSs.² However, many women

are reluctant to take hormone therapy (HT), following WHI findings indicating potential risks associated with HT. Because few alternate, widely accepted, safe, and effective treatments have been identified, many symptomatic women are left untreated. The search for new treatments has been limited by the incomplete understanding of the etiology of VMSs—an area of increased interest both to researchers who study them and to clinicians who treat women with these symptoms.

Risk factors for VMSs

Several consistent risk factors for VMSs have been identified (TABLE). First, VMSs vary by race/ethnicity. Research from the Study of Women's Health Across the Nation (SWAN), a large longitudinal cohort study in the United States that follows women from 5 racial/ethnic groups across the menopausal transition, indicated that African-American women are the most symptomatic, followed by Hispanic and non-Hispanic Caucasian women, with Asian women the least likely to report VMSs.¹ Moreover, across studies, the women most likely to report VMSs are those who smoke, have lower socioeconomic status, and are more anxious and depressed. Perhaps most

Rebecca C. Thurston, PhD
Assistant Professor of Psychiatry and Epidemiology
University of Pittsburgh School of Medicine
Pittsburgh, Pennsylvania

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Albert Einstein College of Medicine
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American Society for Reproductive Medicine
1209 Montgomery Hwy., Birmingham, AL 35216
(205) 978-5000 • asrm@asrm.org • www.asrm.org

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FROM THE EDITOR



'Where are you from?'

Ask the question, "Where are you from?" and there are any number of responses and layers of meaning you might obtain. We are all the product of our genes, our families, our traditions, and our original environments. For example, Americans who have lived in the United States for many generations may find that their ethnic identity has become synonymous with the dominant culture. In some aspects, these identifiers are considered the norm. Immigrant families who come from various countries cherish their places of origin but are well aware of the reasons their families left. Many want to embrace their new country but are often reminded that they don't belong.

Acculturation is the process in which immigrants adopt the language, culture, and behaviors and assimilate the values of the dominant culture. It has long been assumed that acculturation is beneficial to immigrants because it promotes their social advancement. However, acculturation is a double-edged sword. While the standard of living for US immigrants is typically raised, the economic advantages are partially or wholly offset if acculturation exposes individuals to negative health behaviors such as cigarette smoking and premarital sex, as well as more frequent exposure to discrimination.¹⁻³

In this issue of *Menopausal Medicine*, Robin Green, PsyD, and I describe some of the nuances involved in the assessment of menopausal symptoms among women of varying ethnicities. This new area of research is just beginning to explain the ways in which ethnicity interacts with menopause to affect how women report their symptoms.

In another article, the long-held dogma of menopausal endocrinology—"Body fat protects women against hot flashes"—is thoroughly refuted by Rebecca C. Thurston, PhD. It has been widely believed that adipose tissue contains aromatase and should be protective against hot flashes in menopausal women. However, recent work from the Study of Women Across the Nation has clearly shown that in the early stages of the menopausal transition, increased adiposity is linked to a near doubling of hot flashes.⁴ The basis for this finding is not understood but may be due to the insulating properties of body fat. Women with more body fat who experience an increase in body temperature have difficulty dissipating that heat, which may be the basis for their increased risk.

All of these issues must be taken into consideration when the question of ethnic origin is raised, because all of these aspects of a woman affect her vulnerability to menopausal symptoms.

Nanette F. Santoro, MD

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surprisingly, women who are overweight or obese are more likely to report VMSs than are lean women.

Overweight, obesity, and midlife

The magnitude of the epidemic of overweight and obesity in the United States cannot be underestimated. Currently, the majority of US women are overweight or obese (body mass index [BMI] >25), and more than a third are obese (BMI >30).³ If trends continue, some projections indicate that by 2030, 87% of US adult women will be overweight or obese.⁴ Women tend to progressively gain weight over much of their adult lives. These gains, mostly in the form of fat, are especially common during midlife. According to SWAN, the Healthy Women Study, and other longitudinal investigations of women transitioning through menopause, women on average can expect to gain 1.5 pounds a year during their 40s and 50s. Overweight and obesity are associated with substantial health risks, including diabetes, cardiovascular disease, many forms of cancer, and mortality. Thus, overweight and obesity represent a critical health issue among US women in midlife.

Overweight, obesity, and VMSs

The increased risk for VMSs observed among overweight and obese women is surprising, as it challenges conventional wisdom that overweight and obese women should enjoy a degree of protection against VMSs. The hypothesis that heavier women should have fewer VMSs, or conversely, leaner women should have more VMSs, was dubbed the “thin hypothesis.” The thin hypothesis was predicated on the fact that androgens undergo aromatization to estrogens in adipose tissue, and due to their increased estrogen concentrations, heavier women should have fewer VMSs. However, findings from multiple large epidemiologic investigations have challenged this wisdom. Across studies, overweight or obese women have a 1.5

TABLE Risk factors for vasomotor symptoms

ESTABLISHED RISK FACTORS	LIKELY RISK FACTORS	POSSIBLE ADDITIONAL INVOLVEMENT
Demographic <ul style="list-style-type: none"> • Race/ethnicity (African-American, followed by Hispanic and Caucasian) • Low socioeconomic status 		
Medical/Behavioral <ul style="list-style-type: none"> • Menopausal status • Overweight/obesity • Smoking • Oophorectomy • SERMs/anti-estrogen agents 	<ul style="list-style-type: none"> • History of premenstrual symptoms • Migraine headache • Parity 	<ul style="list-style-type: none"> • Dietary factors
Psychological <ul style="list-style-type: none"> • Depression • Anxiety 	<ul style="list-style-type: none"> • Stress • Somatization/symptom sensitivity 	
Hormones/Neurotransmitters <ul style="list-style-type: none"> • Estradiol (low levels) • Follicle stimulating hormone (high levels) 		<ul style="list-style-type: none"> • Serotonin • Norepinephrine • Calcitonin gene-related peptide • Luteinizing hormone • Beta endorphins

SERMS, selective estrogen-receptor modulators.

to 2.0 increased odds of reporting hot flashes relative to their normal-weight counterparts.^{1,5,6} This risk increases with the severity of obesity.

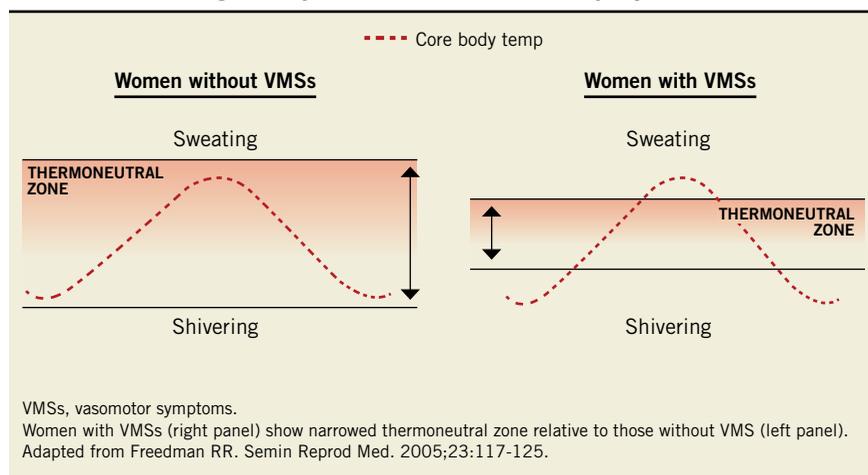
Reproductive hormones and VMSs

As stated, the etiology of hot flashes is not fully characterized. However, reproductive hormones are likely involved, with the most consistent findings observed for estrogens and follicle-stimulating hormone (FSH). For example, lower levels of endogenous estradiol (E2) are linked to more VMS reporting in population-based research, and clinically, exogenous estrogens are a highly effective treatment for VMSs. Several studies have also shown FSH to be a strong predictor of VMSs. In SWAN, of the multiple hormones assessed (including E2), FSH was the most strongly associated with VMS reporting.⁷

Although FSH and E2 are linked to VMS reporting, neither account for relationships between overweight/obesity and VMSs. In studies examining links between adiposity and VMSs, associations persist when statistically controlling for FSH, E2, or the free E2 index (FEI), an estimate of E2 unbound to sex hormone-binding globulin.^{8,9} This is perhaps not surprising, given the overall strong associations between obesity and VMSs.

Further, the relationships between BMI and reproductive hormone concentrations are complex and not fully characterized. Despite the peripheral conversion of androgens (principally androstenedione) to estrogens (particularly estrone) in body fat, the degree to which these estrogens act in an endocrine versus a paracrine or autocrine fashion is not entirely clear. If the estrogens acted in a paracrine or autocrine fashion, they would be less likely

FIGURE Thermoregulatory model of vasomotor symptoms



to affect hot flashes, as hot flashes likely originate in the brain.¹⁰ Further, the relationships between obesity and the hypothalamic-pituitary-gonadal axis are not simple. Postmenopausal women may derive the majority of their estrogen from peripheral sources. However, among women earlier in the transition, several investigations have found obesity to be associated with lower levels of E2¹¹ and inhibin B,¹² chronic menstrual cycle dysfunction,¹³ and anovulatory cycles.¹⁴ Thus, much is to be learned about the impact of obesity on the reproductive axis, including how the effects of obesity may vary by menopausal stage.

Thermoregulation and VMSs

Although there is clearly a role for reproductive hormones in VMSs, they are not solely predictive of VMSs. All menopausal women experience the endocrine changes of the menopausal transition, but not all women report VMSs.

In fact, the leading model of VMSs is thermoregulatory, characterizing VMSs as dramatic heat-dissipation events occurring in the context of altered thermoregulatory functioning among menopausal women.¹⁰ Thermoregulation has long been identified as a factor in VMSs. Maintaining body temperature involves communication between the central nervous system, the core, and the cutaneous vasculature. In humans,

a narrow range of core body temperature is compatible with life. When core body temperature rises too far above this “thermoneutral zone,” sweating and vasodilation occur; when it falls below this zone, shivering and vasoconstriction bring core body temperature back into this thermoneutral zone. In women without VMSs, this zone is around 0.4°C, whereas in those with VMSs, it may be closer to 0°C (FIGURE).¹⁰ Thus, small increases in core temperature may be perceived as too hot, and a dramatic heat dissipation event, eg, a hot flash, occurs to cool the body down.

Consistent with this model, hot flashes show a diurnal rhythm that is similar to that for core body temperature, with the frequency peaking when core body temperature is highest. Small elevations in core body temperature may occur prior to hot flashes, and some investigators have shown that increasing a woman’s temperature can provoke hot flashes. Estrogen use may widen the thermoneutral zone, making hot flashes less likely.

The associations between obesity and VMSs can be understood from the perspective of this model. Body fat is, among other things, an insulator. For example, in response to heat stress, individuals with higher body fat show greater elevations in core body temperature. In response to cold challenge, they show

slower reductions in core body temperature than do their leaner counterparts. Subcutaneous adiposity is especially insulating. Thus, subcutaneous fat may prevent the heat dissipation action of VMSs, and heavier women may require more VMS heat dissipation events to dissipate a given amount of heat.

The importance of body fat

The vast majority of research on VMSs and obesity has used BMI as the measure of obesity. As a ratio of weight/height (squared), BMI is a very indirect measure of adiposity, the component of body weight that is considered most relevant to VMSs. In fact, it is adiposity that is the central player in the thin hypothesis and in thermoregulatory models of VMSs. To better understand these relationships, and specifically, the respective roles of adipose tissue versus lean mass (eg, muscle, bone) in VMSs, more precise measures of body composition are needed.

Research with more detailed measures of body composition have indicated that it is indeed the adipose component of body weight, not lean mass, that confers risk for VMSs.⁸ Further, the type of body fat matters. Studies using computed tomography measures of abdominal adiposity allow delineation of subcutaneous adiposity (the fat between the skin and the abdominal muscle wall) and visceral abdominal adiposity (the fat behind the muscle wall and in the peritoneal space around the organs) in relation to hot flashes. This research indicates that subcutaneous adiposity is most related to reporting of hot flashes,⁹ a finding consistent with thermoregulatory studies that show subcutaneous fat to be particularly insulating. Moreover, in studies examining adiposity and hot flashes, associations persist when controlling for FSH, E2, or FEI.^{8,9} Thus, findings that are based on more detailed body composition measures further support thermoregulatory models of VMSs.

Mood, affect, and VMSs

The thermoregulatory and endocrine perspectives provide important frameworks from which to understand the physiology of VMSs. However, in the end, VMSs are symptoms. Like any physical symptom, psychological factors can play a powerful role in their perception, in their reporting, and in women's responses to them. In fact, in epidemiologic studies, these psychological factors emerge as equally robust determinants of VMSs as physiologic factors.¹

The role of psychological factors in the reporting of physical symptoms has been established for decades.¹⁵ These factors include stable personality characteristics, clinical disorders, as well as more transient fluctuations in emotions. VMSs are no exception. In fact, anxiety, including that assessed before the onset of VMSs, has repeatedly been shown to be one of the most consistent predictors of reported VMSs.^{1,16} In studies using physiologic measures of hot flashes, women with elevated anxiety or depression (within nonclinical ranges) are more likely to report hot flashes that lack physiologic evidence.¹⁷ Emotions also appear to be acute triggers. Reports of hot flashes that lack physiologic evidence are most likely to occur after elevated negative emotion.¹⁷ Finally, even controlling for levels of VMSs, psychological factors can affect how bothersome women consider their VMSs to be. Women with more depressed or anxious mood, as well as women with sleep problems, rate their VMSs more bothersome, even when compared to women with same absolute levels of VMSs.¹⁸ Thus, personality and mood can influence how women perceive, appraise, and report their VMSs.

How is this relevant to the links between obesity and VMSs? Among women, overweight/obesity is a risk factor for depressed and anxious mood, whether assessed as subclinical symptomatology

or a diagnosable mood disorder. Thus, in certain cases, psychological factors influencing the appraisal and reporting of VMSs may be an additional mechanism by which obesity may be linked to VMSs.

Understanding the role of affect in VMS reporting is important to the practicing clinician. Recognizing the role of psychological factors in VMS reporting is not meant to imply that VMSs should be dismissed, stigmatized, or ignored. Rather, it underscores the many mechanisms linking risk factors to VMSs and highlights the multiple possible ways to intervene with VMSs. Interventions that improve a woman's mood, sleep, or well-being may also ameliorate the experience of VMSs.

What next?

To more effectively design treatments for VMSs, a more complete understanding of the underlying physiology—and psychology—of VMSs is important. For example, although strong models of the etiology of VMSs exist, they require greater empirical validation. The thermoregulatory model is the most widely accepted model of VMSs, although many other observations about VMSs are yet to be explained by this model. For example, recent findings have emphasized the role of the peripheral vasculature as well as the key neurotransmitters in VMSs. Further, it is not fully understood how the reproductive and thermoregulatory systems interface in VMSs, and the understanding of the endocrine role of body fat is still emerging. As the understanding of the interactions between the reproductive axis, obesity, and thermoregulatory systems further develop, it is likely that the pathways linking obesity to VMSs will reach beyond those described here.

Most of what we know about VMSs has been derived from studies with brief measures of VMSs from questionnaires. Clinically, this may make

sense, in that the subjective experience of VMSs is arguably the most important to a woman. However, given the multiple psychological influences related to VMS reporting, empirically, this approach has limited the understanding of both the physiology of VMSs and how various treatments affect them. As physiologic measures advance, so will our understanding of VMSs.

Finally, although adiposity is related to VMSs, almost all existing research on obesity and VMSs is observational in nature. The impact of weight loss on VMSs is not known, particularly whether the relatively modest weight losses (7%-10% of initial body weight) achieved in traditional behavioral weight loss interventions are adequate to affect VMSs.¹⁹ Given the progressive weight gain that women typically experience during midlife, and the substantial health risk conferred by obesity, prevention of this weight gain, or weight loss where indicated, is a worthy goal, irrespective of its impact on VMSs. In SWAN, women who had high levels of physical activity over the menopausal transition maintained their weight the most effectively, providing a clue to a successful weight maintenance strategy during midlife. Finally, physicians have an important role to play in helping their patients achieve weight loss and maintain that loss. National data show that patients whose physicians offer weight-loss counseling have an almost 3-fold odds of attempting to lose weight.²⁰ These patients also report consuming fewer calories and engaging in more physical activity than do comparable individuals who do not receive such counseling. In the end, in the face of the obesogenic environment Americans currently live in, the chances of successful weight loss may be optimized only with a collaborative effort between patients, their families, and importantly, their health care providers.

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Menopausal symptoms and ethnicity: Lessons from the Study of Women's Health Across the Nation

► Nanette F. Santoro, MD, and Robin Green, PsyD

For most women, menopause entails more than progressively lengthening menstrual cycles that eventually cease altogether.¹ There is a broad range in the manifestation and severity of symptoms among women, and these differences may be influenced by their expectations of menopause.² Regardless of whether this wide variation is a function of symptom sensitivity, symptom reporting, or cultural or genetic variation, health care providers must be able to evaluate each woman with menopausal symptoms in order to help her determine whether or not treatment is indicated. This review describes the symptom experience of US women of varying ethnicities in the Study of Women's Health Across the Nation (SWAN).

SWAN, THE STUDY OF WOMEN'S HEALTH ACROSS THE NATION

Description of SWAN

Details of the study design and recruitment have been previously published.³ In brief, SWAN is a longitudinal, multi-ethnic, community-based observational study of midlife women. Recruitment began in 1995 and the study continues to the present. A population-based, cross-sectional study designed to capture and characterize the menopausal

experience of American women across cultures, SWAN includes women from 5 different ethnic groups. Non-Hispanic Caucasian women comprise the control group and were recruited at each of the 7 national SWAN sites. African-American women were recruited at 3 sites, and Hispanic women, Japanese-American women, and Chinese women were recruited at 1 site each. The control group allowed us to account for geographic and socioeconomic differences among women from each site, and helped sort out covariates associated with ethnicity so that we could begin to address different symptoms across ethnic groupings.

Recruitment methods that maximize representation of the general population were used. A 15-minute screening survey was administered to 16,000 women contacted through random-digit dialing, door-to-door recruiters, and census-based sampling strategies. Eligible women, as determined by the screening results, were invited to participate in the longitudinal component of SWAN. Eligibility criteria for the longitudinal study are listed in TABLE 1.

Baseline assessment was completed by 3302 women, and approximately 80% of those women maintained annual participation. Comprehensive assessments for the SWAN participants include physical measurements; blood draws; a detailed battery of survey measures to assess demographic, psychosocial, and lifestyle factors; bone

TABLE 1 Eligibility criteria for SWAN

An intact uterus and at least 1 ovary (to allow bleeding patterns to be tracked)
Not pregnant or breastfeeding
Age 42 to 52 years
At least 1 menstrual period within the past 3 months
No hormone use within the past 3 months

density measurements; and urine sampling at 5 of the 7 sites.

Ethnic variation in the timing of menopause

Premature menopause and hysterectomy are associated with worse menopausal symptoms,¹ and their incidence has been shown to vary by ethnicity. The SWAN cross-sectional survey found highly significant differences in the prevalence of premature and early menopause (defined as the cessation of menstruation before the ages of 40 and 45 years, respectively) across ethnic groups. The prevalence of premature and early menopause in the different ethnic groups in SWAN is presented in TABLE 2. Although previous reports estimated the prevalence of premature menopause at 1%,⁴ SWAN found variation around this number, with Hispanic and African-American women reporting the greatest prevalence of premature and early menopause, and Japanese-American women reporting the least.⁵

Ethnic differences in the indications for hysterectomy have long been

Nanette Santoro, MD, and Robin Green, PsyD
Department of Ob/Gyn & Women's Health
Albert Einstein College of Medicine
Bronx, New York

reported in the literature.⁶ In a cross-sectional screening survey (n = 15,160) of Caucasian (49.9%), African-American (28.1%), Hispanic (12.3%), and Asian-American (9.8%) women, SWAN showed that ethnicity was associated with past hysterectomy.⁷ The odds ratios (ORs) were: Caucasian, 1.0; African-American, 1.66 (confidence interval [CI], 1.46-1.88); Hispanic, 1.64 (CI, 1.29-2.07); Asian-American, 0.44 (CI, 0.34-0.56). ORs were adjusted for age, education, fibroids, body mass index (BMI), marital status, smoking, geographic site, and country of education, all of which are believed to affect the likelihood of hysterectomy. These results indicate that African-American and Hispanic subgroups had the highest rates of hysterectomy for benign conditions (eg, uterine fibroids, abnormal bleeding, endometriosis, pelvic organ prolapse). Although the authors concluded that there may be overuse of hysterectomy in disadvantaged minority groups,⁷ it is also possible that ethnicity affects the biology of these benign diseases.

Ethnicity as a covariate influencing symptom vulnerability

Ethnic differences may influence the way in which participants with various backgrounds and literacy levels perceive and answer the SWAN survey measures. Ethnicity may also affect symptom sensitivity, and other covariate factors, such as functional limitations and financial strain, may confound the assessment.

Hot flashes. The natural history of hot flashes—the cardinal symptom of menopause—has not been well characterized. Hot flashes affect up to 75% of women at some point in the menopausal transition,¹ although a minority of women reports being severely affected. In some cultures, in fact, there is no word to describe vasomotor symptoms (VMSs). A recent meta-analysis found

TABLE 2 Prevalence of premature (<40 years) and early (<46 years) menopause in SWAN (cross-sectional screening survey)

	NHC	A-A	HISPANIC	JAPANESE	CHINESE
Premature menopause	1	1.4	1.4	0.1	0.5
Early menopause	2.9	3.7	4.1	0.8	2.2

A-A, African-American women; NHC, non-Hispanic Caucasian women.
Overall P value for inter-ethnic group differences <.001.
Luborsky JL, et al. Hum Reprod. 2003;18:199-206.

that the overall prevalence of hot flashes peaks between 1 and 2 years before or after the final menstrual period (FMP) and returns to near-premenopausal levels 8 years later.⁸ In the SWAN baseline, 46.5% of African-American, 49.4% of Hispanic, 36.6% of Chinese, 34.3% of Japanese and 28.9% of Caucasian women reported hot flashes and/or night sweats.⁹ Chinese women had the fewest VMSs overall.⁹ Negative associations (embarrassment) with VMSs are more often reported by Hispanic women than by other ethnic groups in SWAN.¹⁰

Because of the known conversion of androgens to estrogens in body fat, it has long been believed that increased adiposity is associated with decreased menopausal VMSs.¹¹ However, increased adipose tissue, because of its insulating properties, may be associated with a greater likelihood of VMSs. This thermoregulatory model of VMS pathophysiology is supported by SWAN. In a sample of 1776 women, a higher percentage of body fat was associated with increased odds of reporting VMSs (per standard deviation increase in percent body fat, OR, 1.27 [95% CI, 1.14-1.42]) in both age- and site-adjusted models.¹² African-American women, who have the highest overall BMI, are the most likely to report hot flashes. BMI varies considerably in SWAN with respect to ethnicity,¹³ so recognition of the role of adiposity in predicting VMSs is crucial.

Vaginal symptoms. Approximately 30% to 40% of menopausal women experience dyspareunia or vaginal dryness

apart from intercourse, and in at least 26% of women, symptoms persist long after menopause in.^{14,15} In the Women's Health Initiative, postmenopausal Hispanic women reported the highest rates of vaginal irritation.¹⁴ Similarly, Hispanic women in SWAN complained of more vaginal symptoms than did women from other ethnic groups.

Menopause and mood. In SWAN, reporting of depressive symptoms was more likely by Hispanic and African-American women and least likely by Chinese and Japanese women.¹⁵ Irritability and nervousness, associated with the early transition, appear to be linked to fluctuating hormones. Late menopausal transition is associated with increased depressive symptoms (OR, 1.7) in SWAN and other studies.¹⁶⁻¹⁹ Prior history of depression is predictive of increased body pain, poor social functioning, negative mood (but not clinical depression) and treatment for back pain.^{15,20} Baseline anxiety and depressive symptoms were related to VMSs.

Discrimination, othering, and acculturation. Acculturation and discrimination may contribute to symptoms in reciprocal ways. Acculturation can be defined as a process in which members of one cultural group adopt the beliefs and behaviors of another group.²¹ Less acculturation is generally linked to the reporting of worse symptoms, a phenomenon that has been observed among the Hispanic women in SWAN.¹⁰ Othering is a process that identifies those who are thought to be different

from oneself or the mainstream, and can produce positions of domination and subordination.²² Increased acculturation leads to more interaction with the dominant culture and has been associated with increased experiences of othering in the form of discrimination and mistreatment. By increasing exposure to adverse health habits and behaviors, such as cigarette smoking, drug use, and unmarried pregnancy, acculturation may erode immigrant family values, thus offsetting the benefits of improved economic status and education.²³ Acculturation has been linked to increased vulnerability to alcohol and cigarette smoking, particularly among Puerto Rican women.²⁴ These adverse exposures may, in turn, affect menopausal symptom vulnerability. Increased acculturation, therefore, may not bring about health benefits if there is a significant increase in exposures that lead to the perception of othering or frank discrimination. This so-called Hispanic paradox has been attributed to “acculturation stress.”²⁵ Specific studies examining these issues in the context of menopause are needed.

Sleep disturbances. Evidence suggests that the pace of the menopausal transition may influence sleep complaints. Fewer sleep-related symptoms are reported by women who undergo more rapid menopausal transitions, and those who transition at relatively late ages (>51.4 years) report fewer symptoms than by women whose transition is slow or of early onset (<45 years). In SWAN, African-American and Hispanic

women reported the highest percentage of difficulty sleeping, manifested as trouble staying asleep and early morning awakening.²⁶

Hispanic women in SWAN: The trouble with generalizing

The SWAN baseline cohort at the New Jersey site consisted of 298 Hispanic women from 5 subethnic groups: Central American, South American, Cuban, Puerto Rican, and Dominican. Each ethnicity, along with a cohort of non-Hispanic Caucasians, was drawn from the same geographic area. Despite similar geographic location and overall low socioeconomic status, there remain statistically significant differences among the Hispanic women in SWAN: Puerto Rican women, who are the most acculturated but not the most educated, report relatively more menopausal symptoms and the most depressive symptoms. Cuban women, who are the most educated, have the highest socioeconomic status and report fewer symptoms than the other Hispanic subgroups. Central American women tend to have the worst overall menopausal symptomatology (VMS and vaginal dryness). Assessment of symptoms in Hispanic women, therefore, is not a straightforward epidemiologic exercise, and their cultural origin and degree of acculturation, among other variables, must be taken into account.

Summary

Differences in menopausal symptoms of American women by ethnicity are clearly described by the epidemiologi-

cal data from the SWAN cohort study. These data must be interpreted with caution, however, as the reasons for these variations are unlikely to be solely related to ethnicity. Genetic hypotheses are under investigation, but so far the data have not been definitive. The role of discrimination and othering in increasing vulnerability to symptoms has not been adequately investigated, and more studies are needed in this area. Clinicians should understand that some symptom vulnerability that seems to be a result of ethnicity may be confounded by covariates. One example of this is seen in African-American women. For example, although African-American women report more hot flashes than do non-Hispanic Caucasians in adjusted analyses, they are also more likely to be overweight and obese, and thus doubly at risk for hot flashes. As total immigrant population as a whole are expected to exceed the Caucasian majority over the next several decades, much more attention must be focused on differences among women of varying ethnic backgrounds in reporting of menopausal symptoms, their treatment, and their long-term consequences.

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