



## Diagnosing and treating premenstrual syndrome in five western nations<sup>☆</sup>

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### ABSTRACT

Premenstrual syndrome (PMS) and its derivative Premenstrual Dysphoric Disorder (PMDD) are controversial medical diagnoses. On one hand they are ubiquitous in English-language cultures; on the other they are for many emblematic of unnecessary medicalization of natural physiological processes. In this paper, we use data produced by IMS, a health care information and research firm, to analyze office-based medical practice related to PMS/PMDD in five countries. We come to several conclusions: 1. Relatively few doctors in any country diagnose women as suffering from PMS/PMDD, despite significant national variations in frequency of diagnosis; 2. Women diagnosed with this condition are usually prescribed a medication no matter what kind of specialist they see; and 3. In North America and the UK, practitioners generally follow USA practice guidelines which favour use of anti-depressive drugs like SSRIs but this is not the case in France and Germany which exhibit unique prescription patterns. In France hormonal treatment and analgesics dominate; in Germany the plant extract *Vitex agnus-castus*, considered an alternative therapy in much of the English-speaking world, is most common. We go on to discuss the relevance of these conclusions to discussions of variations in medical practices, to the existing PMS literature that claims high rates of prevalence for this condition, and to recent studies of “deme-dicalization” in certain domains.

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### Introduction

Premenstrual syndrome (PMS) is a ubiquitous cultural reference and a significant subject of biomedical research. (A Pub Med search of the literature on PMS came up with 1602 English-language articles on the condition published between 1950 and 2004.) Its history has been recounted many times (Figert, 1996; Knaapen & Weisz, 2008; Richardson, 1995; Stolberg, 2000; Taylor, 2006). PMS first appeared in the medical literature in 1931 in two papers, one by German psychoanalyst Karen Horney (1931) and another far more influential paper by American gynaecologist Robert Frank (1931). Research on this condition was pursued on a small scale until the 1960s when the work of Katharina Dalton brought it much greater public attention (Dalton, 1964, 1977). Intensified public

awareness emerged out of controversies in the 1980s. First, in three widely publicized criminal trials held in the UK in 1980 and 1981, women defendants successfully pleaded diminished responsibility or mitigation due to premenstrual syndrome in crimes of manslaughter, arson and assault (Dalton, 1980). These trials received wide attention in the popular press. Several years later, the authors of the new edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM) included a psychiatric variant of PMS, Premenstrual Dysphoric Disorder (PMDD), producing even more controversy and debate. PMDD is a more standardized and precisely defined diagnosis than PMS, which may include a wide range of symptoms; the provisional acceptance of the former has made possible more rigorous comparative research on the subject. The requirement of comparability now dominates biomedical research so that unless PMDD criteria have been used to recruit study participants, it is almost impossible for a study to be included in meta-analyses. But while biomedical researchers studying PMS/PMDD have benefited from and supported the DSM classification (Figert, 1996), PMDD has not been widely accepted as a condition distinct from PMS by most doctors and regulatory agencies or by those producing disease classification systems like the International Classification of Diseases (ICD) (Knaapen & Weisz, 2008).

PMS/PMDD has since the late 1970s also served for many as an emblem of unnecessary medicalization of women's lives. Within this perspective:

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“Medical practice becomes a vehicle for eliminating or controlling problematic experiences that are defined as deviant, for the purpose of securing adherence to social norms.” (Riessman, 1983, p. 4)

Although women themselves have played an important role in promoting a physiological etiology for premenstrual symptoms and demanding medical treatment for it (Johnson, 1987), critics of the medicalization of women’s life events argue that political and social causes of, and solutions to, women’s suffering are obscured, thereby disempowering women (Choi, 1995; Laws, 1983; Rodin, 1992). PMS, it is argued, not only perpetuates ancient myths of women as emotionally unstable and at the mercy of hormones, it simultaneously reinforces traditional ideals of femininity that require the repression of legitimate and normal feelings of anger and frustration expressed as PMS (Laws, 1983; Martin, 1987; Nicolson, 1995; Ruble & Brooks-Gunn, 1979; Ussher, 2003). The construction in the 1990s of PMDD as a psychiatric entity added the stigma of a psychiatric condition to what many already considered the medicalization of a natural process (e.g. Caplan, McCurdy-Myers, & Gans, 1992).

The advantages and disadvantages of medical/psychiatric diagnosis and treatment of premenstrual problems are widely debated in both popular and scientific literatures that frame these conditions in a great variety of ways. Some suggest treating PMS as a collective or social problem and using political and sociological approaches to understand and redress the power differentials in science and society (Johnson, 1987; Laws, 1983; Rittenhouse, 1991; Rodin, 1992; Walker, 1995). Others however have suggested an astounding range of individual therapeutic treatments – over 300 medical, psychiatric, cognitive, alternative and natural therapies (Chakmakjian, 1983 in Wyatt, Dimmock, Frischer, Jones, & O’Brien, 2002). In contrast, surprisingly little is known about actual clinical diagnosis and treatment of PMS or PMDD in current medical practice. In this paper, we use data provided by IMS, an international health care information and research firm, to analyze office-based medical practice related to PMS/PMDD in five countries. We come to several conclusions. 1. Relatively few doctors in any country diagnose women as suffering from PMS/PMDD, despite significant national variations in frequency of diagnosis. 2. Women diagnosed with this condition are usually prescribed a medication no matter what category of physician they see. 3. In North America and the UK, practitioners generally follow USA practice guidelines which favour use of anti-depressive drugs notably SSRIs (selective serotonin reuptake inhibitors) but this is not the case in France and Germany which exhibit unique prescription patterns. In the former, hormonal treatment and analgesics are usually prescribed: in the latter hormonal treatment and the plant extract *Vitex agnus-castus*, considered an alternative therapy in much of the English-speaking world, are most common. We go on to discuss the relationship of these data to the existing literature on the prevalence of this condition and to current sociological theorizing about “medicalization”.

## Methods

Data on five countries regarding diagnosis and written prescriptions from office-based physicians produced by IMS – an international health care information and research firm that provides data, analysis and consulting services to a large variety of clients – was made available to the authors of this paper. European data was provided by IMS Health Medical MIDAS; Canadian data by IMS Health Canada, Canadian Disease and Therapeutic Index (CDTI); US data by IMS, National Disease & Therapeutic Index

(NDTI)<sup>1</sup>. This data covered the three-year period 2004–2006 and included information on total numbers of office consultations with female patients collected by the physicians whose practices are monitored by IMS, as well as more detailed information on consultations and prescriptions specifically devoted to PMS/PMDD. (As in most statistics on this topic, the two categories are lumped together and cannot be separated.) IMS uses stratified sampling to select participating physicians in the community setting to collect data for them for a period of one year. In the USA and Canada, during one 48 hr period per quarter, these physicians record information on their consultations and provide this information to IMS in a confidential manner. In the UK information is collected on a daily basis from the computer systems of general practitioners. This means that the sample size is significantly larger than in the other countries but that there is no data for specialists. In France and Germany the reporting period is 5 days per quarter. The sampling of physicians is stratified by geographic region and specialty in order to ensure adequate coverage and national representativeness. The data from the sampled physicians is then used to obtain projections at the national level through the use of suitable projection factors. Although IMS typically provides national projections based on their data, we also received the raw figures for Canada and the USA and used these where appropriate. Canadian data included information on the practices of 652 office-based physicians comprising approximately 50,000 consultations annually with women patients; USA data included information on 4140 office-based physicians producing from 407,000 to 468,000 consultations annually. European data was in the form of national projections based on the office consultations of 500 physicians in the UK, 835 in France and 2806 in Germany.

While data is not collected in a single standardized manner in all five countries, this is less significant for our purposes than the degree to which IMS national samples are fully representative of national patterns of medical practice. While all statistical samples have margins of error, national IMS teams go to great lengths to achieve representativeness by stratifying populations according to observable factors that might affect prescribing, e.g. geography, specialty, age, activity, gender, etc. Where there are serious discrepancies among national samples, these are often the result of actual differences in the organization of health care. For instance, it seems reasonable to focus exclusively on GPs in the UK since these monopolize primary care (while specialists serve as hospital consultants). In other countries, it is only those specialties providing primary care that are followed by IMS. Where discrepancies do not reflect actual practice (notably the German data that counts only consultations that result in prescriptions), we discuss data with great care, if we do not discount them altogether. What inspires most confidence in the validity of the data is that despite different collection practices, the proportion of PMS diagnoses and prescriptions are within a similar range for all five countries and are, as we shall see, supported by other data of this type. The differences among national practices we have uncovered are congruent with what we know about gynaecological practices in these countries.

<sup>1</sup> For more information on the data they and other data-gathering organizations produce more generally see Wong and Murray (2005). We found 19 papers listed in Pub Med utilizing data from one of these three branches of IMS. The company’s website claims revenue of \$2.2 billion in 2007 and 7400 employees. <http://www.imshealth.com/portal/site/imshealth/menuitem.a46c6d4df3db4b3d88f611019418c22a/?vgnextoid=7f6c01638e488110VgnVCM10000071812ca2RCRD&cpsexcurrchannel=1> (Accessed October 26 2008).

## Results

Fig. 1 shows the percentage of all office consultations by women having to do with PMS/PMDD.<sup>2</sup>

Perhaps the most striking aspect of the data on PMS consultations is the very small proportion of women in all five countries that consult doctors for the condition; this amounts to less than 0.1% of consultations annually by women. The figures are highest in the USA, although the trend here seems to be toward a slight decline. Over a longer five year period for which we have American data, this decline was found to be statistically significant (Cochran-Armitage test,  $p = 0.0017$ ). (The Cochran-Armitage trend test is a method of directing chi squared tests toward narrow alternatives.) Consultations for PMS are low in France and nearly invisible in Germany (where admittedly only consultations leading to prescriptions are tracked by IMS, but, as we shall see, most consultations result in prescriptions suggesting that German figures are only slightly underreported). The low incidence of PMS consultations in the latter two countries suggests that this is not a very salient diagnostic category in these nations where a relatively small volume of medical literature on the subject has been published. (The case of France is discussed in Knaapen & Weisz, 2008.) Whether the low numbers in all five countries represent a long-standing situation or a more recent decline from earlier higher levels is impossible to determine on the basis of these data. But published British data indicates a significant decline in prescriptions for PMS during the 1990s (Wyatt, Dimmock, Frischer, et al., 2002) while online French data about the practices of French general practitioners also suggests such a decline since the mid 1990s (Observatoire de la médecine générale, 2006). Whatever the situation in the past, our data makes clear that PMS/PMDD does not bring large numbers of women into the medical system to consult with doctors. We shall return to this point in our discussion section.

The kind of doctors that women see for PMS complaints depends on the nature of national health care systems (Table 1). In the USA where a number of different specialties offer primary care, obstetrician/gynaecologists are predominantly called upon to deal with such cases. Family physicians, psychiatrists, neurologists and a number of other specialties have found small niches in this field which is congruent with the complex system of primary care in that country (Weisz, 2006). In Canada the situation is reversed. General practitioners see the lion's share of PMS complaints with gynaecologists far behind. In the UK, the health care system gives general practitioners a monopoly of primary care; consequently our UK data on office-based practitioners is limited to GPs. The figures however do not indicate how many, if any, women are subsequently referred to specialists. In France where gynaecologists have traditionally treated women's health problems, GPs have gradually taken on an increasingly large share of PMS patients and are now close to parity. This shift is undoubtedly linked to the French government's ongoing efforts to restructure the health care system and to provide everyone with a general practitioner (*médecin référent* or *médecin traitant*) who can serve as a gatekeeper to specialist services; between 2004 and 2006 the proportion of GP consultations for PMS rose by 8%. In Germany, by contrast, obstetrician/gynaecologists continue to dominate the miniscule domain of PMS practice.

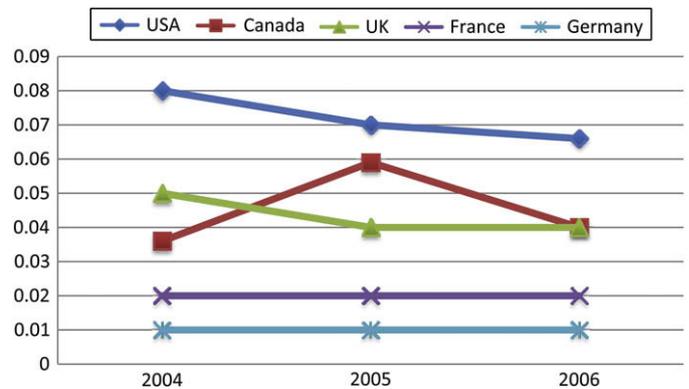


Fig. 1. % PMS diagnoses of all consultations.

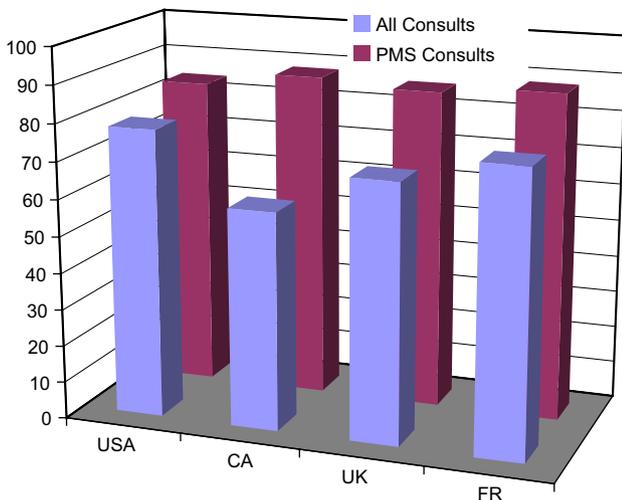
The treatment recommendations in guidelines developed by/for gynaecologists and primary care practitioners in North America recommend a wide range of treatments and are not solely ordered according to the 'level of evidence' (ACOG Practice Bulletin, 2000; Bhatia & Bhatia, 2002; Dickerson, Mazyck, & Hunter, 2003; Johnson, 2004; Women's Health in Primary Care, 2000). These guidelines weigh the overall and usually unquantifiable benefits of a healthy life style against the risks, side effects and costs of treatments that have been shown to be effective in clinical trials; one thus starts in principle at least with supportive therapy, complex carbohydrate diet, aerobic exercise, and nutritional supplements; if that fails treatment moves to selective serotonin re-uptake inhibitors (SSRIs), a specific type of anti-depressant, which is generally considered the first line medication. The predecessors of SSRIs, tricyclic anti-depressants were never a significant therapy for PMS. SSRIs in contrast have since 1990 been shown repeatedly to be more effective than placebos (Shah et al., 2008; Wyatt, Dimmock, & O'Brien, 2002). Recently, the extent of this effectiveness has been questioned (cf. Halbreich, 2008). If SSRIs do not produce a satisfactory response, one can turn to an anxiolytic and finally ovulation suppression. In addition, specific treatments can be recommended according to the most severe symptom of the individual patient – bromocriptine for breast swelling, analgesics for headache, SSRIs for depression. Prescription patterns in North America and the UK are generally congruent with these recommendations except in one respect: life-style changes are rarely recommended as the first line response. Perhaps they are recommended *in addition* to a pharmaceutical treatment, but once an official PMS/PMDD diagnosis is established, prescription medication is recommended in almost all consultations (see Fig. 2).

From 72 to 89% of consultations for PMS result in a prescription. This is considerably higher than all recorded consultations, which resulted in a prescription in 59–78% of cases. In all 4 countries, in every year, PMS consultations resulted in a higher rate of prescriptions than did total consultations. (Germany is excluded from this discussion because the data collectors only recorded the consultations that resulted in a prescription.) There are a number of possible explanations why PMS diagnoses result in high

Table 1  
Specialty of office-based physicians consulted for PMS 2006 (as percentage).

2006	Gyno-	Gen-Family	Psych-Neur	Other
USA	66	12	10	12
Canada	10	90	0	-
UK	-	100	-	-
France	53	45	2	-
Germany	85	13	<1	<2

<sup>2</sup> The country-specific 95% margins of error for the annual percentages of PMS consults are: 2004, 2005, 2006: France  $\pm 13\%$ ; Germany  $\pm 5\%$ ; UK  $\pm 2.5\%$ . USA: 2004  $\pm 18\%$ ; 2005  $\pm 19\%$ ; 2006  $\pm 20\%$ . Canada: 2004  $\pm 5\%$ ; 2005  $\pm 4\%$ ; 2006  $\pm 5\%$ . Personal communications, Peter Stephens, IMS Health Medical MIDAS and Christine Albino, IMS Health Canada.



**Fig. 2.** % Share of consultations in 2006 where a pharmaceutical treatment was recommended.

prescription rates. It is indeed possible that the small numbers of women consulting physicians are precisely those whose symptoms are most intense and who have obtained no relief from self-treatment and life-style modifications, and who have specifically come to a medical practitioner for prescription medication. Or the higher prescription rates may simply indicate that more patients in the general consulting population are sent for further diagnostic testing while patients who already have a diagnosis – be it PMS/PMDD or another condition – receive treatment. We do not of course know how many women fill the prescriptions issued to them, or actually take the prescribed medications.

The kind of medication that is prescribed tends to be highly variable from year to year in the countries under discussion, with the notable exception of the UK where the stability is very striking (possibly due to the large sample size). Here the proportion of therapies in any one of the three years in question is almost exactly the same as the cumulative figures given in Table 2 below. The variability elsewhere probably reflects the small number of PMS consultations (despite the large number of total consultations) as well as the great variety of ways in which PMS presents. In Canada there were less than 30 PMS consultations per year in the IMS sample during this three-year period. In the US they varied between 127 and 157 annually. We have thus combined the figures for the three years for which we have data for all five countries in order to analyze these patterns. Countries line up in two distinct categories with respect to prescription practices: 1. the USA, Canada and the UK, where anti-depressants, notably SSRIs, dominate in accordance with North American clinical practice guidelines (the UK has not produced formal guidelines on PMS); 2. France and Germany where there is little use of psychotropic drugs despite the great popularity of such medications for other conditions;

**Table 2**  
Therapies used in different countries 2004–2006 as % of total prescriptions for PMS.

	USA	CA	UK	FR	GER
Psychotropic	59	42	45	3	3
Hormones	16	29	21	44	41
Vitamins	7	5	9	5	11
Analgesics	13	15	9	35	9
Other	6	9	16	13	36
Total	100	100	100	100	100

(furthermore, German physicians who do prescribe psychotropic drugs prefer tranquilizers to anti-depressants – a practice that exists elsewhere only on a very small scale). Not surprisingly, the USA, where most PMS research takes place and where most guidelines are produced, shows the highest levels of psychotropic drug prescriptions.

Hormone therapy, especially progesterone and its synthetic derivatives, constituted the standard treatment for PMS during the 1980s and early 1990s. Repeated clinical trials have failed to demonstrate its efficacy (Ford, Lethaby, Mol, & Roberts, 2006; Wyatt, Dimmock, Jones, Obhrai, & O'Brien, 2001). On the other hand, new oral contraceptives containing drospirenone did well enough in clinical trials, especially for more severe forms of the condition, to be approved as a treatment for PMDD (Fenton, Wellington, Moen, & Robinson, 2007; Freeman, 2002) in spite of some more reserved evaluations (Lopez, Kaptein, & Helmerhorst, 2008). In conformity with these results, American hormonal prescriptions consist mainly of oral contraceptives. Canadian prescriptions of hormonal preparations in 2005 and 2006 (but not 2004) were similar to those in the USA, consisting almost entirely of oral contraceptives. (However numbers, it must be remembered, are very small.) British data once again remains very stable, with about half hormonal prescriptions each year consisting of progesterone treatment (not surprising considering the dominance of this treatment as late as the end of the 1990s) and the other half oral contraceptives. Moving to the European continent, we again enter a different universe with hormones increasing in importance to make up over 40% of all prescriptions. In France these are predominantly progestins in line with the general popularity of these substances for gynaecological problems (Löwy & Weisz, 2005). In Germany hormone prescription is a mixture of progestins/progesterone and oral contraception.

Use of analgesics is similar in the USA, Canada, UK and Germany. A gradual rise in their use in the USA over the past five years is due to increased prescription of serotonin receptor agonists, or triptans (Imitrex, Maxalt, Zomig) which are indicated against migraines. These drugs may seem particularly attractive because they can be linked to the theory that a serotonin imbalance is the underlying cause of PMDD (e.g. Loder, 2006), postulated, though never proven, in studies showing efficacy of SSRIs. One country however stands out in the use of analgesics. In France, gynaecologists have always insisted that PMS is primarily a somatic condition associated with symptoms like breast pain (Knaapen & Weisz, 2008; Löwy & Weisz, 2005); this traditional emphasis on somatic rather than mood symptoms undoubtedly explains the high levels of analgesic use.

Physicians in all five countries use vitamins (Vitamin B6 and multivitamins) and minerals (calcium, magnesium) to a limited degree. However they are used twice as often in Germany and the UK as in the other countries. Both UK and German practitioners prescribe Vitamin B6 (pyridoxine) and to a lesser extent calcium. Clinical trials have shown that both supplements can improve premenstrual symptoms (Thys-Jacobs et al., 1989; Wyatt, Dimmock, Jones, & O'Brien, 1999). But concern has been raised about the neurotoxic effects of high doses of pyridoxine, leading the UK government to propose to limit the sales of Vitamin B6 supplements in 1997, after which its use for PMS declined (Wyatt, Dimmock, Frischer, et al., 2002). The IMS data also suggests some decline in their use during the past three years. In the USA and France, the smaller numbers of prescriptions in this category refer mostly to multivitamin products, perhaps reflecting an effort to improve general health rather than a specific treatment for premenstrual symptoms.

Our final category – “other” – is by definition heterogeneous. Two strong tendencies stand out: the widespread use in Germany of what we would call alternative or complementary therapies

(CAM) notably use of *V. agnus-castus* and – on a much smaller scale – the distinctive utilization of diuretics and laxatives in the UK. In the former case, about one-third of all prescriptions for PMS can be categorized as CAM with over 80% of these *V. agnus-castus*, the extract of a fruit found in the area around the Mediterranean (Chasteberry). This practice is unique to German physicians and may be due to the fact that these products were reimbursable on prescription in that country. Elsewhere they were not reimbursable so that women likely bought them over-the-counter. German medical research has produced some justification for this practice. A randomized clinical trial conducted in Germany concluded: “Dry extract of agnus castus fruit is an effective and well tolerated treatment for the relief of symptoms of the premenstrual syndrome.” (Schellenberg, 2001). And some American research has found a possible mechanism for its effectiveness in its property as an “agonist at the mu-opiate receptor” (Webster, Lu, Chen, Farnsworth, & Wang, 2006). Physicians in the UK rarely prescribe any CAM, but constitute the only national group of practitioners to prescribe to a significant extent (about 10% of all prescriptions) a range of diuretic and laxative drugs. The French “other” category is somewhat smaller and can be divided into two major groups: anti-spasmodic and anticholinergic drug (Phloroglucinol) and a variety of CAM treatments (evening primrose oil, Gingko Biloba, *V. agnus-castus*, St-John’s Wort). These substances are rarely prescribed by physicians in the USA though women may well be obtaining them over-the-counter.

## Discussion

There are two major results of these findings that deserve emphasis. First, despite efforts to establish standardized diagnosis and treatment through the imposition of more rigorous PMDD criteria for clinical trials and the production of clinical practice guidelines, there remain significant national differences in medical practice in the realm of PMS/PMDD. This is not just a matter of failure to apply clear evidence. Rather, the evidence that is produced, as well as the methods to produce and evaluate it, can vary significantly from one context to the next. Contexts can include many things but in this case national traditions of research and practice, as well as the institutional framework in which they occur, seem more relevant than divisions along lines of specialty. Although diagnoses of PMS/PMDD are not numerous in any country, they are from three to five times more likely to be delivered in the USA than in France or Germany. While there may be “local biologies” (Lock, 1993) at work that affect the prevalence of the syndrome, it is even more likely that pain and discomfort can be framed in different ways depending on traditions and expectations and that the experience as well as treatment of PMS/PMDD is – at least partly – a culturally specific phenomenon (Johnson, 1987). There are large differences of practice with respect to the prescription of hormones and psychotropic drugs between the English and non-English-speaking countries in our sample. And there are also national practices like the use of Vitamin B6 and diuretics in the UK. Such variation is arguably especially characteristic of conditions like PMS which exhibit a wide range of symptoms and no obvious causal mechanism that can be targeted. But it is almost certainly not an isolated phenomenon as the growing literature on practice variation makes abundantly clear (Mullan, 2004; Weisz et al., 2008).

A second and more controversial issue raised by the data is the discrepancy between the consultation rates found through data collection based on actual clinical diagnosis and current reports of prevalence rates. Although using consultation rates as a unit of analysis is relatively uncommon in the PMS literature, other data based on clinical practice supports our conclusions. Wyatt,

Dimmock, Frischer, et al. (2002) found “the rate of diagnosis of premenstrual syndrome fell from 0.92% (of the total female population in the West Midlands GPRD) in 1993 to 0.42% in 1998. The rate of prescribing fell from 1.01% to 0.67%”. Data on the practices of French general practitioners produces figures that are very similar to our own – 0.016% of all consultations in 2004 and 2005 (Observatoire de la médecine générale, 2006). Nonetheless, PMS literature frequently repeats the estimated prevalence rate listed in the DSM-IV that 3–8% of women would fulfil PMDD diagnostic criteria (e.g. Pearlstein & Steiner, 2008). In the DSM-IV-TR this estimate has been narrowed to 3–5%, but neither manual provides documentation or citations to support this claim.<sup>3</sup> Many would argue that this is a minimum figure since *most* women report some premenstrual symptoms, and while many do not meet strict PMDD diagnostic criteria, they might nonetheless experience sufficient discomfort to justify therapeutic intervention (Halbreich, Borenstein, Pearlstein, & Kahn, 2003).

The first explanation of the discrepancy between the very low consultation rates and much higher estimates of prevalence rates is that the data analyzed in this paper is fundamentally different from and incomparable with that found in the literature. The study populations differ as prevalence rates usually measure symptoms within a population that is menstruating, while our data includes women of all ages. Considering that post-menstrual women do not by definition suffer from PMS and that they, like men their age, are likely to develop a growing spectrum of chronic conditions that increases their share of physician consultations, it is hardly surprising that PMS would loom less large in our sample. Furthermore, French data on general practice suggests that the proportion of *women* consulting doctors for PMS is about three times higher than their share of *consultations* (Observatoire de la médecine générale, 2006) meaning that they make fewer repeat visits on average than women with other conditions. This still results in a tiny proportion of women patients with a PMS diagnosis (from 0.15 to 0.07 between 2000 and 2006). But if this pattern holds true for the USA where the number of consultations is higher and also seemingly declining, then the proportion of women consulting doctors annually would have been in the neighbourhood of 0.3–0.4% of female patients in the 1990s. If most of these women were consulting for the first time, then over a 10 or 15 year period we would be approaching cumulative consultation rates of 3% for women of all ages. If we accept this very hypothetical scenario, the gap between the two types of data may thus not be quite as great as it appears at first glance.

The second point to consider is the extreme variation in the prevalence reports. Studies that attempt to measure prevalence of PMDD in the general population are often based on retrospective self-reports, which have long been known to overestimate premenstrual symptoms (e.g. Parlee, 1974); they report PMDD prevalence rates ranging from 0 to 32% (Angst, Sellaro, Merikangas, & Endicott, 2001; Campbell, Peterkin, O’Grady, & Sanson-Fisher, 1997; Deuster, Adera, & South-Paul, 1999; Gehlert, Song, Chang, & Hartlage, 2008; Ramcharan, Love, Fick, & Goldfien, 1992; Wittchen, Becker, Lieb, & Krause, 2002; Woods, Most, & Dery, 1982). The few studies that have used prospective reports suggest that between 2 and 14% of women meet diagnostic criteria for PMDD. However all

<sup>3</sup> The special Work Group formed by the APA to study whether PMDD should be included in the DSM-IV as a psychiatric entity concluded that “we do not know how many women meet the diagnostic criteria” for PMDD (Gold & Severino, 1994, p. 43). This followed from a study done by Hurt et al. (1992), who concluded that their 14–45% “frequency estimates should not be used as prevalence estimates” (p. 529). Figert (1996, p. 153) suggests the DSM-IV prevalence estimate is based on Rivera-Tovar and Frank’s (1990) study that found a prevalence rate of 4.6% in a sample of 217 college undergraduates.

suffer from weaknesses in sampling techniques. Rivera-Tovar and Frank (1990) surveyed 217 college undergraduates who were blind to the purpose of the study and prospectively rated symptoms for 90 days. Although 10 students (4.6%) met diagnostic criteria used, only 1 of them suffered *moderate to severe* symptoms, the other 9 reporting cyclic changes in mild symptoms. The population of another study (Hurt et al., 1992) is based on women attending PMS clinics. A third (Sternfeld, Swindle, Chawla, Long, & Kennedy, 2002) deliberately oversamples “those with minimal symptoms and those with probable PMDD”. In yet another study (Cohen et al., 2002), only 12.3% of the initial sample completed the prospective reports. Sveindottir and Backstrom (2000) report a prevalence of improved premenstrual wellbeing similar to the prevalence of decreased wellbeing (which they call unexpected and expected cyclicality). Certain prevalence studies may thus overestimate the proportion of women with ‘undiagnosed’ PMDD in the general population due to such methodological choices that reflect the tendency of researchers to emphasize the gravity of the conditions which they study.

Some researchers in the field argue that there does in fact exist a serious discrepancy between prevalence and practice, insisting that the condition is seriously undertreated and requires increased awareness and treatment (Steiner, Macdougall, & Brown, 2003). One such study even accompanies this argument with the suggestion that PMS/PMDD ranks as a major “global burden of disease” (Halbreich et al., 2003). Researchers in Japan conclude that: “The rates of prevalence of moderate to severe PMS and PMDD in Japanese women were 5.3 and 1.2%, respectively, which are lower than those in Western women” suggesting that race and ethnicity influence the expression of premenstrual symptoms; but they also add that since “Only 5.3% of women with moderate to severe PMS and PMDD were treated, the current state of medical care for Japanese women with moderate to severe PMS and PMDD is not satisfactory” (Takeda, Tasaka, Sakata, & Murata, 2006). Despite hopes that increasingly effective medications like SSRIs will remedy this situation (Halbreich et al., 2003), the proportion of women consulting doctors for PMS seems if anything to be decreasing rather than increasing.

It is also important to note that the gap between symptoms reported in “community surveys” and the much lower numbers of people consulting doctors extend far beyond PMS. In his classic sociological studies, Zola (1966, 1973) found that the presence of (physical) symptoms alone is not a sufficient reason to seek medical aid. Physical symptoms are present for a great portion of the population, yet seeking medical help only occurs when other factors are also present; these include “interpersonal crisis”; “the perceived interference with social or personal relations” or work; and sanctioning by others to seek help (Zola, 1973). We thus cannot conclude that all those reporting symptoms in surveys want or need medical treatment. There are other possible explanations for this phenomenon as well. Unpublished French data sent to us by the information department of the Société Française de Médecine Générale, while not necessarily representative of North American practice patterns, are extremely suggestive. Of 2400 consultations from 1993 to 2006 with a small sample of French GPs in which PMS was diagnosed, PMS alone was diagnosed in about 14% of cases. In 31% there was a second diagnosis and in 55% two or more other diagnoses. This suggests one of two possibilities: PMS was found as a by-product of consultations for other complaints and/or women visited physicians when complaints began to accumulate.

There is also the question of efficacy. Treatment with SSRIs, while more effective than placebo in reducing daily symptoms rating, does not work for large numbers of women (see especially Halbreich, 2008). This last statement may in fact be an understatement given what we are learning about the possible effects of

publication bias on evaluations of the effectiveness of SSRIs in depression (Kirsch et al., 2008; Turner, Matthews, Linardatos, Tell, & Rosenthal, 2008). There may also be side effects or other considerations not measured in randomized clinical trials. Finally there may be a disconnect between the psychotropic orientation of current treatment recommendations and the fact that many women suffer predominantly somatic symptoms like pain that can be treated with over-the-counter medications (especially analgesics), CAM and/or behavioural changes (Singh, Berman, Simpson, & Annechild, 1998; Sternfeld et al., 2002). It would therefore not be too surprising if abandonment of medical treatment accounts to some extent for the low number of consultations (as suggested by Hylan, Sundell, & Judge, 1999). This possibility is supported by the data mentioned above to the effect that French women make relatively few repeat visits to general practitioners for this condition.

In contrast to concerns about under treatment expressed by some PMS/PMDD researchers (mostly psychiatrists), other researchers (mostly psychologists and social scientists) see the essential problem of PMS as that of a research establishment that is seeking to medicalize a relatively natural process and to treat it pharmacologically on a large-scale. They admit that many women suffer significant premenstrual disruption and discomfort, without believing that “we can safely hand [this problem] over to doctors to deal with” (Laws, 1983, p. 30). It is perhaps too simplistic to reduce this debate to a purely political one of “feminists against scientists”, as it involves scientific researchers and feminists on both sides that dispute facts and evaluate evidence on scientific grounds (Figert, 1996). But the disagreements do have much to do with presuppositions and beliefs about appropriate responses to – and definitions of – discomfort and suffering, as well as about the role and power of the medical profession and pharmaceutical industry. In this paper we cannot nor do we wish to enter into this debate. However, the data we have presented taken together with the existing medical literature suggests that many women feel that they do indeed suffer from premenstrual symptoms but relatively few take the time to see doctors or get prescription medications. This is not all that surprising; their condition lasts for only a few days each month, they are rarely totally incapacitated, and have access to a variety of over-the-counter options for relief.

It is hard to say whether the case of PMS represents yet another of the cases of “demedicalization” that social scientists are increasingly discovering (e.g. Adler & Adler, 2007; Wikler & Wikler, 1991; Williams & Calnan, 1996). Despite all the publicity surrounding PMS/PMDD during the 1980s and 1990s, we lack accurate prescription or consultation rates that would tell us how medicalized PMS/PMDD really was in first place. (This applies to many conditions which have purportedly been demedicalized in recent years.) We do know that there has been no significant drop in the number of biomedical publications on this subject recently. (From 2004 to 2006, the number of Pub Med hits for “premenstrual syndrome”, “premenstrual dysphoric disorder” and “premenstrual tension” was only slightly lower than during the two previous three-year periods). It is probably more plausible to suggest that despite all the research treating it as a medical and psychiatric condition, the conflicting views surrounding it, in conjunction with its protean character and available therapeutic alternatives, not to mention the limited effectiveness of existing drug treatments, have inhibited its widespread acceptance as a medical condition requiring the intervention of physicians. One can plausibly argue that the simple fact that PMDD is in the DSM while researchers produce data, suggest treatments and make claims about unmet medical need has significant cultural implications for women in western nations. Nonetheless, despite the ubiquity of PMS as a cultural reference and subject of humour, and despite the fears of

excessive medicalization it has provoked in some circles, it now seems clear that it has not lead to large-scale medical intervention. Some will celebrate this as successful resistance to medicalization, while others will consider it a problem to be remedied through more and better research, treatment and publicity. As is always the case, empirical data can be framed and interpreted in multiple ways.

## References

- ACOG Practice Bulletin. (2000). *Clinical management guidelines for obstetrician-gynecologists*. No. 15 Premenstrual Syndrome. Washington, D.C., USA: American College of Obstetrics and Gynecology.
- Adler, P. A., & Adler, P. (2007). The demedicalization of self-injury: from psychopathology to sociological deviance. *Journal of Contemporary Ethnography*, 36(5), 537–570.
- Angst, J., Sellaro, R., Merikangas, K. R., & Endicott, J. (2001). The epidemiology of perimenstrual psychological symptoms. *Acta Psychiatrica Scandinavica*, 104(2), 110–116.
- Bhatia, S. C., & Bhatia, S. K. (2002). Diagnosis and treatment of premenstrual dysphoric disorder. *American Family Physician*, 66, 1239–1248.
- Campbell, E. M., Peterkin, D., O'Grady, K., & Sanson-Fisher, R. (1997). Premenstrual symptoms in general practice patient: prevalence and treatment. *The Journal of Reproductive Medicine*, 42(10), 637–646.
- Caplan, P. J., McCurdy-Myers, J., & Gans, M. (1992). Should "premenstrual syndrome" be called a psychiatric abnormality? *Feminism & Psychology*, 2, 27–44.
- Chakmakjian, Z. H. (1983). A critical assessment of therapy for the pre-menstrual tension syndrome. *The Journal of Reproductive Medicine*, 28, 532–538.
- Choi, P. Y. L. (1995). Premenstrual syndrome? Introduction. *Social Science & Medicine*, 41(6), 759–760.
- Cohen, L., Soares, C., Otto, M., Sweeney, B., Liberman, R., & Harlow, B. (2002). Prevalence and predictors of premenstrual dysphoric disorder (PMDD) in older premenopausal women. The Harvard Study of Moods and Cycles. *Journal of Affective Disorders*, 70(2), 125–132.
- Dalton, K. (1964). *The premenstrual syndrome*. Springfield, IL: C.C. Thomas.
- Dalton, K. (1977). *The premenstrual syndrome and progesterone therapy*. London: William Heinemann Medical Books.
- Dalton, K. (1980). Cyclical criminal acts in premenstrual syndrome. *The Lancet*, 2(8203), 1070–1071.
- Deuster, P. A., Adera, T., & South-Paul, J. (1999). Biological, social, and behavioral factors associated with premenstrual syndrome. *Archives of Family Medicine*, 8(2), 122–128.
- Dickerson, L. M., Mazzyk, P. J., & Hunter, M. H. (2003). Premenstrual syndrome. *American Family Physician*, 67, 1743–1752.
- Fenton, C., Wellington, K., Moen, M. D., & Robinson, D. M. (2007). Drospirenone/ethinylestradiol 3 mg/20 µg (24/4 day regimen): a review of its use in contraception, premenstrual dysphoric disorder and moderate acne vulgaris. *Drugs*, 67(12), 1749–1765.
- Figert, A. E. (1996). *Women and the ownership of PMS: The structuring of a psychiatric disorder*. Hawthorne, NY, USA: Aldine de Gruyter.
- Ford, O., Lethaby, A., Mol, B., & Roberts, H. (2006). Progesterone for premenstrual syndrome. *Cochrane Database of Systematic Reviews*, 4, CD003415, Retrieved May 1 2008.
- Frank, R. T. (1931). The hormonal basis of premenstrual tension. *Archives of Neurological Psychiatry*, 26, 1053–1057.
- Freeman, E. W. (2002). Evaluation of a unique oral contraceptive (Yasmin) in the management of premenstrual dysphoric disorder. *The European Journal of Contraception & Reproductive Health Care*, 7(Suppl. 3), 27–34, discussion 42–23.
- Gehlert, S., Song, I. H., Chang, C. H., & Hartlage, S. A. (2008). The prevalence of premenstrual dysphoric disorder in a randomly selected group of urban and rural women. *Psychological Medicine* 1–8.
- Gold, J. H., & Severino, S. K. (1994). *Premenstrual dysphorias. Myths and realities*. Washington, D.C., USA: American Psychiatric Press Inc.
- Halbreich, U. (2008). Selective serotonin reuptake inhibitors and initial oral contraceptives for the treatment of PMDD: effective but not enough. *CNS Spectrums*, 13, 566–572.
- Halbreich, U., Borenstein, J., Pearlstein, T., & Kahn, L. S. (2003). The prevalence, impairment, impact, and burden of premenstrual dysphoric disorder (PMS/PMDD). *Psychoneuroendocrinology*, 28(Suppl. 3), 1–23.
- Horney, K. (1931). Die prämenstruellen Verstimmungen. *Zeitschrift für Psychoanalytische Pädagogik*, 5, 1–7.
- Hurt, S. W., Schnurr, P. P., Severino, S. K., Freeman, E. W., Gise, L., Rivera-Tovar, A., et al. (1992). Late luteal phase dysphoric disorder in 670 women evaluated for premenstrual complaints. *American Journal of Psychiatry*, 149(4), 525–530.
- Hylan, T., Sundell, K., & Judge, R. (1999). The impact of premenstrual symptomatology on functioning and treatment-seeking behavior: experience from the United States, United Kingdom, and France. *Journal of Women's Health & Gender-Based Medicine*, 8, 1043–1052.
- Johnson, S. R. (2004). Premenstrual syndrome, premenstrual dysphoric disorder, and beyond: a clinical primer for practitioners. *Obstetrics and Gynecology*, 104, 845–859.
- Johnson, T. M. (1987). Premenstrual syndrome as a western culture-specific disorder. *Culture, Medicine & Psychiatry*, 11, 337–356.
- Kirsch, I., Deacon, B. J., Huedo-Medina, T. B., Scoboria, A., Moore, T. J., & Johnson, B. T. (2008). Initial severity and antidepressant benefits: a meta-analysis of data submitted to the Food and Drug Administration. *PLoS Medicine*. Retrieved on 2008-02-26.
- Knaapen, L., & Weisz, G. (2008). The biomedical standardization of premenstrual syndrome. *Studies in History and Philosophy of Biological and Biomedical Sciences*, 39, 120–134.
- Laws, S. (1983). The sexual politics of premenstrual tension. *Women's Studies International Forum*, 6, 19–31.
- Lock, M. M. (1993). *Encounters with aging: Mythologies of menopause in Japan and North America*. Berkeley: University of California Press.
- Loder, E. W. (2006). Menstrual migraine: pathophysiology, diagnosis, and impact. *Headache*, 46(Suppl. 2), S55–S60.
- Lopez, L. M., Kaptein, A., & Helmerhorst, F. M. (2008). Oral contraceptives containing drospirenone for premenstrual syndrome. *Cochrane Database of Systematic Reviews*(1), CD006586.
- Löwy, I., & Weisz, G. (2005). French hormones: progestins and therapeutic variation in France. *Social Science & Medicine*, 60(11), 2609–2622.
- Martin, E. (1987). *The woman in the body: A cultural analysis of reproduction*. Boston: Beacon.
- Mullan, F. (2004). Wrestling with variation: an interview with Jack Wennberg. *Health Affairs*. Web exclusive. <http://content.healthaffairs.org/webexclusives/index.dtl?year=2004>. Accessed 06.09.07.
- Nicolson, P. (1995). The menstrual cycle, science and femininity: assumptions underlying menstrual cycle research. *Social Science & Medicine*, 41(6), 779–784.
- Observatoire de la médecine générale. (2006). *Observatoire de la médecine générale 2006–4*. Société Française de Médecine Générale. <http://omg.sfmng.org> Consulted June 13 2008.
- Parlee, M. B. (1974). Stereotypic beliefs about menstruation: a methodological note on the Moos Menstrual Distress Questionnaire and some new data. *Psychosomatic Medicine*, 36(3), 229–240.
- Pearlstein, T., & Steiner, M. (2008). Premenstrual dysphoric disorder: burden of illness and treatment update. *Journal of Psychiatry and Neuroscience*, 33(4), 291–301.
- Ramcharan, S., Love, E. J., Fick, G. H., & Goldfien, A. (1992). The epidemiology of premenstrual symptoms in a population-based sample of 2650 urban women: attributable risk and risk factors. *Journal of Clinical Epidemiology*, 45(4), 377–392.
- Richardson, J. T. E. (1995). The premenstrual syndrome: a brief history. *Social Science & Medicine*, 41(6), 761–767.
- Riessman, C. (1983). Women and medicalisation: a new perspective. *Social Policy*, 14(1), 3–18.
- Rittenhouse, C. A. (1991). The emergence of premenstrual-syndrome as a social-problem. *Social Problems*, 38(3), 412–425.
- Rivera-Tovar, A. D., & Frank, E. (1990). Late luteal phase dysphoric disorder in young women. *American Journal of Psychiatry*, 147(12), 1634–1636.
- Rodin, M. (1992). The social construction of premenstrual syndrome. *Social Science & Medicine*, 35, 49–56.
- Ruble, D. N., & Brooks-Gunn, J. (1979). Menstrual symptoms: a social cognition analysis. *Journal of Behavioral Medicine*, 2, 171–194.
- Schellenberg, R. (2001). Treatment for the premenstrual syndrome with agnus castus fruit extract: prospective, randomised, placebo controlled study. *BMJ*, 322(7279), 134–137.
- Shah, N. R., Jones, J. B., Aperi, J., Shemtov, R., Karne, A., & Borenstein, J. (2008). Selective serotonin reuptake inhibitors for premenstrual syndrome and premenstrual dysphoric disorder: a meta-analysis. *Obstetrics and Gynecology*, 111(5), 1175–1182.
- Singh, B., Berman, B., Simpson, R., & Annechild, A. (1998). Incidence of premenstrual syndrome and remedy usage: a national probability sample study. *Alternative Therapies in Health and Medicine*, 4(3), 75–79.
- Steiner, M., Macdougall, M., & Brown, E. (2003). The premenstrual symptoms screening tool (PSS) for clinicians. *Archives of Women's Mental Health*, 6(3), 203–209.
- Sternfeld, B., Swindle, R., Chawla, A., Long, S., & Kennedy, S. (2002). Severity of premenstrual symptoms in a health maintenance organization population. *Obstetrics and Gynecology*, 99(6), 1014–1024.
- Stolberg, M. (2000). The monthly malady: a history of premenstrual suffering. *Medical History*, 44, 301–322.
- Sveindottir, H., & Backstrom, T. (2000). Prevalence of menstrual cycle symptom cyclicality and premenstrual dysphoric disorder in a random sample of women using and not using oral contraceptives. *Acta Obstetrica et Gynecologica Scandinavica*, 79(5), 405–413.
- Takeda, T., Tasaka, K., Sakata, M., & Murata, Y. (2006). Prevalence of premenstrual syndrome and premenstrual dysphoric disorder in Japanese women. *Archives of Women's Mental Health*, 9(4), 209–212.
- Taylor, D. (2006). From "It's All in Your Head" to "Taking Back the Month": premenstrual syndrome (PMS) research and the contributions of the Society for Menstrual Cycle Research. *Sex Roles*, 54(5–6), 377–391.
- Thys-Jacobs, S., Ceccarelli, S., Bierman, A., Weisman, H., Cohen, M. A., & Alvir, J. (1989). Calcium supplementation in premenstrual syndrome: a randomized crossover trial. *Journal of General Internal Medicine*, 4(3), 183–189.
- Turner, E. H., Matthews, A. M., Linardatos, E., Tell, R. A., & Rosenthal, R. (2008). Selective publication of antidepressant trials and its influence on apparent efficacy. *The New England Journal of Medicine*, 358(3), 252–260.
- Ussher, J. M. (2003). The role of premenstrual dysphoric disorder in the subjugation of women. *Journal of Medical Humanities*, 24, 131–146.

- Walker, A. (1995). Theory and methodology in premenstrual syndrome research. *Social Science & Medicine*, 41(6), 793–800.
- Webster, D. E., Lu, J., Chen, S. N., Farnsworth, N. R., & Wang, Z. J. (2006). Activation of the mu-opiate receptor by *Vitex agnus-castus* methanol extracts: implication for its use in PMS. *Ethnopharmacol*, 106(2), 216–221.
- Weisz, G. (2006). *Divide and conquer: A comparative history of medical specialization*. New York/Oxford: Oxford University Press.
- Weisz, G., Cambrosio, A., Keating, P., Knaapen, L., Schlich, T., & Tournay, V. J. (2008). The emergence of clinical practice guidelines. *The Milbank Quarterly*, 85(4), 691–727.
- Wikler, D., & Wikler, N. J. (1991). Turkey-baster babies: the demedicalization of artificial insemination. *The Milbank Quarterly*, 69(1), 5–40.
- Williams, S. J., & Calnan, M. (1996). The 'limits' of medicalization? Modern medicine and the lay populace in 'late' modernity. *Social Science & Medicine*, 42, 1609–1620.
- Wittchen, H. U., Becker, E., Lieb, R., & Krause, P. (2002). Prevalence, incidence and stability of premenstrual dysphoric disorder in the community. *Psychological Medicine*, 32(1), 119–132.
- Women's Health in Primary Care. (2000). Evidence-based recommendations for managing the premenstrual syndrome. Retrieved on 14 July 2005 from. <http://www.womenshealthpc.com/tmissue.html>.
- Wong, I., & Murray, M. (2005). The potential of UK clinical databases in enhancing paediatric medication research. *British Journal of Clinical Pharmacology*, 59(6), 750–755.
- Woods, N. F., Most, A., & Dery, G. K. (1982). Prevalence of perimenstrual symptoms. *American Journal of Public Health*, 72(11), 1257–1264.
- Wyatt, K. M., Dimmock, P., Jones, P., Obhrai, M., & O'Brien, S. (2001). Efficacy of progesterone and progestogens in management of premenstrual syndrome: systematic review. *BMJ*, 323(7316), 776–780.
- Wyatt, K. M., Dimmock, P. W., Frischer, M., Jones, P. W., & O'Brien, S. P. (2002). Prescribing patterns in premenstrual syndrome. *BMC Womens Health*, 2(1), 4.
- Wyatt, K. M., Dimmock, P. W., Jones, P. W., & O'Brien, P. M. (1999). Efficacy of vitamin B-6 in the treatment of premenstrual syndrome: systematic review. *BMJ*, 318(7195), 1375–1381.
- Wyatt, K. M., Dimmock, P. W., & O'Brien, P. M. (2002). Selective serotonin reuptake inhibitors for premenstrual syndrome. *Cochrane Database of Systematic Reviews*(4), CD001396.
- Zola, I. K. (1966). Culture and symptoms: an analysis of patients' presenting complaints. *American Sociological Review*, 31, 615–630.
- Zola, I. K. (1973). Pathways to the doctor: from person to patient. *Social Science & Medicine*, 7, 677–689.