Premenstrual Syndrome

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The Medical Perspective

The idea that hormones control a woman's emotional state has been entrenched in populist thinking. For centuries, physicians tried in vain to link the cyclical hormonal pattern of estrogen and progesterone to premenstrual syndrome (PMS). After all, it seemed so logical. Despite these efforts, medical science was never able to make the connection work. Attempts to treat PMS with hormonal treatments continuously failed. Hysterectomy and oopherectomy rarely afforded significant relief.

The breakthrough came with the discovery of serotonin, a ubiquitous neurotransmitter, now well established to underlie moodiness, anxiety, irritability, and hostility – symptoms commonly seen in PMS. Consequently, on July 6, 2000, fluoxetine became the first food and drug administration (FDA) recognized and approved treatment for the severe form of PMS, known as *premenstrual dysphoric disorder* (PMDD).[a]

So, the answer was not hormones – it was serotonin. Despite an understanding of the chemical etiology, PMS itself is a remarkably common experience and cannot itself be considered abnormal or pathological. Most women who experience PMS have mild or moderate symptoms that are temporary, including physical symptoms such as fatigue and breast tenderness and emotional symptoms such as irritability or sadness. Most women are not socially or occupationally impaired by them. However, a small subset of women experience significant impairment and disability in the premenstrual phase. Psychiatry has chosen to define the women suffering from this severe form of PMS as having PMDD. In 2013, the American Psychiatric Association released the Diagnostic and Statistical Manual-5 [1]. This reclassified PMDD from an area of interest and research to the depressive disorder category. ICD-10 became effective in the United States on 1 October 2015, similarly codifies PMS/PMDD as premenstrual tension (PMT) syndrome.[b]

Recently, researchers have utilized neuroimaging to study PMDD, [2–4] lending further credence to its being a syndrome. Studies have included the use of functional MRIs and PET scans. A correlation between abnormalities in working memory in the dorsolateral prefrontal cortex and the symptoms and severity of PMDD has been found [2]. It has been suggested that dysfunction in that area of the brain may underlie risk of PMDD [2] and that midline cerebellar nuclei may also be affected in PMDD [3]. Further, research indicates that women who experience PMDD may be at elevated risk of experiencing postpartum depression [5].

Legal Usage

In cases where PMS has been raised as a defense, the woman has claimed that the condition impeded her ability to know and/or appreciate the consequences of her conduct. While rarely used as a defense, perhaps the earliest insanity acquittal in American law is in fact such a case. In the 1867, trial of Mary Harris [6, 7], a young Irish woman killed her lover Adinoram J. Burroughs in the US Treasury Building in 1864, where he was employed. They met when she was 9 years old and he took a liking to her. Like Professor Henry Higgins in Pygmalion, he groomed the young girl to his liking. He moved to Chicago, and for the next 7 years they exchanged love letters. She finally moved from Iowa to Chicago to be with Burroughs. By this time, he was courting another woman. He moved to Washington, DC, for his job with the Treasury and Harris followed him, and shot him in his office. At the trial, Harris employed medical experts to testify that she was "morally insane" at the time of the

homicide due to acute dysmenorrhea, causing mental derangement and hysteria [8]. Her lawyers argued that she killed Burroughs while in a fit resulting from her "feminine problems." Prosecution experts agreed [7]. The jury returned a verdict of not guilty by reason of insanity after deliberating for only 5 min. This is the first US case of a defendant being found not guilty by reason of insanity secondary to PMS.

In the 1980s, two British cases raised PMS as the basis for a diminished capacity defense reducing the quantum of guilt assessed against the accused.[c] First, in November 1981; Sandie Smith was put on 3 years' probation after conviction of threatening to kill a police officer and for carrying a knife. She suffered from PMS and had committed almost 30 crimes, including arson, assault, and manslaughter, during the premenstrual period. Smith responded to progesterone therapy, advocated by English gynecologist Dr Katharine Dalton, to curb PMS. Dalton was a pioneer researcher who used her patients as a source of information for formulating what she and Dr Peter Green, a fellow researcher, named "premenstrual syndrome" in 1953.

Then, that same month Christine English pleaded guilty to manslaughter by reason of diminished responsibility. She drove her car into her lover after an argument that occurred while she was suffering from severe PMS [9]. She was conditionally discharged for 12 months.

One court martial case and an unreported US decision admitted PMS evidence as grounds for a defense. In *United States v. Morton*, the accused was charged with assault with a dangerous weapon, communicating a threat, and unlawfully carrying a concealed weapon. She pled not guilty by reason of insanity due to PMS. Morton had to establish by clear and convincing evidence that her PMS was so severe that she was unable to know and appreciate the consequences of her conduct.[d] The court held that she failed to establish insanity. It is unlikely that any US jurisdiction would allow PMS as an insanity defense.

In *People v. Santos*,[e] the defendant testified in a preliminary hearing that she beat her child while in a "blackout" induced by PMS [10]. She was able to get a favorable plea bargain based on diminished capacity. Diminished capacity is an excuse defense that shifts the burden to the prosecution to disprove the excuse beyond a reasonable doubt once evidence of the excuse is admitted.[f] American states that recognize a diminished capacity defense might permit evidence of PMS to be admitted to show diminished capacity [11]. However, several states have abolished the diminished capacity defense.[g] Some states permit diminished capacity defense murder prosecutions [12], following *United States v. Brawner*.[h] Other states permit a diminished capacity defense when the accused is charged with any crime of specific intent [13]. Federal practice under the 1983 Insanity Defense Reform Act [14] permits expert evidence on diminished capacity. Alaska allows expert testimony on diminished capacity that would permit PMS evidence during the guilt phase of trial.[i]

Diminished capacity must be established by expert opinion evidence that shows that the defendant both suffers from PMS and committed the crime charged while under the influence of PMS. Half the states[j] and the Federal courts follow *Daubert v. Merrell Dow Pharmaceuticals Inc*.[k] and exclude expert opinion evidence if the expert's underlying scientific principles fail to meet a four-part test [15]:

1. Has the theory been tested by other researchers?
2. Has the theory been published?
3. What is the error rate?
4. Is the process generally accepted?

An expert in a *Daubert* jurisdiction must therefore testify that PMDD is a mental illness as diagnosed using Diagnostic and Statistical Manual of mental disorders, fifth edition, explaining the DSM5 criteria for PMDD (see Box). The expert must state that the diagnosis and criteria for PMDD have been published and subject to peer review. She/he must assert the error rate for making the diagnosis of PMDD. Finally, the expert should state that the criteria for diagnosing PMDD and diminished responsibility are generally accepted (*see* **Expert Witness Evidence in the UK, Australia, and Canada**).

Some states follow the *Frye* rule (*see* **Frye v. United States**) that requires the underlying scientific principles be "generally accepted" before an expert gives an opinion based on those principles [16]. Others have adopted a modified *Frye* rule with modifications using some or all of the *Daubert* factors [17]. In the *Frye* states and mixed states, the expert must testify that psychotherapists generally accept that PMS could cause the sufferer to be unaware of the consequences of her action or to distinguish right from wrong.

Expert opinion evidence on PMS should be freely allowed during the sentencing phase of any trial. According to Section 5K2 of the Federal Sentencing Guidelines, the court may make a downward departure from the statutory maximum sentence for a convicted defendant on the ground of diminished capacity.[l]

Concerns About the Use of PMS in the Courtroom

The forensic use of PMS has generated global controversy. Some of the principal arguments are as follows.

PMS is Yet Another Sexist "Woman as Mad" Explanation for Female Criminality

Historically, deviant women have often been characterized as either "bad" or "mad" as their antisocial behavior conflicted with certain socially defined and desirable female personality traits and roles. Medical theory, from at least the mid-1800s, espoused that women's reproductive organs controlled their minds, bodies, and personalities. Such biological determinism was strongly endorsed and promulgated by psychiatry: in Freud's model of psychoanalysis, sexual temperament was conceived as a function of biology [18].

Accordingly, the nineteenth-century doctors and lawyers agreed that menstruation and uterine malfunction could lead a woman to insanity or criminality. As an example, in the 1867 case *United States v. Harris*, attorneys called a psychiatrist and six other physicians who testified that the defendant was "morally insane" at the time of the homicide due to painful dysmenorrhea that led to mental derangement and hysteria. After a brief deliberation, the jury returned a verdict of not guilty by reason of insanity.[m] English courts also recognized some form of mental derangement related to the menstrual cycle as an excuse for criminality before *Harris* [19, 20]. One woman was acquitted of shoplifting in 1845, while two others were acquitted of murder in 1851. All three were found to have acted with temporary insanity due to "suppression of menstruation" [21]. One of these women had murdered her lover who had rejected her. A doctor testified that her wild eyes indicated problems with her uterus [22].

The specifics of the sociomedical theoretical explanations for female deviance shifted with time as the understanding of the female reproductive system evolved from the uterus to ovaries and then to hormones in the 1920s. With the UK cases of Smith and English discussed above, the focus in the early 1980s became PMS and its relationship to female criminality. In part, this undoubtedly reflected the growing interest in studying the female offender and etiology, as statistics during the 1970s were reflecting an increasing number of crimes committed by women or, at the least, a higher number of arrests or prosecutions [23].

To some of its detractors, PMS is therefore the latest in a long line of anatomical deterministic theories of female criminality that have prevailed as a substitute for looking at how entrenched gender inequality might contribute to crime. Instead, women's deviance has been linked with the anatomical parts that differentiate them from males and which allow them to fulfill their primary gender role of reproduction.

Its Usage in Court Could Stigmatize Women as a Whole and/or affect their Equal Participation in the Public Sphere

There is concern that if PMS is raised as exculpatory grounds, people might generalize from the few and negatively stereotype all women or at the

least those who experience any premenstrual symptoms [24]. Sensationalist captions such as "raging hormones," "premenstrual frenzy," and "Dr Jekyll and Ms Hyde" that appeared in British newspapers during the *English* and *Smith* cases can fuel imagery of women as periodically unstable and therefore unsuitable for some employment positions and/or responsibilities.

As with all medical disorders, a whole class of people with similar maladies could be stigmatized. As discussed earlier, the syndrome is fairly common, although only a minute percent manifest the symptoms that can substantially impact on their actions.

Its Use Relies Upon Acceptance of the Legitimacy of PMS and PMDD and Advocates/Specialists

All medical practitioners do not share in Dalton's belief in temporary psychosis as a symptom of the most severe PMS cases [25, 26]. The medical literature is confusing in its diversity of opinion concerning the possible connection of PMS to criminal behavior with no universally accepted medical consensus about the correlation of the severe variant with antisocial behavior.

In some countries such as Australia where PMS is not raised except very infrequently in sentencing mitigation,[n] it continues to be referred to as PMT and lacks acknowledgment as a legitimate medical condition. This is illustrated in a popular news feature story on PMS:

> Despite the popular belief that "it is all in the hormones", there is no convincing evidence that women with severe PMS have different hormonal fluctuations than other women ... cause of PMS are still unknown ... [27].

A number of female medical practitioners are quoted in the article articulating the view that women who think they have PMS may actually have clinical depression.

Yet to use it successfully, a forensic expert is required. With insanity, the defense must show that PMS is a disease of the mind and that the sufferer did not know the nature or quality of the act or that it was wrong (McNaughton Rule). Doing so with PMS can be highly problematic.

To raise automatism (a state in which the mind or the will does not accompany physical acts) by arguing that certain women with PMS who go hours without eating produce an excess amount of adrenalin that causes a hypoglycemic state of impaired consciousness requires an expert like Dalton to testify that hypoglycemia can be a symptom of PMS and that the defendant possessed that abnormality.

The defense of diminished responsibility or capacity must show that PMS prevented the accused from having the specific intent (*mens rea*) with hazy thinking, and impairment of self-control, judgment, and willpower. Again, proof is problematic. Plus, there are several legal issues as the defense has to show that PMS is an abnormality of the mind (which is difficult as the symptoms of PMS are not even universally accepted), that it arose from an inherent cause, and that it substantially impaired the defendant's mental responsibility [28]. With potentially lengthy sentences, the convicted has the added stigma of mental illness [29].

It Could be Misused and or Abused by Defendants

There is concern that PMS might be used as grounds for a defense by *nonbona fide* sufferers – either charlatans and/or women who experience some of the more mild PMS symptoms.

However, the diagnosis of PMDD can be substantiated by a heavy burden of proof, with medical evidence showing a clinically demonstrable physical disorder. A causal connection must be shown between the premenstrual symptom(s) and the criminal act. Additional evidence could include personal diaries, medical records, prior arrest record that could illustrate deviant activity correlation with the individual's premenstrual time of her cycle, and evidence by family and friends of marked premenstrual behavioral changes.

PMDD
DSM-V: 625.4
APA Diagnostic Criteria [1]

A. In the majority of menstrual cycles, at least five symptoms must be present in the final week before onset of menses, start to improve within a few days after the inset of menses, and become minimal or absent in the week postmenses.
B. One (or more) of the following symptoms must be present:
   1. Marked affective lability (e.g., mood swings; feeling suddenly sad or tearful, or increased sensitivity to rejection).
   2. Marked irritability or anger or increased interpersonal conflicts.
   3. Marked depressed moods, feelings of hopelessness, or self-deprecating thoughts.
   4. Marked anxiety, tension, and/or feelings of being keyed up or on edge.
C. One (or more) of the following symptoms must additionally be present, to reach a total of five symptoms when combined with symptoms from Criterion B.
   1. Decreased interest in usual activities (e.g., work, school, friends, and hobbies).
   2. Subjective difficulty in concentration.
   3. Lethargy, easy fatigability, or marked lack of energy.
   4. Marked changes in appetite; overeating; or specific food cravings.
   5. Hypersomnia or insomnia.
   6. A sense of being overwhelmed or out of control.
   7. Physical symptoms such as breast tenderness or swelling, joint or muscle pain, a sensation of "bloating," or weight gain.

Note: The symptoms in Criteria A–C must have been met for most menstrual cycles that occurred in the preceding year.

D. The symptoms are associated with clinically significant distress or interference with work, school, usual activities, or relationships with others (e.g., avoidance of social activities and decreased productivity and efficiency at work, school, or home).
E. The disturbance is not merely an exacerbation of the symptoms of another disorder, such as major depressive disorder, panic disorder, persistent depressive disorder (dysthymia), or a personality disorder (although it may cooccur with any of these disorders).
F. Criterion A should be confirmed by prospective daily ratings during at least two symptomatic cycles. (Note: The diagnosis may be made provisionally before this confirmation.)
G. The symptoms are not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication, and other treatment) or another medical condition (e.g., hyperthyroidism).

2014 ICD-10-CM Diagnosis Code N94.3

Premenstrual Tension Syndrome

- N94.3 is a billable ICD-10-CM code that can be used to specify a diagnosis.
- On October 1, 2014 ICD-10-CM will replace ICD-9-CM in the United States, therefore, N94.3 and all other ICD-10-CM codes should only be used for training or planning purposes until then.

Clinical information

- A more severe and disabling form of PMS in which mood symptoms are the primary characteristic.
- A term used to describe the psychological aspects of PMS, such as the "indescribable tension," depression, hostility, and increased seizure activity in women with seizure disorder.

Applicable to

- PMDD

Description synonyms

- Menstrual edema
- Premenstrual edema
- Premenstrual swelling
- Premenstrual symptom
- PMS

ICD-10-CM coding information

- N94.3 is only applicable to female patients.

Endnotes

[a.] The Massachusetts Institute of Technology holds the patent for this treatment.
[b.] ICD-10.
[c.] The English Homicide Act of 1957 provides that "Where a person kills or is a party to the killing of another, he shall not be convicted of murder if he was suffering from such abnormality of mind ... as substantially impaired the mental responsibility for acts and omissions in doing or being a party to the killing." 5 and 6 Eliz. 2, ch. 2, § 2[1], 1957.
[d.] 2001 CCA Lexis 202, (NMCM 99 00830 17 Jul 2001).
[e.] No 1KO46229 (N.Y. Crim. Ct. 3 Nov 1982).
[f.] *LaFave* § 9.8(f)(4).
[g.] Arizona, California, Florida, Georgia, Maryland, Ohio, Oklahoma, Rhode Island, and South Carolina have abolished diminished capacity. See, for example, *State v. Doss*, 568 P.2d 1054 (Ariz. 1977) (en banc) Cal. Penal Code § 25. Section 2.02 of the Model Penal Code abolished specific intent and diminished capacity.
[h.] 471 F.2d 969 (D.C. Cir. 1972).
[i.] See Alaska Stat. § 12.47.020.
[j.] Alaska, Colorado, Connecticut, Delaware, Idaho, Indiana, Iowa, Kentucky, Louisiana, Maine, Michigan, Mississippi, Nebraska, New Hampshire, New Mexico, North Carolina, Ohio, Oklahoma, Oregon, Rhode Island, Tennessee, Texas, West Virginia, and Wyoming. See, for example, *State v. Coon*, 974 P.2d 386 (Alaska 1999); *People v. Shreck*, 22 P.3d 68 (Colo. 2001); *Springfield v. State*, 860 P.2d 435 (Wyo. 1993).
[k.] 509 U.S. 579, 113 S.C.t. 2786, 125 L.Ed.2d 469 (1993).
[l.] 18 U.S.C. Appendix Ch. Five Determining the Sentence, part K Departures 5K2.13. Diminished Capacity (Policy Statement).
[m.] See Clephane, J.O. *Trial of Mary Harris Indicted for the Murder of Adoniram Burroughs Before the Supreme Court of the District of Columbia*, 10–12 (opening statement of Joseph Bradley) (W.H. & O.H. Morrison, Washington, DC. 1865); Goldstein, A. (1997). *Nineteenth Century Gender Roles and the Murder Trial of Mary Harris*; Kaye, N.S. (1997). *Feigned Insanity*.
[n.] A search of Australian law databases such as LexisNexis and AUSTLII and the archives of the two major Australian newspapers *The Sydney Morning Herald* and *The Age* newspapers were conducted. No cases were reported in which PMS or PMT was used in an Australian court during that time period. Legal practitioners report its infrequent mention in sentencing.

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[7] See e.g., *United States v. Harris*, American State Trials, Adam Goldstein, *Nineteenth Century Gender Roles and the Murder Trial of Mary Harris* (1997); Neil S. Kaye, M.D., Feigned Insanity (1997); Robert M. Ireland, *Insanity and the Unwritten Law*, 32 Am. J. Legal Hist. 157 (1988).
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[15] *Daubert* (1993), 509 U.S. 593–594.
[16] *Frye v. United States*, 293 F. 1013, 34 A.L.R. 145 (App. D.C. 1923) States following this rule include Arizona, California, the District of Columbia, Florida, Illinois, Kansas, Maryland, Minnesota, Missouri, Nebraska North Dakota, Pennsylvania, and Washington. See, e.g., *People v. Superior Court*, 137 Cal. App. 4th 353, 40 Cal. Rptr. 3d 365 (2d Dist. 2006). *Com. v. Crews*, 536 Pa. 508, 640 A.2d 395 (1994).
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