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Bioidentical Hormones, Menopausal Women, and the Lure of the "Natural" in U.S. Anti-Aging Medicine

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Abstract

In 2002, the Women's Health Initiative, a large-scale study of the safety of hormone replacement therapy (HRT) for women conducted in the United States, released results suggesting that use of postmenopausal HRT increased women's risks of stroke and breast cancer. In the years that followed, as rates of HRT prescription fell, another hormonal therapy rose in its wake: bioidentical hormone replacement therapy (BHRT). Anti-aging clinicians, the primary prescribers of BHRT, tout it as a safe and effective alternative to treat menopausal symptoms and, moreover, as a preventative therapy for age-related diseases and ailments. Through in-depth interviews with 31 U.S.-based anti-aging clinicians and 25 female anti-aging patients, we analyze attitudes towards BHRT. We illustrate how these attitudes reveal broader contemporary values, discourses, and discomforts with menopause, aging, and biomedicine. The attraction to and promise of BHRT is rooted in the idea that it is a "natural" therapy. BHRT is given both biomedical and embodied legitimacy by clinicians and patients because of its purported ability to become part of the body's "natural" processes. The normative assumption that "natural" is inherently "good" not only places BHRT beyond reproach, but transforms its use into a health benefit. The clinical approach of anti-aging providers also plays a role by validating patients' embodied experiences and offering a "holistic" solution to their symptoms, which anti-aging patients see as a striking contrast to their experiences with conventional biomedical health care. The perceived virtues of BHRT shed light on the rhetoric of anti-aging medicine and a deeply complicated relationship between conventional biomedicine, hormonal technologies, and women's bodies.

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Introduction

Hormone replacement therapy (HRT) in the United States enjoyed a place of privilege and popularity throughout the 1980s and 90s, reaching its peak in 1999 with more than 85 million prescriptions written for women in that year alone (Chlebowski et al. 2009). But this would soon change. In 2002, the Women's Health Initiative, the first study of its kind to test the safety and efficacy of HRT, released results on the increased risk of breast cancer and stroke among menopausal women taking combined hormone replacement therapy. Rates of use fell dramatically as a result (Hersh, Stefanick, & Stafford. 2004). Since then, "anti-aging" practitioners have been claiming to offer a safe and more desirable alternative: bioidentical hormone replacement therapy (BHRT). BHRT is widely promoted in self-help books, the popular media, and by celebrities, such as Suzanne Somers and Oprah Winfrey, as a panacea for aging and menopause. But it is anti-aging medicine and its practitioners that have been largely responsible for the marketing, promotion, and prescription of BHRT to women.

We analyze the attitudes of anti-aging clinicians and their patients towards BHRT, and illustrate how these attitudes reveal broader contemporary discourses and discomforts with menopause, aging, and biomedicine. The attraction to and promise of BHRT is rooted in the idea that it is a "natural" therapy and therefore one that poses fewer risks than synthetic hormones while providing menopausal symptom relief and even anti-aging benefits. BHRT is given biomedical and embodied legitimacy by clinicians and patients because of its purported ability to become part of the body's "natural" processes. The normative assumption that "natural" is inherently "good" not only places BHRT beyond reproach, but transforms its use into a health benefit. This ascribed attribute of the technology infuses BHRT with safety, efficacy, and "women-friendliness." The perceived virtues of BHRT shed light on the rhetoric of anti-aging medicine and a deeply complicated relationship between conventional biomedicine, hormonal technologies, and women's bodies.

Hormone Replacement Therapy for Women

After hormones were initially discovered and classified early in the 20th century, the "natural" secretions of testes and ovaries were extracted and injected into men and women in an attempt to promote rejuvenation (Oudshoorn 1994). The notion that such treatments were natural was significant at a time when the practice of medicine was often suspected to bring potential harms to patients (Oudshoorn 1997; Watkins 2007a). Beginning in the 1930s and 40s, estrogen replacement therapy was marketed to women by major pharmaceutical companies. The therapy's success depended upon the acceptance of the medicalization of menopause as hormone loss by scientists, doctors, and women themselves (Bell 1987; Oudshoorn 1997).

Widespread acceptance and prescription of HRT in the U.S. did not take hold until the 1960s. Its popularity amongst physicians and female patients was aided by the publication of gynecologist Robert Wilson's (1966) bestseller *Feminine Forever*, which touted HRT's miraculous effects in restoring women's youth, beauty, and sexuality, and which declared menopause as "completely preventable" (19). Wilson even claimed that women who failed to use HRT would effectively become "castrates."

By 1975, prescriptions for estrogen-containing prescriptions grew to 28 million (Kennedy, Baum, & Forbes 1985), shortly before studies began to show an increased incidence of endometrial cancers in estrogen users (e.g., Buring, Bain, & Ehrmann 1986; see also Seamen & Seamen 1977), which brought with it the recommendation to limit the duration of estrogen treatment to mitigate possible long-term health risks. However, in 1984, a National Institutes of Health (NIH) Consensus Development Conference reversed that recommendation in a statement on HRT's benefits for osteoporosis, which stated that the "duration of estrogen therapy need not be limited" (NIH 1984).

The 1980s and 1990s saw the largest increase in HRT prescriptions, and Premarin was the best-selling drug in the U.S. throughout the 1990s. Watkins (2007b) attributes its popularity to a combination of the continued medicalization of menopause, extensive laudatory coverage of HRT in the popular media, and a generation of "baby boomers" approaching the age of menopause. This generation of women, steeped in the women's health movement and part of a demographic accustomed to drawing public attention to their concerns, brought menopause out of the shadows; popular media responded with even more written material, most of it encouraging the use of HRT as a safe and effective menopausal therapy. This era saw the convergence of physician and patient attitudes towards HRT, where patients requested it and physicians were happy to prescribe it. Yet, exogenous hormones were never without criticism or concern (Krieger et al. 2005). Some women expressed uncertainty about the safety and necessity of taking hormones (Bond & Bywater 1998; Jones 1999), coupled with an ambivalent or distrusting relationship with biomedicine (e.g., Ehrenreich & English 1989). And women felt they had to weigh risks and benefits of HRT in their decision-making about whether to use it during menopause (Hunter, O'Dea, & Britten 1997; Griffiths 1999; Jones 1999).

American women were prescribed and consumed hormone replacement therapy to relieve menopausal symptoms, with the added belief that HRT might also prevent heart disease, osteoporosis, and stroke (e.g., Col et al. 1997). In 1999, the popularity of HRT surged once again with the introduction of a new combination pill of estrogen and progesterone (cHRT), which was seen as safer and more effective at controlling menopausal symptoms. By 2001, 42% of all American women aged 50 to 75 were taking hormones (Chlebowski et al. 2009) with 90 million prescriptions written that year alone (Hersh, Stefanick, & Stafford 2004).

In July 2002, the NIH halted the Women's Health Initiative (WHI)—its large, randomized, placebo-controlled study of HRT and cHRT—three years early because preliminary analyses indicated that women on cHRT were at *greater* risk for heart disease and stroke (Rossouw et al. 2002) and especially breast cancer (Writing Group for the Women's Health Initiative Investigators 2002), concluding that the health risks associated with cHRT

outweighed the benefits (Heiss et al. 2008). This created a firestorm of confusion among clinicians (Lancet Editorial 2004) and led to a sudden decrease in the number of hormone prescriptions the following year; in fact, there was a 66% drop in Prempro (cHRT) prescriptions and a 33% drop in Premarin (HRT) prescriptions between early 2002 and 2003 (Hersh, Stefanick, & Stafford 2004). Reanalysis of the WHI data now suggests that cHRT may be appropriate for younger, low-risk women seeking menopausal symptom relief. But, researchers and professional organizations, including the American College of Obstetricians and Gynecologists (ACOG), continue to recommend against prescribing cHRT for disease prevention or long-term health improvement (Kreatsoulas & Anand 2013). The risk-benefit calculations that menopausal women and their physicians now make before taking HRT therefore weigh the value of symptom relief against increased health risks; any potential protective health benefits of cHRT no longer enter into that calculus.

Bioidentical Hormone Replacement Therapy

In the meantime, an "alternative" therapy was gaining traction in the media and in "anti-aging" medicine and other areas of women's health: bioidentical hormone replacement therapy (BHRT). Interest in BHRT increased as women sought alternatives to cHRT to control menopausal symptoms (Fugh-Berman & Bythrow 2007). Anti-aging clinicians and others, including some gynecologists, naturopaths and other "alternative health" providers, began to market and prescribe BHRT as a distinctly different treatment than traditional cHRT. In its strictest definition, "bioidentical hormones" are generally derived from plant extracts but are chemically modified in a laboratory to be structurally (molecularly) indistinguishable from human endogenous hormones and in the U.S. available only by prescription. BHRT most commonly refers primarily to sex hormones--estrogens (i.e., a combination of 17 beta-estradiol, estrone, and estriol), progesterone, testosterone, and perhaps dehydroepiandrosterone (DHEA)(Cirigliano 2007). BHRT is often held in contrast to other Food and Drug Administration (FDA)-approved hormonal compounds, some of which are derived from animal urine (as in the case of Premarin) or are synthesized in a laboratory (as in the case of the progestins, a synthetic form of progesterone, or other synthetic estrogens). However, there are also commercially available FDA-approved products that fit the definition of "bioidentical," and some bioidentical hormones are derived from animal sources or made synthetically (Cirigliano 2007). These products are seldom marketed or prescribed by anti-aging and other alternative health practitioners, who instead favor and promote BHRT as a customized, prescription-based, plant-derived and non-FDA-approved treatment. BHRT does not refer to over-the-counter herbal or plant-based products, such as soy or yam products, but only those made to be "bioidentical" in the laboratory and available by a physician's prescription.

BHRT marketers have extended the term "bioidentical" beyond its narrow biochemical properties (FDA 2008, e.g., A4M 2006). It now also refers to prescription drugs with a specific mode of preparation and delivery—transdermal rather than oral—as well as diagnostic and monitoring processes (saliva and urine assays that are repeated frequently over time). Because of this, practitioners who exclusively prescribe BHRT use those prepared by a compounding pharmacy. Compounding is purported to bring advantages by offering hormones in individualized combinations and dosages and in modes of

administration that are not commercially available (e.g. MD News 2010; PCCA 2014). In fact, compounding pharmacies are themselves major marketers of BHRT to the public and advertise their ability to find a practitioner able to prescribe their formulas. US sales of BHRT from compounding pharmacies were estimated at $845 million in 2013, compared with the $3.7 billion market for FDA-approved HRT products (Zuckerman et al 2013). The FDA does not regulate drugs produced by compounding pharmacies, which gives clinicians more freedom from the constraints (and also the protections) imposed by it.

BHRT proponents claim that due to its molecular structure, custom dosage, and "natural" plant-based origin, BHRT is more efficacious and has a better safety profile for long-term health risks than conventional, FDA-regulated hormones (Fugh-Berman & Bythrow 2007). And some purport that BHRT restores hormone levels to those of younger women, thereby protecting women from age-related diseases. However, there is still no clear evidence to support these claims of low risk or benefit (Boothby & Doering 2008; Cirigliano 2007; Fugh-Berman & Bythrow 2007). Anti-aging clinicians are not the only medical professionals who prescribe BHRT, but their professional organization, the American Academy of Anti-Aging Medicine (A4M), was an early promoter of BHRT, using it in their marketing material as early as 2002.

Hormonal Therapies and Appeals to the "Natural"

Within science and technology studies, scholars have theorized the role of the "natural" in scientific progress by challenging the idea that "the natural" has ever existed in ways that are unadulterated by "culture" (Latour 1993). The false, artificial, and deeply gendered ideal of the nature-culture divide has also long been discussed in feminist scholarship (e.g., Ortner 1974). Feminist technoscience scholars problematized another related false dualism: *human/technology*. "Technology" within this arena refers to the cultural artifacts of a society. This broad definition allows for a deconstruction of the false binaries of nature/culture *and* human/technology in order to question our assumptions about the "manmade" world and the idea that technologies are inevitable, apolitical, progressive inventions that transform the "natural" world (Winner 1980, Bijker, Hughes, & Pinch 1987, Bijker and Law 1994). Notably articulated by Haraway (1991), her archetype of the cyborg was employed to interrogate the deeply political and intertwined relationships between humans and technologies and is envisaged as a feminist icon—imbued with emancipatory potential and even a call for revolution. If we (women, especially) are all already cyborgs, the boundaries between the human and the technological are irreversibly obliterated. While the cyborg has been used as a symbol of technophobia, its postmodernist feminist embrace is equally compelling (e.g., Braidotti 2013; Haraway 1991; Hayles 1999), especially as a lure to remake aging bodies and selves "technogenerian" (Joyce & Mamo 2006; Joyce & Loe 2010, see also Balsamo 1996).

Despite the claims of many scholars that the traditional humanist, modernist version of the self has given way to a full acceptance of hybridity (e.g., Braidotti 2013; Halberstam & Livingston 1995), the appeal of and to "the natural" nonetheless persists. The reluctance to discard ideas about the integrity of the modern self is present in popular discourse about new biomedical technologies. In fact, the threats posed by technological advances may result in

clinging all the more to humanist ideals, as a palatable way to begin accepting the "new" (Mamo & Fishman 2001).

One appeal to the maintenance of bodily integrity is through the aesthetics and marketing of bodily technologies that put *unobtrusiveness* as perhaps their most attractive feature. However, this desire itself demonstrates the ambiguity of technological embrace. On one hand, we do not wish to be reminded of the synthetic, "unnatural" aspects of technologies, which would only highlight their artificiality juxtaposed against our humanness. On the other hand, a desire for and acceptance of the seamlessly integrated human-technology interface only brings the near completeness of cyborg-ness. Biomedical technologies, in particular, take this one step further, as such an interface is said to work "like nature" (Fishman & Mamo 2002; Mamo & Fishman 2001; Mamo and Fosket 2009). Pills and creams are ideally suited for appeals to naturalness because they "disappear" yet have lasting bodily effects. When drugs appear to work "naturally," what might otherwise be seen as a "blasphemous" transgression into the supernatural (Juengst 2009), simply becomes *more* natural. The desire for a technology that works like nature demonstrates both the acceptance and disavowal of the postmodern self and body.

Gendered technologies, in their tendencies to reify a normatively gendered order of bodies (Balsamo 1996; Moore 1997; Mamo & Fishman 2001), are especially susceptible to appeals to nature. HRT for women (and more recently, for men) has relied on gendered assumptions about behavior, aging, and the sexed body for its legitimacy. For example, if menopause is defined as estrogen loss, then restoration of women's estrogen is constructed as a natural solution for treating discomfort during menopause and mitigating long-term consequences of estrogen deficiency (Bell 1987). It also returns women to their "natural" state of femininity (e.g., Wilson 1966) by replacing one of women's bodily "needs." This same appeal has been identified as part of other "anti-aging" pharmaceuticals, including erectile dysfunction drugs, highlighting that men too are subject to (gendered) pharmaceutical scripting about (anti-) aging with similar appeals to preserving what is seen as "natural" (Mamo and Fishman 2001, Calasanti & King 2005; Marshall 2010).

The "natural" also emerged as an ameliorative script on another dimension. Iatrogenic risks of pharmaceutical drugs and other biomedical products began to capture the public imagination in the early part of the 21st century (e.g., Bhattacharya 2005). Furthermore, exposés about the pharmaceutical industry (i.e., "Big Pharma") (e.g., Lamb 2004), led to a growing disdain for the entire industry that also implicated all of biomedicine. A rejection of the "synthetic" world of pharmaceutical drugs in favor of "natural" products and remedies was part of a "natural" or "alternative" health movement had already taken hold (Schneirov & Geczik 2003, Baer & Coulter 2008), which was also consonant with critiques of biomedicine that fueled the feminist health movement at the same time.

Others have detailed the rise of alternative health movements as a reaction to conventional "iatrogenic" and "illness-based" medicine (e.g., Baer 2004, Kelner & Wellman 1997, Goldstein 1999). The rise of the "anti-aging physician" in the U.S. is in large part a response to the desire and demand for more "holistic" and "integrated" health care (Mykytyn 2006, Fishman, Settersten, & Flatt 2010). Furthermore, the rise of the multi-billion dollar "natural

products" market worldwide—including products sold in health food stores and recommended by alternative health specialists— has surely led to the acceptance of BHRT by the practitioners and patients described in this study. BHRT explicitly appeals to these virtues as women's experiences of HRT meet the allure of "natural therapies." In our study, BHRT is confined to hormonal therapies that operate within a clinician-patient relationship, entailing treatments that require a physician's expertise and prescription.

Data and Methods

Clinician Recruitment and Sample

As part of a larger study on anti-aging science and medicine in the United States, clinicians were recruited from the online directory of the American Academy for Anti-Aging Medicine (A4M), where consumers can identify US-based anti-aging clinicians. A4M is the first hit in a Google search of "anti-aging medicine" (conducted April 29, 2014, although this has been true for the last six years). The A4M directory was intentionally chosen because clinicians voluntary choose to advertise themselves as providing "anti-aging medicine," which was the target of our larger research project. It is important to note, however, that while these physicians were members of A4M and had requested to be included in the online directory, they also referred to and marketed themselves using other monikers and via other organizations (e.g., "age management," "integrative health," "holistic health," etc.—see Fishman, Settersten, & Flatt (2010)) and could have been found by patients in ways other than through the A4M directory or the "anti-aging" label.

After receiving approval for this project from the Institutional Review Board at [Institution], we randomly selected every tenth directory entry, generating a list of 130 clinicians. Eight mailed packets were returned as undeliverable, yielding a final list of 122 potential participants. After mailing recruitment packets, physicians were contacted to schedule a telephone interview.

Participants were e-mailed informed consent documents for their records. Informed verbal consent took place after the participant read the document and had any questions answered by the interviewer. Semi-structured interviews were designed to reveal how anti-aging medicine is practiced in the clinic and the views of clinicians regarding aging and medicine. We set a goal of conducting 30 in-depth interviews, estimating this would capture a broad array of clinician perspectives and also reach a point of "theoretical saturation" (Strauss & Corbin 1998). As this goal drew near, we assessed the coding categories and their associated coded text and determined that additional interviews were unlikely to yield novel perspectives, new coding categories, or great heterogeneity within the codes. We began recruitment by scheduling interviews with all of the clinicians we were able to reach by phone or email and eventually ended recruitment by discontinuing our attempts to contact non-responders, each of whom had already been contacted via email or voice message a minimum of four times. The perspectives of our self-selected sample cannot necessarily be generalized to non-responders.

Semi-structured telephone interviews were conducted between March and August 2008 and ranged from 41 minutes to over two hours. The final sample of 31 clinicians included 19

(61%) men and 12 (39%) women. Twenty-three (23, or 74%) reported themselves as White/Caucasian, three as Hispanic, two as Black, and one as Asian. (Two respondents did not report race/ethnicity.) Interviewees ranged in age from 33 to 71 and were located geographically across the U.S. (which is why it was only feasible to conduct telephone rather than in person interviews). Most (71%) reported a medical degree as their primary credential, with the remaining being doctors of naturopathy, doctors of osteopathic medicine, and nurse practitioners. The sample included a range of specializations, including seven general internists, three obstetrician/gynecologists, and the remainder from dermatology, emergency medicine, immunology, neurology, psychiatry, radiology, and reproductive endocrinology.

Patient Recruitment and Sample

Patients were recruited through the previously interviewed anti-aging clinicians after we received independent Institutional Review Board approval from [Institution] for this phase of the study. All but one physician agreed to assist in recruiting patients.

Clinicians were sent postcard-sized flyers and a display stand for placement in their practice. The flyers asked: “Are you currently using anti-aging practices? Are you willing to share your experiences?” To incentivize participation, we offered a $25 American Express gift card. Interested patients phoned our research assistant who explained the study and screened for eligibility (i.e., currently using “anti-aging therapies”-undefined). Prospective participants were e-mailed a consent form and verbal consent was obtained prior to the recorded telephone interview. Semi-structured interviews explored patients’ perceptions and experiences with anti-aging therapies; types of treatments and their perceived efficacy; and how treatments shaped or reflected their views on aging. We interviewed all participants who contacted us and agreed to an interview. We kept recruitment open for six months in order to recruit as many patients as possible. A total of 36 interviews were conducted between February and July 2009 with 11 male and 25 female patients. Because this paper focuses on menopause, analysis is restricted to our female participants. All but two (91%) of the female respondents reported themselves as White/Caucasian; one identified herself as Black and the other as White/Native American. They ranged in age from 38 to 67, with an average age of 55 years old. Because participants self-selected, we cannot know how their views differ from those who did not respond to the flyer.

Data Analysis

Interviews were transcribed and imported into Atlas.ti^{TM}, a software program to aid qualitative data analysis. The three members of the research team who conducted the interviews also implemented codes developed by the team. All have advanced degrees in social science disciplines and extensive training in qualitative methods. Inter-coder reliability was achieved through a process whereby two members coded each transcript independently and any disagreement was resolved through discussion with the entire research team and further refinement of code descriptions and coding rules.

First-level codes were developed inductively after reviewing the full range or responses for particular questions. For example, coding for the question “Can you tell me about the range

of professional services you provide?" (for clinicians) and "What kind of treatments has your doctor recommended for you?" (for patients) resulted in first-level "modality" codes that categorized specific treatments (e.g., holistic; exercise; hormonal). These first-level codes were then connected to higher-order "interpretive codes" (Miles & Huberman 1994). Continuing with the example given, specific treatment modalities were linked to interpretive codes that reflected practitioners' and patients' goals for those forms of treatment (e.g., risk management; symptom relief; longevity).

As the coding process evolved, the dominance of hormone treatments—especially bioidentical hormones—emerged as a major theme in both clinician and patient descriptions of anti-aging therapies. We discovered that all of the clinicians we interviewed prescribed BHRT and all of the women we interviewed were taking BHRT at the time of interview, although we did not select for this in our recruitment, which only asked patients if they were using "anti-aging" therapies. This led us to undertake a more systematic examination of this topic in our data. In this way, BHRT served as a "sensitizing concept" (Glaser & Strauss 1967) in our research—a way of seeing, interpreting, and analyzing qualitative data once coding has commenced (Bowen 2006); data were recoded inductively in light of this finding. BHRT became a nexus for understanding connections between menopausal symptoms, aging, and biomedicine.

Results

Menopausal Scripts and the Search for Hormonal Solutions

There were two interrelated reasons why the patients we interviewed sought the services of anti-aging practitioners. First, women sought out practitioners to receive hormone treatments for unwanted symptoms that women interpreted as being the direct result of hormonal decline and imbalance due to menopause or a hysterectomy. Second, their previous search for symptom relief had created frustration with "traditional" physicians who had been unwilling or unable to adequately treat their hormonal imbalance, which led to a search for an alternative practitioner. Anti-aging clinicians shared their patients' frustration with conventional medicine and offered an alternative therapy, thereby offering mutual legitimation for the use of bioidentical hormone treatments (see also Fishman, Settersten, & Flatt 2010).

Menopause (and hysterectomies for ten patients in our sample) served as a biomedical script from which women described and understood their symptoms; how physicians responded to this script determined whether patients accepted a prescribed treatment plan. The majority of women were already on some form of hormone replacement therapy before seeing anti-aging practitioners, but the search for more serious attention to hormonal attribution led them to these anti-aging practices. It was only after they began to work with anti-aging clinicians that women came to see hormone replacement as an "anti-aging" treatment and part of a larger arsenal of treatments to improve aging-related health problems Many women in our sample understood the root problem of their symptoms as being due to hormones that were "out of whack"—a phrase repeatedly used to explain a range of symptoms, including fatigue, crying, anxiety, mood swings, hot flashes, weight gain, memory and "foggy

thinking." For example, one interviewee tells of her experience finding her anti-aging clinician or "hormone savior":

> Well I had a hysterectomy in 1997 and they left my ovaries in… . and within the first year my ovaries started to fail and I went to over nine physicians over the years and they all told me it was in my head. And finally, it was eight years [later] and I found this doctor who did anti-aging. He … did a proper test on me, a saliva test, which tested everything, all my hormones and my cortisol, and he found that I was so totally out of whack. And my life turned around once I started taking all these supplements and the proper hormone replacement. So I am a firm believer. (Patient 25)

Similarly, a patient who also works for an anti-aging provider described the typical experience:

> Lots of the women that come here… have the same thing: 'Well I've been on this for years and I just don't feel like it's getting any better, and I go to the doctor and they say 'Well you know you're 57, or you're in menopause or you're whatever.' Well so? … I'm not asking to feel like I'm in my 20s. I just don't want to feel like I'm feeling now. (Patient 30)

The anti-aging practitioners we interviewed, like their patients, attributed symptoms to hormonal changes associated with menopause and therefore aging. For nearly all of these practitioners, hormone treatments could not only alleviate these symptoms but also maintain a "youthful" quality of life for aging women. For example, one clinician describes menopause as

> …a decline in her hormone levels, especially her sex hormone levels…So you know when patients come in to see me, they say 'You know, doc, I'm just not the person I used to be… I'm not the woman I used to be. Something ain't right'… and as you replenish people's hormones back to more youthful levels, you definitely see a reinvigoration of the quality of their life, of their health, of their vigor, and you know all the different markers of aging, whether it'd be their bone density, their cholesterol, their blood pressure, all of these different things literally come into the optimal normal range. (Provider 24)

Reminiscent of the mid-twentieth century's conception of hormones as a "youth pill" (Wilson 1966), this clinician went so far as to say that hormone replacement can drastically improve other important "markers of aging" as well the problems associated with menopause in particular.

The predominant complaint of women was that their symptoms were misunderstood, minimized, and even dismissed by their primary care physicians—which led them to anti-aging medicine as an "alternative" solution. What these women were searching for and found in anti-aging clinicians, were physicians who listened to them, took their problems seriously, and were willing to step outside of mainstream medicine to find solutions—including hormones and, especially, bioidentical hormones.

The Lure of the "Natural"

The shared interests and investments of patients and clinicians in bioidentical hormones depended in large part on the perceived virtues of BHRT as a "natural" substance. Consistent and continuous with earlier attributions of hormonal therapies, medicalization techniques tailored to women construe hormones and hormone replacement as natural, and even necessary, if women are to retain their "naturally" feminine or maternal states (Lupton 1996; Oudshoorn 2007, see e.g., Wilson 1966). Relative to commercial pharmaceuticals, patients and clinicians saw BHRT as the more natural (and therefore more appealing and efficacious) solution. This notion seems only to have grown in the last decade alongside the loss of faith in cHRT. BHRT's desirability then is rooted in both the now age-old perceived "natural" (read: biological) necessity of hormone replacement for menopausal women and its innate "naturalness" when compared with its mainstream pharmaceutical counterpart.

Natural versus Synthetic

Patients identified BHRT as a "natural" remedy in a variety of ways: its derivative sources, its close mimicking of human hormones, its delivery mode, and its individualized mode of production. These closely resembled anti-aging physicians' perspectives as well. For example, this physician emphasized the plant-based sources of BHRT:

> And so the bioidenticals are actually created from wild yams and soy. They are created in a lab and they are created to be identical. Those molecules are matched identically to the ones that your body produces. (Provider 30)

And yet, this provider also acknowledged that the process of making bioidenticals involves the manipulation of plant sources in a laboratory. The "natural" here is not merely its source but also that it is transformed into something the body already makes (i.e., a biomimetic). The method of manipulation, the argument goes, results in an exogenous product that can be called a "natural" entity.

This manipulation is therefore seen as different than the process of creating conventional hormones. Indeed, patients and physicians were quick to further distance "natural" BHRT from conventional HRT by labeling HRT with an antonym of "natural" – "synthetic." While "synthetic" is nondescript as a term, it is repeatedly used in polarized ways by patients and physicians to describe what is wrong with conventional HRT. For example:

> Bioidentical basically is a term we use for hormone replacement. That means that it's not synthetic. It's natural, and it's an exact molecular match to what your body makes. (Provider 4)

> So that's what a bioidentical hormone is. It's not synthetic, and I really don't want to do the synthetic stuff. Do you know why? … First of all the body is not going to accept it, or they'll accept some, but it will be washed away. (Patient 17)

In the latter case, it is understood that the body will reject "synthetic" hormones as a foreign substance that does not "naturally" belong. While "bioidentical" becomes synonymous with "natural," and "synthetic" becomes synonymous with "unnatural," the difference between bioidentical and synthetic was rarely clear in the minds of patients, in particular. For example, when one patient was asked by the interviewer to describe the difference between

the two, she replied, “I really don’t [know]. Well, Dr. [name] told me, but I don’t really understand it. I mean supposedly she said that they’re like what the body produces, but they are not made with synthetics” (Patient 24). cHRT symbolizes something foreign or toxic that cannot be integrated seamlessly into the body.

Optimizing Hormone Levels as a “Natural” Intervention

Just as bioidentical hormones are understood to be natural, so is the justification for using them to restore an individual’s “natural” bodily state in order to optimize health. Why let a woman’s hormones wane when we can prevent it? BHRT was seen as simply replacing something that was already present in the body and is therefore also seen as a “natural” intervention, one that can bring a better quality of life as women age:

> We’re not giving the body something that it didn’t already produce. It’s just something that we’re replacing to sustain a better quality of life. I mean menopause wasn’t always… There was always that ‘She was just a crazy old woman.’ You know why do we have to be crazy old women if we don’t have to be? … It doesn’t have to be like that if you replace hormones. So, I mean, where in the Bible does it say that we have to grow old and be miserable and cranky and completely deteriorate to absolutely nothing. (Patient 34)

For this patient, taking BHRT is not only natural; it, alongside the medicalization of menopause, can be an antidote to the sexist stereotypes associated with women, aging, and menopause.

Clinicians spoke in even greater detail about the benefits of hormonal restoration and optimization. For example, one said:

> [I]f your body has already produced it, why not replace it back to where your body was at the most optimum? … If somebody is deficient, you can get them back into the reference range, monitor the levels and the symptoms that the patients have, for the most optimum benefit. Then their body is less likely to break down, because as we age and our hormones decline, our bodies become more susceptible to the degenerative diseases of aging. … If you’re replacing hormones back to more useful levels, then your body has a less likely chance of getting those degenerative diseases of aging. (Provider 36) Getting hormones back to their “optimal” range, then, is not seen as *un*natural

supplementation or even a lifestyle choice, but rather a necessary means of staving off age-related disease. This view, so commonly expressed in our interviews, runs counter to contemporary conventional thinking that hormone replacement neither provides long-term health benefits nor prevents age-related disease. These positive claims hinge on the notion that BHRT is *different* than other HRT; it acts differently in the body and provides health protections that are afforded to women at younger ages, when hormone levels are optimal. For example, one provider proffers:

> Our approach is a little different. What we do is we give bioidentical hormone supplementation, which by far will prevent or reverse most of the chronic degenerative diseases of aging… the reason why we ended up calling it ‘natural

> medicine' is because bioidentical hormones are natural and because vitamins and minerals are natural, and because that's where the big separation occurs between mainstream convention medicine, which relies on pharmaceutical drugs, which are patented. (Provider 7)

Other clinicians argued that balancing hormones not only allows older women to prevent late-life diseases but also ameliorate the chronic conditions they are already facing, allowing them to discontinue use of longstanding pharmaceutical treatments prescribed by their conventional doctors.

Clinicians and patients interpreted the strategy of optimizing hormonal levels as a return to nature. And it was believed that the return to nature would similarly restore and optimize health as well and help reach a state of equilibrium. Fundamentally, there is a belief that our natural self is our young and healthy self—a state that we should attempt to maintain even as we grow older.

Weighing Risks

Although major pharmaceutical companies make "bioidentical" hormone preparations (e.g., patches, pills, pellets, and creams), the clinicians in our sample all prescribed hormonal creams prepared by compounding pharmacies. Clinicians and patients saw the fact that they fly under the radar of the FDA's purview as part of the appeal of bioidentical hormones. The FDA was viewed as another actor in collusion with conventional medicine and the pharmaceutical industry, villainized by our participants as promoting dangerous products in the name of profit:

> I think people are tired of pharmaceutical companies killing people and saying that the FDA knows all and everything's safe. We've seen that that's not true, and people are on all kinds of different synthetic hormones and drugs and they're not getting any better. A lot of them are dying or you know having serious trouble. (Patient 29)

BHRT is seen as attractive "alternative" not only due to its biochemical properties, but also due to its location, politico-economically, outside of the biomedical establishment. Because "natural hormones cannot be assigned a patent," one provider added, "the pharmaceutical industry cannot make money out of preparing hormones" (Provider 27). Patients echoed this notion that conventional medicine is inherently more dangerous because it is a bedfellow of the pharmaceutical industry (and, conversely, anti-aging medicine and BHRT are seen as less dangerous).

Another important element of the attraction of BHRT is the ability to "customize" a formula for a patient. The individualization of treatment is seen not as a perk of BHRT, but as essential to its efficacy. This quality, however, is the very thing that has deemed it unsafe by many medical professional bodies and un-approvable by the FDA, for it makes BHRT incommensurate with the clinical drug trial process, which requires standardized experimental protocols. Organizations such as ACOG and the FDA point to the lack of randomized clinical trials to test BHRT's safety and efficacy, which would make its health risks (or benefits) visible (e.g., ACOG 2012). Until then, these professional and regulatory

bodies will not think of BHRT as having different physiological or long-term effects from cHRT because they have not been demonstrated via the conventional scientific methods used in biomedicine.[1]

While women largely felt confident that BHRT offered a natural and therefore safe solution, they still were making the choice to pursue BHRT against a backdrop of "all the bad press of HRT" (Patient 35), especially the release of key scientific reports, such as those from the Women's Health Initiative (WHI). Pervasive in perceptions about other alternative medicines, namely herbal remedies, is the idea that something made "of nature" is by definition benign and safe (Lynch & Berry 2007). A few patients spoke directly about their concerns about hormones and cancer and felt confident that BHRT posed little risk. For example, one woman said:

> I have to pay out-of-pocket for my hormones … unless I would swallow a standard HRT, which I will not do. My mom had breast cancer and I'm not going to do it … I allowed myself to be talked into three months of HRT…right after I went through menopause, and I had breakthrough bleeding. I had hot flash[es]… and after three months, I said 'No more. I'll find another doctor. I'm not swallowing this stuff anymore.' Plus we found out then my mom had a lump and I said 'I'm not doing this.' So I'm on bioidentical and it's delivering hormones to my system, but I think my body is recognizing them not as enemy. (Patient 13)

This latter patient literally sees standard HRT as a hard pill to swallow, and one that carries with it increased cancer risk, whereas BHRT is interpreted as something recognizable to her body, implying that the "foreignness" of cHRT is what makes it carcinogenic. Another patient (23) talked about her sister's cancer diagnosis as a justification for her treatment, saying simply "I feel that the natural hormones are not the risk the synthetic are." A clinician spoke explicitly about how "synthetic" cHRT increases breast cancer risk, yet feels comfortable prescribing BHRT:

> I think one of the ways that I'm different is that I pretty strongly promote hormone replacement therapy for women that are going through menopause, because of the health benefits of bioidentical estrogen and progesterone. And one of the things that's really astounded me is how …most of my colleagues are still writing for synthetic progestins in these women, which increases the risk of breast cancer. Now I have an older sister with breast cancer, so I'm very particular about what medications I give to women, because I'm not about to do anything that's going to increase their risk. (Provider 91)

This perspective echoes our other practitioners' beliefs in the safety of BHRT because of its different preparation, compounds, and mode of administration.

For some women who did feel that there might be risks associated with BHRT, evaluations of risk are always made against anticipated benefits, and these risks do not outweigh the symptom relief they experience from BHRT. The sentiment of the subset of patients in our

[1]This is similar to debates about the "bioequivalence" standard used for generic drugs, whereby the FDA requires generic drug companies to compare a generic to its name-brand progenitor before it can be prescribed (Carpenter and Tobbell 2011, Greene 2014.)

sample who considered BHRT risky was that “life isn’t worth living if you feel miserable,” (Patient 25), and “I’ll take that risk, because I can’t stand feeling this way” (Patient 30). This calculation echoes earlier studies of women’s decision making regarding cHRT, where there were always presumed risks that had to be weighed against its experiential benefits (e.g., Griffiths 1999; Jones 1999).

One patient was diagnosed with both lung and kidney cancer in the year prior to our interview. On the advice of her oncologist, she stopped taking her BHRT prior to surgery. Her account offers a glimpse into how our respondents weighed long term risks of hormones and benefits of symptom relief:

> When I stopped taking all my medicine and when I went to a university to have my surgery, the thoracic surgeon said [I] didn’t have to stop taking [BHRT], but it was too late. They were all out of my body. I was suffering. I had severe hot flashes all over again, and you know it was just such a nightmare. I mean having cancer is a nightmare, but being so out of balance to me was more of a nightmare … I will go to my grave clutching my progesterone. <laughter> (Patient 25)

For this patient, even a cancer diagnosis could not loosen her grip on her hormones. She wanted her body “in balance” and to be freed from symptoms. She was not alone in the choice to remain on BHRT despite any perceived risks. Even the risk of early death is not enough to sway another woman from using BHRT: “If they come up with some study that, you know ‘your mortality is [increased],’ I’ll take reduced [life] … I will not give up” (Patient 19).

Most of our providers and patients believed in the safety of BHRT. Those few that were agnostic about its safety nonetheless felt it both a safer option than cHRT and that any risks were worth the immediate symptom relief.

Discussion

While hormones have long been considered an “elixir of life” (Watkins 2007), the turn by anti-aging medicine clinicians and their patients to BHRT marks a new page in the belief that hormones can cure ills and maintain youthfulness. Carefully positioned both within and outside biomedicine, BHRT is able to discursively capture the notion that hormone replacement acts as a panacea that is simultaneously effective, natural, and safe. Menopausal women who take BHRT, and practitioners who prescribe it, share a presumption that its plant-based origins, biochemical similarities to human hormones, and mode of delivery make it different from other types of hormone replacement, including those approved by the FDA to treat menopausal symptoms. It is neither our intention to defend nor discredit BHRT. Rather, we are interested in understanding how BHRT embodies the qualities providers and patients desire most from a therapy to treat menopause and other signs of aging.

The women we interviewed were drawn to anti-aging medicine because they felt that conventional doctors did not take their hormonal symptoms seriously. Although they were searching for symptom relief, what they wanted first and foremost was a clinician who

would acknowledge and validate their symptoms and embodied experiences. Anti-aging clinicians pride themselves on their "good listening" skills and see themselves as masters of the lost art of doctoring in caring and holistic ways (Fishman, Settersten, & Flatt 2010). For their menopausal patients, these clinicians espouse the idea (which their patients also share) that anti-aging clinical care requires going beyond the treatment of traditional menopausal symptoms and toward a more systemic, and therefore preventative, role in improving women's overall health and well-being (Mykytyn 2006). Using the logic that "hormones keep you young," providers and patients alike assert the corollary: that hormones also keep you healthy. The promise of symptom relief, continued good health, and the ability to stop taking other drugs—coupled with the validation that these patients receive—makes BHRT from an anti-aging clinician a near ideal solution for the women who seek it.

Women, hormones, and their associations with biomedicine have a long and complicated history. Previously, the "biomedical" model of menopause—as a dysfunction in need of medical remedy— was pitted against the "feminist" model, which saw menopause as a "natural" process (Kaufert and Gilbert 1986; Leng 1996). The choices were either to embrace biomedicine and the idea of a medical fix or embrace the "natural" process of aging and menopause. However, BHRT now presents a hybrid option (Leng 1996), whereby a woman can turn to biomedicine in order to lay claim to a "natural" therapy. With BHRT, it is not only the therapy itself that is seen as natural, but the *process* of hormonal restoration is seen as natural by restoring hormones to their "normal levels", just as staving off the ill effects of aging is now seen as a "successful" way of growing older (Flatt et al. 2013).

However, women's experiences with BHRT are not simply—and, ultimately, not primarily—a tale about hormones providing women a path to regaining femininity or hetero-normative attractiveness and desirability. While our interviewees sometimes spoke of using BHRT in order to achieve traditional feminine characteristics or sexual functioning, this was not a dominant theme. Far more often we heard women first talk about being dismissed or disrespected within the confines of conventional biomedicine; anti-aging clinicians and BHRT then become routes to a type of empowerment because they offered validation of women's experiences, alleviation of their symptoms, and a return to a more familiar and functional self, while staying true to a biomedicalized conception of menopause. Because these were one-time interviews, and because the oldest patient in our sample was 67 years old, we do not know what their larger trajectories of treatment, disease, or satisfaction with BHRT will look like as they move through later life.

We also locate the turn to BHRT within heightened public concerns about the ingestion of dangerous substances such as those in plastics and pesticides (also suspected of having troubling hormonal effects)—substances seen as industrially produced, ubiquitous, synthetic, and distrusted (Casper 2003). By positioning BHRT as an alternative, "natural" choice and the antithesis of synthetic, women and their anti-aging clinicians also seem to be responding to the "risk society" (Beck 1992) by taking control of this one seemingly vital substance, trusting its natural label and individualized alchemy. Practitioners and patients alike seem to languish in the protected sphere they have found, away from the risk assessment techniques and technologies prominent in contemporary biomedicine and more broadly, the self-quantification techniques used to manage aging elsewhere. Anti-aging

medicine, then, both embraces the larger cultural discourses about optimization and aspirational youth and a belief in the biotechnological fix, yet manages to place itself outside the ever-present weighing of risks and dangers, making women's desire for BHRT all the more understandable. Appeals to the natural can be an attempt to nullify technophobic and postindustrial, postmodern panic, especially by those who have already felt wronged or dehumanized by technologized biomedicine. That a drug like BHRT could not only be perceived as natural but also an integral part of the body's working parts and systems, and even undifferentiated from the body itself, represents a kind of ultimate technological achievement: safe yet effective, exogenous yet humanoid.

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- Presents data on clinicians' and women's experiences with bioidentical hormones
- Places bioidentical hormones within history of controversy over hormone replacement
- Bioidentical hormones are given legitimacy through a discourse of the "natural"
- Bioidentical hormones reinforce the ethos of anti-aging medicine