Internet Conversations About Premenstrual Dysphoria: A Content Analysis of PMDD Internet Forums

by

Chantal M. Regis

A Thesis presented to The University of Guelph

In partial fulfillment of requirements for the degree of Doctor of Philosophy in Psychology

Guelph, Ontario, Canada

© Chantal M. Regis, June 2016
ABSTRACT

INTERNET CONVERSATIONS ABOUT PREMENSTRUAL DYSPHORIA: A CONTENT ANALYSIS OF PMDD INTERNET FORUMS

Chantal M. Regis
University of Guelph, 2016

Advisor:
Dr. Michael Grand

The present study examined the premenstrual dysphoria (PMD) concerns and acts of social support, expressed by individuals in Internet forums related to Premenstrual Dysphoric Disorder (PMDD). For 182 posts which had initiated a discussion thread, a content analysis was conducted with respect to six broad categories of concerns related to the experience of PMD: a) interpersonal consequences b) intrapersonal consequences c) functional consequences d) physical symptoms e) diagnostic concerns and f) intervention concerns. Of the posts examined for PMD concerns, women authored 92.9%, men 1.6% and for 5.5% of the posts the sex of the poster could not be determined. The 525 reply posts from the same discussion threads were subsequently content analysed for the presence of four types of social support behaviours: a) emotional support, b) information support c) network support and d) tangible support. The content analysis revealed that 156 (86.3%) of the initial discussion posts contained at least one reference to a PMD related concern. The experience of intrapersonal symptoms and seeking a treatment for PMD were mentioned most frequently. Concern about finding an official diagnostic label for one’s cluster of symptoms was mentioned least frequently. Within the reply messages, the content analysis revealed that, of the 357 (68%) reply posts with one instance of social support, more than half of those messages offered emotional support and information support. Network support was least frequently observed and tangible support was not observed in the reply messages. Results suggested that individuals who post on Internet forums related to
PMDD have a variety of concerns related to the experience of having severe premenstrual symptoms that are perceived to be PMDD. Additionally, these online communities are a place where social support is offered primarily in the form of emotional and information support. Implications for interventions, psycho-education and suicidal hotline information offered via the Internet are discussed.
Acknowledgements

I would like to acknowledge the many individuals who supported me both academically and personally as I worked to complete this dissertation. I am especially thankful to Dr. Michael Grand for his guidance, instruction and patience during the course of my graduate training. I cannot thank you enough for always being in my corner and encouraging me to be brave and bold in this world. Thank you to Dr. Stephen Lewis and Dr. Paula Barata for their guidance and feedback with this project. I would also like to thank the many research assistants at the University of Guelph who assisted in the completion of this project.

A special thank you to SEA for all you’ve done to support me through this process. I feel truly blessed to have a friend like you. You made the stress of graduate school infinitely more bearable. Most importantly, thank you to my parents and my sister for always being my biggest fans. I could not have completed this dissertation, or graduate school, without your unwavering love and support. I will continue to work each day to make you proud.
# Table of Contents

Abstract .................................................. ii

Acknowledgments .......................................... iv

Table of Contents .......................................... v

List of Tables .............................................. vii

Introduction .............................................. 1

   History of Premenstrual Dysphoric Disorder ................. 1

   Controversy Surrounding PMDD ............................... 9

   Social Support ............................................ 13

   Social Support and the Internet ............................. 15

   Rationale for the Present Study ............................ 17

Method .................................................... 27

   Website Selection ........................................ 27

   Sample Characteristics ................................... 29

   Coding Procedures ....................................... 31

   Reliability Procedure ................................... 48

Results .................................................... 51

   PMD Concerns General Overview ......................... 51
List of Tables

1. DSM-IV-TR Criteria For Premenstrual Dysphoric Disorder 5
2. DSM-5 Criteria For Premenstrual Dysphoric Disorder 7
3. Initial Coding Rubric for PMD Concerns 33
4. Final Coding Rubric for PMD Concerns 37
5. Brief Definitions of Initial Adapted Social Support Behaviour Codes 43
6. Final Adapted Social Support Behaviour Codes 46
7. Number and Percentage of Postings in Each PMD Concern Category 54
8. Number and Percentage of Postings in Each Support Category From the Social Support Behaviour Scale by Cutrona and Suhr (1992) 72
Internet Conversations About Premenstrual Dysphoria: A Content Analysis of PMDD Internet Forums

Introduction

Premenstrual Dysphoric Disorder (PMDD) refers to a set of recurring, undesirable, physiological and emotional changes severe enough to cause functional impairment (e.g., employment, school or relationships) in the late luteal phase of the menstrual cycle. Although premenstrual changes are quite common, being reported in an estimated 75% of women, PMDD is often conceptualized as a more severe form of premenstrual syndrome affecting between 3-8% of women (American Psychiatric Association, 2000; Pekonigg et al., 2004). Women with PMDD generally experience debilitating symptoms for anywhere from 14 to 5 days prior to the onset of menses until the third day of menses (Hartlage, Freels, Gotman, & Yonkers, 2012). These changes can be emotional, cognitive, physical, behavioural or a combination of these. Common symptoms reported include irritability, depressed mood, affect lability, decreased concentration, feeling overwhelmed, food craving, bloating, weight gain and headaches (APA 2013; Di Giulio & Reissing, 2006; Gehlert et al., 1999). Even in severe cases, symptoms completely remit with the onset of menstruation or within three days following this (Hartlage et. al., 2012; Zachar & Kendler, 2014).

History of Premenstrual Dysphoric Disorder

DSM-III: The symptoms now classified as PMDD were originally labelled under the Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised (DSM-III-R) as Late Luteal Phase Dysphoric Disorder (LLPDD). The impetus for inclusion of criteria to capture the pre-menstrual severe distress and impairment experienced by some women came from the architect of the DSM-III revisions, Dr. Robert Spitzer (Zachar & Kendler, 2014). Believing that
it was necessary to consider all the conditions that were of interest to mental health professionals, he consequently convened a PMS advisory committee for the DSM-III revisions (Zachar & Kendler, 2014).

The criteria for LLPDD were proposed in 1987 with the publication of DSM–III (American Psychiatric Association, 1987). Prior to the publication of the third edition of the DSM the American Psychiatric Association (APA) task force evaluated the inclusion of LLPDD in the diagnostic manual. At this time, there were some published studies evaluating the experience of women with severe premenstrual symptoms (Hart & Russell 1986; Stout & Steege, 1985); however, there was a lag between the introduction of the criteria and the publication of studies evaluating LLPDD. Therefore, the number of studies available for review was limited and many of them did not apply the proposed diagnostic criteria to women involved in the study. Several committee members charged with evaluating the inclusion of LLPDD were not satisfied with the existing body of research (Endicott, 1994). The primary concern of the working group was a lack of distinction between LLPDD superimposed on other disorders and the premenstrual exacerbation of Axis I or II disorders. For most of the studies reviewed, the members of the task force were able to identify women who met criteria for LLPDD and did not have any other current DSM-III-R disorders (Endicott, 1994). This lent support to the existence of a unique disorder. The criteria for LLPDD were included in the Appendix of DSM-III-R in recognition that women often sought treatment for severe premenstrual problems characterized by dysphoric mood states. The working group concluded that a lack of diagnostic criteria often resulted in these women being given an inappropriate diagnosis or no diagnosis at all, and that research focused on treatment and pathophysiology should be encouraged (Endicott, 2000).
DSM-IV: The release of the DSM-IV in 1994 ushered in a name change for the cluster of severe premenstrual symptoms. To separate the implication of aetiology from the name of the disorder, The DMS-IV Working Group charged with the review of LLPDD recommended a name change from Late Luteal Phase Dysphoric Disorder (LLPDD) to Premenstrual Dysphoric Disorder (PMDD) (Endicott, 2000). There was a lack of consensus in the working group regarding the recommendation to include or exclude PMDD in DSM-IV. The opinions ranged from support for full inclusion within the body of the DSM-IV manual, to inclusion in the Appendix only, to exclusion from the diagnostic system altogether (Endicott, 2000; Zachar & Kendler, 2014). As part of its findings, the working group concluded that there was sufficient research evidence to warrant the removal of PMDD from the appendix and move it into the body of the DSM. In 1993, the DSM-IV Task Force on Nomenclature and Statistics decided to include PMDD as an example of a Depressive Disorder Not Otherwise Specified and included the criteria in Appendix B of the DSM-IV - Criteria Sets and Axes Provided for Further Study (see Table 1) (Endicott, 2000). Subsequent to the decision of the work group, the debate around PMDD as a disorder continued. In 1999, the evidence of several experts was presented to the United States Food and Drug Administration (FDA) Neuropharmacology Advisory Board Committee. At this time the FDA supported the classification of PMDD as a distinct clinical entity and later went on to approve several medications for the treatment of PMDD (Endicott 2000; Pearlstein, 2010).

DSM-5: The publication of the DSM-5 in 2013 resulted in PMDD being removed from the Appendix and integrated into the body of the diagnostic manual. Based on the recommendation of the APA working Subgroup for PMDD and Mood Disorders Work Group, PMDD is now listed under the depressive disorders section of DSM-5 rather than in section 3 of
the DSM-5 (i.e., as a disorder warranting further research). The working groups felt that the information on the diagnosis, treatment, and validators of PMDD had reached a point to qualify as a stand-alone diagnostic category in DSM-5. The DSM-5 revision involved some minor changes in wording and the addition of two differential diagnostic criteria (Table 2). The rationale for the change was based on concerns of missed diagnosis by health care providers, facilitating access to useful treatments, and encouraging accurate data collection regarding the treatment needs and delivery of services for PMDD (American Psychiatric Association, 2012).
Table 1.

DSM-IV-TR Criteria For Premenstrual Dysphoric Disorder

<table>
<thead>
<tr>
<th>DSM-IV-TR criteria for Premenstrual Dysphoric Disorder.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. In most menstrual cycles during the past year, at least five of the following symptoms (which markedly interfered with functioning) were present for most of the time during the last week of the luteal phase, began to remit within a few days after the onset of the follicular phase, and were absent in the week of post menses, with at least one of the symptoms being either (1), (2), (3), or (4).</td>
</tr>
<tr>
<td>1. Markedly depressed mood, feelings of hopelessness, or self-deprecating thoughts</td>
</tr>
<tr>
<td>2. Marked anxiety, tension, feelings of being ‘‘keyed up’’ or ‘‘on edge’’</td>
</tr>
<tr>
<td>3. Marked affective lability (e.g., feeling suddenly sad or tearful or increased sensitivity to rejection)</td>
</tr>
<tr>
<td>4. Persistent and marked anger and irritability or increased interpersonal conflicts</td>
</tr>
<tr>
<td>5. Decreased interest in usual activities (e.g., work, school, friends, hobbies)</td>
</tr>
<tr>
<td>6. Subjective sense of difficulty in concentrating</td>
</tr>
<tr>
<td>7. Lethargy, easy fatigability, or marked lack of energy</td>
</tr>
<tr>
<td>8. Marked change in appetite, overeating, or specific food cravings</td>
</tr>
<tr>
<td>9. Hypersomnia or insomnia</td>
</tr>
<tr>
<td>10. A subjective sense of being overwhelmed or out of control</td>
</tr>
<tr>
<td>11. Other physical symptoms, such as breast tenderness or swelling, headaches, joint or muscle pain, a sensation of bloating, weight gain</td>
</tr>
</tbody>
</table>

Note: in menstruating females, the luteal phase corresponds to the period between ovulation and the onset of menses, and the follicular phase begins with menses. In nonmenstruating females (e.g., those who have had a hysterectomy), the timing of luteal and follicular phases may require measurement of circulating reproductive hormones.

B. The disturbance markedly interferes with work or school or with usual social activities and relationships with others (e.g., avoidance of social activities, decreased productivity and efficiency at home and at work or school).

C. The disturbance is not an exacerbation of the symptoms of another disorder, such as Major Depressive, Panic, Dysthymic, or Personality Disorders (although it may be superimposed on any of these disorders).

D. Criteria A, B, and C must be confirmed by prospective daily ratings during at least two consecutive symptomatic cycles. (The diagnosis may be made provisionally prior to this confirmation).

Source: DSM-IV-TR American Psychiatric Association 2000

**DSM-5 Changes in PMDD Criteria**

The revisions to PMDD criteria published in the DSM-5 involved some minor changes compared to the DSM-IV criteria (APA, 2013). For criterion A, the wording was changed to
remove the stipulation that symptoms “markedly interfered with functioning” (American Psychiatric Association, 2000, p.774). The issue of interruption of daily functioning is now only addressed in a slightly expanded version of criterion B. Additionally, within the revisions to criterion A, the first four symptoms of PMDD (at least one of which is required for diagnosis) were re-ordered. The authors listed the symptom referring to ‘affect liability’ – feeling suddenly sad or tearful- first above those symptoms addressing feelings of depressed mood and anxiety. The order of the additional seven symptoms remains the same with the physical symptoms mentioned last.

Unlike DSM-IV, the criteria of DSM-5 lack direct reference to the different phases of the menstrual cycle (APA, 2013). The DSM-IV criteria (See Table 1) defines the symptoms of the disorder as occurring during the “last week of the luteal phase…” (APA, 2000, p.774) and provides a paragraph detailing at what point during the menstrual cycle the various phases occur. The authors of DSM-5 have excluded any mention of the phases of the menstrual cycle from the revised criteria (APA, 2013).

Finally, the DSM-5 includes two additional criteria intended to assist in differential diagnosis (American Psychiatric Association, 2012). Essentially, the additional criteria require one to rule out that the symptoms are not due to the effects of a substance, including drug abuse, medications, or oral contraceptives.
Table 2.

DSM-5 Criteria For Premenstrual Dysphoric Disorder

A. In the majority of menstrual cycles, at least 5 symptoms must be present in the final week before the onset of menses, start to improve within a few days after the onset 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. Markedly depressed mood, feelings of hopelessness, or self-deprecating thoughts
   4. Marked anxiety, tension, 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 5 symptoms when combined with the symptoms from criterion B above.
   1. Decreased interest in usual activities (e.g., work, school, friends, hobbies)
   2. Subjective difficulty in concentrating
   3. Lethargy, easy fatigability, or marked lack of energy
   4. Marked change in appetite; overeating; or specific food cravings
   5. Hypersomnia or insomnia
   6. A sense of being overwhelmed or out of control
   7. Other 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 interferences with work, school, usual social activities or relationships with others (e.g., avoidance of social activities, decreased productivity and efficiency at home and at work or school).

E. The disturbance is not 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 co-occur 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 prior to this confirmation).

G. The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication or other treatment) or a general medical condition (e.g. hyperthyroidism).

Source: American Psychiatric Association 2013
Aetiology of PMDD

There are no objective physiological diagnostic tests, such as a blood test, genetic profiling or imaging technique, which can lead to a PMDD diagnosis. Instead, diagnostic criteria facilitate the prospective tracking of a woman’s symptoms and functional impairment for two consecutive menstrual cycles. This is currently the only means of establishing an official diagnosis. This is due, in part, to a lack of knowledge and little consensus regarding the specific aetiology of PMDD (Pearlstein & Steiner, 2008).

There are several competing theories that implicate different physiological mechanisms as the cause of PMDD symptoms. Circulating gonadal hormones were suggested as an obvious mechanism related to the pathophysiology of PMDD, as the cyclical nature of the symptoms can be directly linked to the cyclicity of specific hypothalamo-pituitary-gonadal hormones including estrogen and progesterone (Hasket, 1987). This theory is supported by the absence of cyclical emotional and physical symptoms during pregnancy and at menopause. Also, the suppression of gonadal hormones is an effective treatment for severe PMDD symptoms (Hasket, 1987).

There has been much research on the effectiveness of Selective Serotonin Reuptake Inhibitor (SSRI) medications on ameliorating PMDD symptoms (Dimmock, Wyatt, Jones & O’Brien, 2000; Siber & Valadez, 2005; Steinberg, Young & Liyanage, 1999; Ravindran, Woods, Steiner & Ravindran, 2007) including several placebo-controlled trials demonstrating treatment effects (Eriksson et al., 2002). Results from these studies suggest the role of serotonergic systems in the aetiology of PMDD. However, a specific theory implicating serotonin in the aetiology of PMDD is lacking. Both Major Depressive Disorder (MDD) and PMDD can be treated effectively using SSRIs. However, there are distinct differences in the effectiveness of this treatment for these disorders. Unlike their use in MDD, in which there is a two week, or
greater, delay between the onset of medication and the abatement of symptoms, SSRIs
demonstrated immediate effectiveness in alleviating the symptoms of PMDD, often within days
of commencing treatment. Additionally, the use of intermittent dosing is just as effective as
continuous dosing in the treatment of PMDD - a result not observed in the treatment of MDD
(Eriksson et al., 2002).

**Controversy Surrounding PMDD**

The existence of DSM criteria for PMDD has led to several decades of research into the
various aspects of the disorder. These include investigations regarding the prevalence of PMDD
(Halbreich, Borenstein, Pearlstein & Kahn, 2003; Pilver, Kasl, Desai & Levy, 2011), neuro-
biological correlates of the symptoms (Cunningham, Yonkers, O’Brien, & Eriksson, 2009;
Steinberg, Young & Liyanage, 1999) and treatment effectiveness (Dimmock et. al., 2000;
Hunter, Ussher, Cariss, Browne, Jelley & Kats, 2002; Ravindran, Woods, Steiner & Ravindran,
2007; Siber & Valadez, 2005; Steinberg, Young & Liyanage, 1999). Many researchers and
clinicians believe in the existence of PMDD and are working to develop and evaluate effective
interventions (Chou & Morse, 2005; Dimock et. al., 2000; Hunter et. al., 2002; Jelley & Katz,
2002; Zachar & Kendler, 2014). However, there are also those clinicians, and researchers who
 dispute the existence of PMDD as a discreet psychiatric condition (Caplan, 2004; Offman &
Kleinplatz, 2004; Ussher 2002). As mentioned previously, the controversy about inclusion of
PMDD in the DSM spanned many decades and multiple revisions of the DSM. This controversy
even prompted a congressional briefing in the United States of America’s Congress. The
briefings were sponsored by the Society for Menstrual Cycle Research, among other groups, due
to concern about the formalization of a mental *illness* specific only to women (Hartlage, Breaux,
& Yonkers, 2014).
Many have argued that PMDD is a socially constructed phenomenon designed to pathologize a woman’s natural reproductive system and portray women as at the mercy of ‘raging hormones’ (Caplan, 2004; Offman & Kleinplatz, 2004). Ussher (2002), for example, argues that premenstrual changes are not a fixed entity but are influenced by an interaction between several variables including experience, perception, and cultural expectations. She believes the very existence of PMDD criteria leads women to interpret their premenstrual symptoms within a pathological framework, deserving of intervention from health care professionals. The authors arguing against the diagnostic label of PMDD do not question the existence of true suffering in women with premenstrual complaints (Caplan, 2004; Offman & Kleinplatz, 2004; Ussher, 2002). However, Ussher contends that these symptoms do not have to be classified as a psychiatric disorder. Rather they are better understood from an alternative perspective that does not involve medicalizing a natural physiological process (Ussher, 2003).

In 2012, Hartlage et al. (2014) conducted a review of the scientific literature on PMDD found on the MEDLINE and PsychInfo electronic databases, as well as a review of non-scientific writings about PMDD on the Internet. The authors identified, and then critiqued, six common reasons for the exclusion of PMDD in the DSM. The following arguments were mentioned five times or more in the literature reviewed:

1. The PMDD label will harm women economically, politically, legally and domestically; 2. there is no equivalent hormonally based medical label for males; 3. the research on PMDD is faulty; 4. PMDD is a culture-bound condition; 5. PMDD is due to situational, rather than biological factors; and 6. PMDD was fabricated by pharmaceutical companies for financial gain (p. 71).
Hartlage et al. (2014) refute each of these arguments in turn, starting with the first argument that a mental label specific to women will harm them economically, politically, legally and domestically. Hartlage and colleagues counter this assertion with a review of statistics indicating a steady increase in women’s participation in the labour force from the end of World War II to the start of the 21st century. For example, in their review they highlight that the number of female heads of state (prime ministers and presidents) increased four fold in the 1980s and 1990s and an additional four fold in the 2000s. The argument is that, if the disorder of PMDD, as introduced in the 1980s, was in fact detrimental to the advancement of women, then as the concept of PMDD gained recognition, women’s progress, economically, politically, legally and domestically would have been halted or slowed by PMDDs misuse. This slow down has not occurred.

With regards to argument two - concern about gender equality in mental health - Hartlage and colleagues (2014) acknowledge that western society tends to normalize the expression of anger in men while viewing similar displays of anger in women as abnormal. However, the authors contend that this social inequity should not encumber help for women with PMDD by denying the PMDD diagnosis. Moreover, the authors suggest that opponents “are losing sight of supporting women in need” (p. 73) by advocating against the inclusion of PMDD in the DSM-5.

Hartlage et al. (2014) consider the third argument – the argument against research methodology - to be one of the most vigorous arguments advanced against inclusion of PMDD in the DSM-5. Overall, the authors argue that although some studies in the literature have methodological issues and conflicting results, this is not uncommon in research about mental disorders. They go further to say that the scientific process of validating disorders is based on weighing the available research evidence. In the case of PMDD, the preponderance of data
appears to support the existence of PMDD in clinical and community samples. Therefore, opponents should not place undue focus on the few research studies with methodological concerns.

To refute argument four, the idea that PMDD is a culture-bound syndrome, Hartlage and colleagues (2014) reviewed the PMDD research from seven countries other than Canada and the United States of America, including Taiwan, China, Japan, and Korea. By summarizing the major findings, they demonstrate the presence of PMDD across several continents and refute the argument that PMDD is a Western cultural phenomenon.

Argument five against inclusion of PMDD is based on the idea that proponents of the diagnostic label are making the fundamental attribution error by placing too much emphasis on internal characteristic causing distress premenstrually, and not enough emphasis on the situational factors (such as trauma) that can attribute to distress. Hartlage and colleagues (2014) argue that those opposed to PMDD as a diagnostic label are negating a woman’s very real experience of suffering with symptoms known to stem from biological process in the body.

The sixth, and final argument put forth by opponents to the inclusion of PMDD is that opportunistic pharmaceutical companies impressed a diagnosis of PMDD upon the public in order to peddle drugs. Hartlage and colleagues (2014) suggest that this is an unfair characterization of the process of investigating PMDD and its treatments, given that drug companies did not fund the early clinical trials for SSRIs. Also, with the popularizing of PMDD as a disorder, the recommended effective treatments have included both drug and non-drug treatments, thereby giving pharmaceutical companies plenty of competition.

Despite a several decades long controversy and opposition to its inclusion in the diagnostic nomenclature, the revisions to the DSM-5, and its publication in 2013, resulted in its
formal integration into the depressive disorders section of the text (APA, 2013). This decision was prompted in part by the change in method of classifying mental disorders proposed for DSM-5. More specifically, during the current revision of the DSM, many of the debates were related to the intention of the architects to revolutionize psychiatric classification by implementing a dimensional model of classification. In such a model, psychiatric disorders are arranged on a continuum with deviations from normality (Zachar & Kendler, 2014). According to Zachar and Kendler (2014), this change in thinking represented an important internal shift in the politics surrounding the inclusion of PMDD, thereby eliminating one of the primary factors, classifying PMDD as a pathology distinct from the “normal” experience, keeping PMDD in the DSM-IV appendix.

With the inclusion of PMDD in the body of the text, the APA has also attempted to address the concerns of those who believe an official diagnosis will stigmatize women. Specifically, the Work Group argued that a DSM diagnostic category for women who experience marked symptoms and impairment premenstrually highlights the fact that most women do not experience such symptoms. They offer the analogy of sadness and major depression: while most people experience sadness at some time in their lives, not all people have experienced major depression. This may also be true of PMDD (American Psychiatric Association, 2012).

Social Support Health and Well Being

Perceived availability of social support is often found to act as an important part of buffering the stress associated with illness (Cohen, Gottlieb, & Underwood, 2000). Social support is linked to coping with stress. According to Gottlieb (1981) social support helps the individual to mobilise her psychological resources and master emotional burdens. In addition to supporting coping and buffering stress, social support can also predict physical health and
psychological wellbeing (Cohen, 2004). Social support is believed to influence mental and physical health through its effect on emotions, cognitions and behaviours (Cohen et al., 2000). In the case of mental health, social support is thought to help reduce stress by improving emotional and behavioural regulation. Sufficient social support is thought to prevent extreme responses (e.g. mal-adaptive behaviour, extreme affect, cognitive distortions) that are activated in response to stress and that are often associated with poor adaptation to stress (Cohen et al., 2000).

Social support is a broad term that has often been used to refer to any process through which social relationships might promote health and wellbeing. According to Cohen, Gottlieb and Underwood (2000) social relationships can influence health via several different processes. One such process involves the provision or exchange of informational, emotional or instrumental resources to another individual in response to the belief that that individual is in need of such assistance. Provision of these resources is often in response to both acute stress such as developmental transitions, and more chronic stressful events such as long term, or recurring illness.

Social support can be defined and operationalized in three distinct ways. The term *perceived support* is used to refer to an individual’s cognitive appraisal of being reliably connected to others, and the perception that support will be offered when it is needed (Barerra, 1986). *Social embeddedness* refers to the connections an individual has to significant others in his or her social environments. The third way that social support has been studied is in regards to *enacted support*. Enacted support refers to the actions that others perform when they render assistance. Enacted support includes a range of phenomena including *emotional support* (i.e., information that one is cared for and loved), *esteem support* (i.e., information that one is valued and esteemed), *network support* (i.e., information that one belongs to a network of persons with
similar concerns or experiences) (Dimatteo & Hays, 1981), information support (i.e., provision of advice, factual input or feedback on actions), and tangible support (i.e., offers to provide material goods or perform a task) (Cutrona & Suhr, 1992).

**Social Support and the Internet**

The Internet is often used as a means to obtain and provide social support to other individuals. Past research has focused on examining the presence of enacted support as it relates to medical conditions or illness like diabetes (Ravert, Hancock & Ingersoll, 2004), HIV/AIDS (Mo & Coulson, 2008), Huntington’s disease (Coulson, Buchanan & Aubeluck, 2007), lupus (Mazzoni & Cicognani, 2014) and teenage pregnancy (Sherman & Greenfield, 2013).

Specifically, researchers often investigate communities of individuals who visit websites seeking information concerning matters that are difficult to cope with or private (Coulson et al., 2007; Mo & Coulson, 2008; Ravert, Hancock & Ingersoll, 2004; Sherman & Greenfield, 2013). The literature suggests social isolation is one of the many reasons individuals visit Internet discussion forums and Internet social networking communities. Many of these individuals feel isolated. As a consequence of health concerns, they are not comfortable discussing with individuals in the world beyond the Internet (Lewis & Michal, 2014; Mazzoni & Cicognani, 2013; Sherman & Greenfield, 2013). Websites that host virtual meeting spaces provide a place for virtual communities (i.e., a group whose members communicate primarily via the Internet) to develop, thus, allowing individuals to join a peer group and communicate in an environment where their experience is the norm (Mo & Coulson, 2008; Sherman & Greenfield, 2013). In addition to other forms of social support, individuals posting on online communities most frequently offer emotional and information support (Coulson et al., 2007; Mo & Coulson, 2008; Ravert et al., 2004; Sherman & Greenfield, 2013). For those who are facing health concerns that often carry
associated stigma, like HIV/AIDS, teenage pregnancy, or many forms of mental illness, social support on the Internet exists in a way that may not be present in the world beyond the Internet if they do not have supportive individuals in their community or family. Additionally, it may be that the support offered online is more salient for individuals experiencing stigmatized issues as it comes from others with a similar experience (Mazzoni & Cicognani, 2013; Mo & Coulson, 2008; Sherman & Greenfield, 2013). For example, individuals online offer relevant advice and suggestions and share personal experiences (informational support) as well as offer relief of blame or other forms of esteem support (Johnson, Zastawny & Kulpa, 2010; Mazzoni & Cicognani, 2013; Mo & Coulson, 2008; Sherman & Greenfield, 2013). Additionally, people who are concerned about the stigma associated with health concerns may find online support a more welcoming venue to discuss sensitive issues as it offers anonymity (Sherman & Greenfield, 2013).

The presence of enacted support on the Internet allows for the possibility that any one instance of social support offered on an Internet forum has the potential to be received by multiple individuals. Once posted on an Internet forum, other visitors to the site can view these messages. Therefore, it is possible that multiple people may perceive receiving support from one instance of enacted support on the Internet. In addition to the capacity to reach a large audience, the asynchronous communication format allows individuals to have access to the messages at times most convenient for them. The various forms of enacted support can be offered at the leisure of the person proffering support without geographic or transportation barriers, and consumed by the recipient at his or her convenience (Gold, Boggs, Mugisha, & Lancaster Palladino, 2012; Holtz, Kronberger & Wagner, 2012; Rodham, McCabe & Blake, 2009; Sherman & Greenfield, 2013; White & Dorman, 2001).
Rationale For The Present Study

The Burden of PMDD: In addition to physically debilitating premenstrual symptoms, PMDD is also associated with other life challenges. These include increased risk of Major Depressive Disorder (Cohen, 2000; Endicott, 2000; Hartlage, Arduino & Gehlert, 2001), risk of development of Post Traumatic Stress Disorder (Pilver, Levy, Libby & Desai, 2011) increased anxiety symptoms, and stress (Pekonigg, Yonkers, Pfister, Leib & Wittchen, 2004). The burden of living with PMDD can also extend into several aspects of daily life. Heinemann, Minh, Filonenko & Uhl-Hochgraber, (2010a) conducted a large multi-national study to evaluate the influence of severe premenstrual symptoms on quality of life and productivity and efficiency in the workplace and other daily duties. Using prospective ratings of symptoms and productivity, they found that women with severe premenstrual symptoms have a higher rate of absenteeism and experienced an average of five days of reduced productivity. Consequences of severe symptoms also included disruption of interpersonal relationships, parenting interruptions, and interference with hobbies and social activities (Heinemann, Minh, Filonenko & Uhl-Hochgraber, 2010b).

As part of a large treatment study for severe premenstrual symptoms, Ussher (2002) conducted pre-treatment interviews with 36 White British women with PMDD. The participants in the study were asked to prospectively record daily symptoms over a three-month period. All participants met DSM-IV diagnostic criteria for PMDD and experienced at least a 30% increase in premenstrual symptoms as compared to the pre-luteal phase. The interviews commenced with
the researcher asking each woman an opened question meant to examine her subjective experience: “what does pms mean to you?” (p. 311).  

Ussher found that women spoke of the key symptoms described in the DSM, specifically, fatigue, depression, anxiety, anger, loss of control, pain, bloating, cravings and skin problems. She also found that, in addition to listing symptoms associated with the experiences, many spoke spontaneously of relationship issues, work related problems, feeling overwhelmed, feeling out of control, and difficulty coping as being part of premenstrual symptoms. The women in this study spoke of experiencing a change in their sense of self, and that they behave and react differently during the premenstrual time than at other times of their cycles. In addition to the symptoms listed in the DSM-IV, Ussher described additional symptoms that were reported in her sample, some of which included loneliness, desire for comfort, loss of confidence, and increased sensitivity. Ussher discussed these reports as they related to the hegemonic views of PMDD, and did not provide information on the frequency of the concerns reported.  

Women with PMDD have increased use of health care services including more frequent physician visits, and increased use of prescription medications and non-prescription remedies to alleviate PMDD symptoms (Pearlstein & Steiner, 2008). Notwithstanding the impact of these difficulties, women with severe premenstrual symptoms may have difficulty seeking and receiving appropriate and effective assistance from health care professionals (Weisz & Knaapen, 2009). Some women have expressed experiencing psychological barriers to treatment seeking; more specifically, negative perceptions that premenstrual symptoms are too private to discuss.

1Despite each participant meeting diagnostic criteria for PMDD, Ussher chose to use the colloquial label, pms, that women use to describe their symptoms. In another paper published with data from these interviews, Ussher explains that the term pms was used instead of pmdd “as this was the commonly used nomenclature in Britain at [the time of the study]” (Ussher, 2003 p. 134)
with a doctor or that the symptoms are to be endured. Additionally, some women reported not being aware of the treatments available to relieve symptoms (Hylan, Sundell & Judge, 1999; Robinson & Swindle, 2000). It has also been suggested that there is a stigma attached to menstruation and the report of pre-menstrual symptoms (Johnson-Robledo & Chrisler, 2013). It is possible that, given the above factors and the controversial and disputed nature of the diagnosis of PMDD itself (Caplan, 2004; Offman & Kleinplatz, 2004; Ussher 2002.), some individuals may fear being told the symptoms are imagined, not legitimate, or both.

**Conducting Research With The Internet:** The prevalence of PMDD, based on DSM-IV criteria and prospective ratings, is estimated to be between 1.3%-1.8% (Gehlert, Song, Chang & Hartlage, 2009). Although there are no DSM-IV based prevalence estimates for Canada, one Canadian study of 519 women used the Premenstrual Symptom Screening Tool to screen for PMDD symptoms. Consistent with previous findings using prospective DSM based ratings, Steiner, Macdougall & Brown (2003) reported that 5.1% of women likely suffered from PMDD. Additionally, the American Psychiatric Association estimates that PMDD may affect more than two million women in the United States alone (American Psychiatric Association, 2012). Based on that estimate, it is not unreasonable to assume that there are potentially hundreds of thousands of individuals who seek information about severe premenstrual symptoms in general and once cognizant of PMDD, PMDD in particular.

If women who are impacted by PMDD experience barriers to discussing their symptoms through traditional medical avenues, it is possible that they seek this information via other means. In the 21st century, the Internet is increasingly becoming a major source of information. In the United States, 88% of Americans access health information on the Internet for themselves, family, or friends. This number is up from 80% in 2006 (Taylor, 2010). In addition to providing
information, the Internet has also become a vehicle of individual expression and conversation. Individuals use the Internet to connect to, and establish community with others who share interests and personal characteristics (Kaplan & Haenlein, 2010; Sherman & Greenfield, 2013). Internet communities can also provide connection and various forms of social support to individuals who do not share characteristics with other individuals living in their community (Johnson et al., 2001; Johnson, et al., 2010; Mo & Coulson, 2008; Patsos, 2001; Sherman & Greenfield, 2013). For a woman who does not have any female friends experiencing similar symptoms the Internet may provide, among other things, a place to seek out and communicate with others in a similar situation (e.g. teenage pregnancy) (Sherman & Greenfield, 2013).

If individuals are using the Internet to communicate, the public nature of sections of the Internet offers researchers the unique opportunity to gain access to the conversation. This allows for an avenue to information in the public domain from individuals who might not otherwise participate in an in-person research study, who live too far away to participate or who find the commute to participate in PMDD research overly onerous (Hunter et al., 2002). Consideration of such data is cost effective and non-invasive. As demonstrated in other studies of clinical concern, reviewing online narratives and content can provide insight into the thoughts of individuals affected by otherwise difficult-to-discuss issues as articulated by those using the Internet to express their concerns (Gold et. al., 2012; Ikunaga, Nath & Skinner, 2013; Lewis & Baker, 2011; Lewis & Michal, 2014).

As the discourse in the field of mental health moves past how best to define the experience of women in the late luteal phase of their menstrual cycle (APA, 2000; APA, 2013) to a focus on the neurobiological correlates of PMDD (Bartley et. al. 2015; Liu et. al., 2015; Oral, et. al. 2015; Toffoletto et. al. 2014; Yen et. al. 2014), there is value in learning what people who
are affected by these symptoms are talking about amongst themselves. There may be difficulties and concerns that individuals impacted by PMDD experience of which researchers are not aware. Although researchers have noted some worries (Ussher, 2002; 2003; Heinemann et al., 2010a; 2010b), there has not been an attempt to quantify or rank the more common concerns. Consequently, researchers may not have given adequate weight to the most pressing concerns when making decisions about research projects or developing interventions.² For example, if interpersonal conflict is the greatest concern of individuals impacted by PMDD, research dedicated to elucidating the neurobiological underpinnings of PMDD, may not be the most timely or effective means of developing interventions to address the presence of interpersonal conflict in relationships affected by PMDD.

By examining posts on the Internet, this study was developed to examine the most common concerns expressed by individuals who choose to share their comments in an Internet forum dedicated to PMDD. An Internet forum, as defined in this study, is a website that provides a place for an online exchange of information between people about a particular topic. It provides a venue for users to post content, including questions and stories, and for other users to respond. It may be monitored to keep the content appropriate. Forums can be entirely anonymous or require registration with a username and password. The messages on the forum may be displayed in chronological order of posting or in question-answer order where all related answers are displayed under the question. These forums may also be referred to as Internet forums, discussion boards, message boards, or social networking sites

² A search for the term “Premenstrual Dysphoric Disorder” in PsychInfo will reveal that a noteworthy portion of the research on PMDD published in 2012 to 2015 was from a behavioural science perspective or used neuroscience methods. It is possible that this form of brain-based research does not reflect the most pressing concerns of individuals experiencing severe interpersonal and functional consequences of PMDD.
Internet forums differ from ‘chat rooms’ in that forum messages are kept online for some period of time and the correspondence does not usually occur in ‘real time’. Users can scroll back in time to read older messages and they do not have to be logged in the moment messages are posted in order to view them. In contrast, although some chat rooms can be saved and visited later, they are primarily intended to be interactive, real-time sessions.

All of these versions of Internet forums are hosted on websites. The Internet provides individuals the opportunity to discuss matters in an informal and often anonymous manner (Gold et al. 2012). It is therefore likely that the concerns of this online PMDD community extend beyond that of, neurological correlates of PMDD, symptom relief or pharmaceutical intervention. For example given the evolving definition of this disorder, and its previous exclusion from the main section of past iterations of the DSM (APA, 2000), women may be concerned about how best to label the experience, or how to label one’s individual cluster of symptoms. Individuals may also express concern about the implications of receiving a diagnosis of PMDD. Additionally, similar to the discussion of what social support partners can offer found on the PMSBuddy website for men (King, Ussher & Perz 2014), men and women who do not experience PMDD may be seeking information on PMDD themed forums about how best to support partners who struggle with PMDD symptoms and limit interpersonal conflicts. It is relevant to the effective treatment of these women to address their needs beyond just symptom reduction and to address specific information gaps. Investigating the presence of any gaps in information, and consequently discerning if that lack of information is in a specific area of concern, can help to foster the development of new resources for previously unaddressed issues.
Therefore, it is important to examine the discussions of individuals, and identify concerns as expressed in online content.

To date, there is a lacuna in the research literature linking enacted social support and PMDD specifically and premenstrual syndrome in general. Several studies related to other health concerns have found the presence of predominately emotional and informational support on online forums (Coulson, et al., 2007; Johnson, Ravert, & Everton, 2001; Mo & Coulson, 2008; Ravert, et al., 2004). Given the value inherent in what has been learned about other physical and mental health concerns by virtue of studying how they are discussed online (e.g., NSSI (Lewis & Baker 2011; Lewis & Michal 2014), depression (Houston, Cooper & Ford 2002), HIV (Mo & Coulson, 2008), and cancer (Mao et. al. 2013; Schultz, Stava, Beck & Vasilopoulou-Sellin, 2003) then there may also be value in adopting this approach when studying PMDD. The present study was conducted to examine the nature of enacted support as it manifests on Internet forums related to PMDD.

The Present Study

Despite the growing popularity of the Internet as a means of communication (Sherman & Greenfield, 2013; Taylor, 2012), there has never been a study examining the specific online content of PMDD related Internet forums. The present study had two aims. The first aim was to quantify and examine the concerns of those generating Internet content related to PMDD in an effort to better understand the experience of individuals affected by PMDD. One cannot determine, or verify with prospective ratings, that the individuals who have posted on the Internet are a clinical sample of individuals with a diagnosis of PMDD. However, it is believed that individuals speaking of having PMDD likely share some symptoms representative of the
PMDD symptom cluster described in the DSM. Therefore the non-diagnostic term Premenstrual Dysphoria (PMD) was used to describe the experience of these Internet posters.

The second aim of this study was to quantify and examine the nature of enacted social support on Internet forums related to PMDD. Using Content Analysis (Krippendorff, 2012), this study was developed to examine two specific questions regarding the Internet content related to PMDD.

**PMDD Concerns: What are the concerns of individuals who post personal content on PMDD related websites?** This study aimed to examine the concerns of individuals who post comments, stories and questions that other individuals can read, and potentially respond to with subsequent online comments. The term ‘concern’ is defined broadly in this study as an issue, related to premenstrual dysphoria that troubles individuals dealing with the presence of cyclical symptoms. This term is meant to capture both explicitly stated worries, as well as mention of PMDD symptoms (as listed in the DSM) and other associated consequences that have the potential to be inconvenient, annoying and unwanted.

Previous research, based on in depth interviews and prospective ratings, has demonstrated that women with PMDD experience recurring, cyclical parenting interruptions, interpersonal difficulties and a variety of mood and physical symptoms (Ussher, 2002; 2003; Heinemann et al., 2010a; 2010b). Although previous research has highlighted some consequences of PMMD, Internet-based research may provide additional insight into concerns that individuals may have not felt comfortable discussing face-to-face; indeed, this has been the case for a number of other health and mental health difficulties (Gold et. al. 2012; Lewis & Baker 2011; Mo & Coulson 2008). The findings of previous research on the consequences of PMDD (Ussher, 2002; 2003; Heinemann et al., 2010a; 2010b) and the specific symptoms
selected for the diagnostic criteria (APA, 2000; APA, 2013) suggest likely areas of concern for women with premenstrual dysphoria. Therefore, it is expected that the primary concerns of individuals posting on PMDD themed websites will fall into several broad categories: a) the interpersonal consequences of PMDD symptoms; b) the intrapersonal consequences of PMDD symptoms; c) functional consequences of PMDD symptoms; d) physical symptoms related to PMDD; e) concerns about PMDD diagnosis and f) PMDD interventions. The development of these categories is discussed in detail below. Previous research has focused on reports from a small sample of individuals (Ussher, 2002) or evaluated only those symptoms listed in the DSM-IV criteria for PMDD (Heinemann et al., 2010a). Given that PMDD’s inclusion in the DSM means it is characterised as a psychiatric disorder, it was expected that the majority of the concerns would fall into the broad category of intrapersonal concerns. This category accounts for emotional concerns and perceived changes in thinking. Given the exploratory nature of the present study, there are no expectations about the specific distribution of concerns within each of the broad categories or the relative frequencies of the other broad categories. The present study was conducted to expand upon the extant knowledge concerning expressed concerns related to premenstrual dysphoria (Ussher, 2002) and associated social support among individuals who voluntarily joined Internet forums dedicated to PMDD.

**Social Support and PMDD: What is the nature of social support contained within messages posted online in PMDD related Internet forums?** This study aimed to quantify the forms of enacted social support contained within messages posted in response to the comments of another individual on the Internet forum. It was expected that the present investigation will find instances of enacted support in the five main categories of emotional support (i.e., information that one is cared for and loved), esteem support (i.e., information that one is valued
and esteemed), network support (i.e., information that one belongs to a network of persons with similar concerns or experiences), information support (i.e., provision of advice, factual input or feedback on actions), and tangible support (i.e., offers to provide material goods or perform a task such as mailing a book or sending money). In keeping with the existing social support literature, it was expected that information and emotional support would represent the most frequent forms of enacted social support on the Internet forums (Coulson, et al., 2007; Mo & Coulson, 2008; Ravert, et al., 2004; Sherman & Greenfield, 2013).

Lastly, it was expected that individuals posting on PMDD themed forums would demonstrate specific forms of emotional and network social support particular to PMDD. Specifically, it was expected that individuals would provide special emotional support in the form of validation support. Individuals may have received the message that premenstrual symptoms happen to all women and that it is just ‘raging hormones’ (Chrisler & Caplan, 2002). Given those messages, some women may have doubts about their particular experience of severe or debilitating symptoms. Under this validation subcategory of emotional support, individuals may provide information that validates the experience of PMDD, the presence of symptoms, and attempt to assuage one’s fears of being ‘crazy’ (Chrisler & Caplan, 2002). Individuals may also offer special network support in the form of membership support. This subcategory of network support was characterized by the provision of information that individuals affected by premenstrual dysphoria have a shared affiliation or membership in the PMDD community. For example “welcome to the supportive boyfriends club” or “welcome to the association of monthly crazies”.

Method

Web Site Selection

Using Google’s search engine (www.Google.ca), several independent searches were conducted in November 2013 with the following related search terms: ‘pmdd forum’, ‘pmdd discussion boards’, ‘pmdd Internet forum’ and ‘pmdd community’. Google was selected due its status as the most popular search engine in the western world (Krawczyk, 2014; Woollston, 2013). The intent of the search was to generate results that contained Internet forums (i.e., message boards and social networking sites) with user generated PMDD related content and was not meant to be a reflection of the most common Web searches related to PMDD as determined by Google adwords. The above search terms were selected based on phrases that would generate search results containing the desired Internet forums. After a review of Google adwords for the popularity of search terms related to pms and pmdd, the above terms are believed to be appropriate in order to access websites that allow users to post new content in a forum in which others can read and respond. They were not meant to reflect the most popular search results related to PMDD. This focus on relevant search terms (related to PMDD), rather than popular search terms, is similar to the procedure used by Sherman and Greenfield when investigating online support for pregnant teenagers (2013).

In the interest of gathering a broad collection of Internet forums for each search phrase the first 30 websites were reviewed. Prior to review and transcription of a specific forum, if one was present on the website, the transcribers updated a shared Google document with the URL and name of the website to prevent duplication. The criteria for selection were: a) the website allows visitors to contribute new content in the form of personal comments or stories; and b) the website allows visitors to post replies to the comments of others. These criteria included a variety
of Internet forums including social networking websites that allowed users to create new pages that had a comments section underneath the original story, and websites with an existing discussion board where users could initiate a new topic or thread by writing a new post. All websites with Internet forums that met these criteria were reviewed and their relevant comments were then copied into a database for later coding.

An initial cursory review of online forums indicated that the PMDD specific forums are not heavily trafficked (i.e., posts often have fewer than 100 views) and the message boards often contain messages more than five years old. To facilitate appraisal of the most current concerns posted online, only initial posts – namely, those that initiated the discussion – from the previous 24 months (November 2011 to 2013) were transcribed and analysed for the presence of premenstrual dysphoria concerns. In instances in which one message board within the Internet forum provided a link to another relevant thread that met the above criteria, that thread was recorded in the shared document, transcribed and coded. In instances in which a message board was geared toward multiple topics only discussion threads aimed primarily at PMDD were transcribed. For example, a website for fibromyalgia where one individual started a thread regarding PMDD would not be analysed. However, if on an Internet forum specific to PMDD, one individual started a thread about migraine headaches, that initial post would be coded for the presence of concerns, as the user generated content on a PMDD themed forum and headaches happened to be one of her concerns.

For each initial post, all the subsequent response posts found underneath the initial post were saved to a database for coding and content analysis of enacted social support. Given that individuals have the capacity to post multiple times within an Internet forum, or even across different forums, the number of posts collected do not each represent a unique individual.
After following a set procedure to clear search history, delete cookies, and download a new browser with no saved bookmarks, each transcriber was assigned a specific search term (e.g., pmdd forum) to conduct a search in www.Google.ca. A considerable amount of overlap in website addresses was observed as the transcribers proceeded through their list of Google search results. A review of the shared document suggested that it is likely that all of the current websites that met the established criteria were transcribed and coded.

**Transcription Process:** Due to the constant evolution of content on the Internet, the comments chosen for analysis in this study were collected and transcribed over a one-day period in November 2013 by senior Psychology undergraduate research assistants. Selected comments along with available descriptive information related to the website were copied into an Excel document for later analysis. Descriptive information, when available, included the address of the website, the title of the discussion thread, the number of replies to the initial post, the number of views of the comment (or thread), the sex of the poster, age of the poster, and the relationship to the individual with premenstrual dysphoria. No screen names, real names, or other identifying information were collected.

**Sample Characteristics**

Demographic data were collected from two sources. Some Internet forums allowed users to create customizable personal profiles that would provide users with the choice to enter information about one’s age and gender and choose an avatar. In many cases clicking on the user’s avatar would provide this demographic information. Additionally, the content of the user’s post at times contained declarations of age, gender and PMDD diagnostic status (i.e., “I am 32 years old and have had PMDD for a while”). Importantly, with regard to diagnostic status,
posters infrequently distinguished between a self-diagnosis and one obtained from a qualified medical professional. However, this diagnostic information was still recorded.

For the purpose of this study statements indicating gender, for example: ‘I’m a mom’ or ‘I’m a teenage girl’ were coded as female. It is assumed that the individuals in this study discussing the physiological experience of menstruation and pre-menstrual symptoms are biologically female. Although it is possible for a transsexual man to experience PMDD, a review of all the posts suggests that a transgendered individual is not a part of the present sample. Therefore, if a poster specifically mentioned having a menstrual cycle, that poster was coded as female. Where available, both the customizable personal profiles and the content of the posts were explored for demographic information.

The Internet forums examined in this study were not heavily trafficked and many posts came from a small community of frequent posters. Demographic information regarding the age of the individual poster was only available for 36% of the posts collected. The following information is from the limited demographic data collected. Users ranged in age from 17 years old to 53 years old, with an average age of 30 years (SD = 7.0). Given that data from a two-year period were collected, age at time of posting was determined for both the initial and reply posts.

Of the posts examined for premenstrual dysphoria concerns, information regarding gender was available for 94.5% of the posts collected. Within those posts, women wrote 92.9%, men 1.6% and for 5.5% of the posts the gender of the poster could not be determined. With regard to the reply posts, which were examined for social support behaviours, women wrote 99% of them, and men wrote 1%. The average length of an initial post was 261.3 words (range: 2 words to 2441 words, SD = 269) while the average length of the reply posts was 108.1 words (range 1 word to 1867 words, SD = 129.1).
Coding Procedures

**Premenstrual Dysphoria Concerns:** A coding system for the evaluation of initial posts – those that initiated the thread – was developed using an integrative process of inductive and deductive techniques. Codes were developed by referring to variables identified in previous research examining the concerns and narrative themes of women with PMDD (Ussher, 2002; 2003) and by examining four Internet forums related to PMDD to identify any additional variables. The codes were developed from the investigators review of comments from PMDD Internet forums that were unlikely to be included in the present study. More specifically, a selection of four forums which contained only comments older than two years, and/or that populated in a Google search beyond the 30th result were reviewed.

In accordance with content analytic method discussed by Krippendorff (2013), a coding rubric was developed by carefully and repeatedly reviewing these Internet forums unlikely to be included in the analysis to identify recurring and salient themes and exclusive categories. Once these themes were identified a present/absent coding rubric was developed (see Table 3).

After training with the data coders, discussed in more detail below, the rubric was revised to improve differences between categories and thus better reflect the present data. The final rubric consisted of 7 main categories and 30 subcategories (Table 4). For each post in the data set one of three independent raters coded each variable in the rubric as present –‘1’ or absent ‘0’. The goal of the present study is to capture concerns related to premenstrual dysphoria. These concerns may be presented by the poster listing her problematic symptoms, or by relating a story of interpersonal difficulties. Given this variety in the presentation of a concern, each post was treated as one unit for coding.
Each category and subcategory within the rubric was mutually exclusive, meaning a concern could only be coded as ‘present’ in one subcategory. However, even with mutually exclusive categories, an understanding of the concerns mentioned was often dependant on the context of the entire post. Therefore, the categories were not strictly independent, meaning one unit (one post) could have been rated as ‘present’ for several subcategories.
### Table 3

Initial Coding Rubric for PMD Concerns

<table>
<thead>
<tr>
<th>Type of Concern</th>
<th>Description and Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interpersonal</strong></td>
<td><em>Mentions conflict with someone - links it to PMD symptoms</em></td>
</tr>
<tr>
<td>Parenting/children</td>
<td>Conflict with one’s child e.g. “I spanked Sue for the 1st time” or conflict with one’s parents e.g. “I locked myself in my room so I didn’t have to talk to my mom”</td>
</tr>
<tr>
<td>Romantic partner</td>
<td>“I can’t be around my wife when she’s like this”</td>
</tr>
<tr>
<td></td>
<td>“My husband and I fight over every little thing when I’m like this”</td>
</tr>
<tr>
<td>Friend/Acquaintance</td>
<td>“I avoid sitting with my friends at school/work”</td>
</tr>
<tr>
<td>Other relative</td>
<td>“My cousin was so mad I missed her party”</td>
</tr>
<tr>
<td>General/unspecified</td>
<td>“I can’t get along with anyone”</td>
</tr>
<tr>
<td><strong>Functional Competence</strong></td>
<td><em>Comments indicate individual with PMD feels unable to perform a role or task</em></td>
</tr>
<tr>
<td>Parenting interruption</td>
<td>“I just can’t get out of bed to take the kids to the school”</td>
</tr>
<tr>
<td>Employment interruption</td>
<td>“I can’t do my job”, “I can’t go to work”</td>
</tr>
<tr>
<td>Personal task/duty interruption</td>
<td>“I can’t go to the gym”, “I can’t cook for my family or clean”</td>
</tr>
<tr>
<td>General/unspecified</td>
<td>“I can’t do anything”</td>
</tr>
<tr>
<td><strong>Diagnostic Clarity</strong></td>
<td><em>Indicates that one is trying to find a name, or label, for a group of symptoms that a woman is experiencing</em></td>
</tr>
<tr>
<td>Seeks to label experience</td>
<td>“I have X,Y, and Z is that pms or pmdd?”, “My daughter cries at school everyday when she’s getting her period. Is that pmdd?”</td>
</tr>
<tr>
<td><strong>Physical Symptoms</strong></td>
<td><em>Comments indicate the presence of physical symptoms</em></td>
</tr>
<tr>
<td>Appetite/food cravings</td>
<td>Changes in appetite (increase/ decrease), food cravings, overeating</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>Sleep disturbance</td>
<td>Trouble falling asleep, insomnia, hypersomnia</td>
</tr>
<tr>
<td>Change in breasts</td>
<td>Breast tenderness or swelling</td>
</tr>
<tr>
<td>Physical pain</td>
<td>Headaches, joint pain, muscle pain</td>
</tr>
<tr>
<td>Increase in physical size</td>
<td>Feeling larger e.g. sense of bloating, weight gain, unable to lose weight</td>
</tr>
<tr>
<td>Decrease in physical size</td>
<td>Mentions feeling smaller or losing weight because can’t eat</td>
</tr>
<tr>
<td>Increase in energy</td>
<td>Feeling keyed up or having excess energy</td>
</tr>
<tr>
<td>Decrease in energy</td>
<td>Feeling lethargic, getting tired easily, lacking energy</td>
</tr>
</tbody>
</table>

**Intervention**

*Writer asks a question (or expresses a concern) about a topic of intervention*

**Biological**

(Pharmaceuticals, hormones, surgery)

- “What anti depressant is the best treatment?”
- “Should I take the Prozac prescribed by my doctor?”
- “Does Prozac work?”

**Natural/Nutritional**

- “What natural remedies can I take?”
- “I’ve been wondering about natural treatments”
- “Do supplements help?”
- “Has anyone tried taking Flax?”

**Psychotherapy**

- “Is therapy a good treatment?”
- “Does therapy work to treat pmd?”
- “I’ve been wondering if I can get therapy for this”
- “My husband and I are thinking about trying couples counselling”

**Efficacy**

- “How do antidepressants help?”
- “I’m considering trying Prozac but I need to learn more about it”
- “What does taking more vitamin B do?”
- “I’ve spent a lot of time reading about how supplements will help regulate my cycle”
Side effects

“Do antidepressants make you drowsy?”
“I took Prozac for a while but I hated how it made me feel on edge”
“I tried hormones but it made things worse”
“Does anyone know if one type of antidepressant has fewer side effects?”
“I’m worried about giving drugs to my teenager”

Intrapersonal

*Thoughts and feelings about one’s self and her internal characteristics during the time she is experiencing PMD symptoms*

Emotional

Irritable/cranky

Mentions feeling (or being) more irritable, or cranky than usual. Feels irritable or like snapping at people, feels always cranky

Sad/depressed

Writer mentions feeling sad, depressed or less happy than usual e.g. always in tears, or near tears

Anxious/nervous

Mentions feeling anxious, nervous, tense, or on edge

Mood swings

Writer mentions having mood swings or rapid changes in mood e.g. “One minute I’m fine, the next I’m crying”
“I go from happy to yelling so fast”

Out of control

Writer mentions feeling out of control. e.g. writer indicates that a behaviour is beyond her control or she can’t stop herself

Overwhelmed

Writer mentions feeling (or being) overwhelmed e.g
“I can’t deal with all the things Mark asks me to do when I feel like this”
“It’s like everything is too much to handle”

Identity

Altered sense of self

Mentions not feeling like herself (or her usual self) e.g. “I’m not myself when I have pms/ before my period”
“A different person takes over my body”
“It’s like Dr. Jekyll and Mr. Hyde”, “I’m not me”

Appraisals of others

Mentions being worried about (or knowing) how others view her or think about her. e.g. “My husband thinks I’m crazy”
“My boss will think I’m incapable/incompetent”
“My mom thinks I’m a drama queen”

Cognitive
Concentration difficulty  References difficulty concentrating or trouble focusing when experiencing symptoms

Intrusive negative thoughts  Mentions experiencing intrusive negative thoughts: self-deprecating, suicidal thoughts, more negative thoughts than normal

Memory problems  References difficulties with memory when experiencing symptoms

Organization difficulty  References difficulty with organization

Decision making difficulty  References difficulty with making decisions

Other Concern  A place for coders to flag comments that contain concerns that do not fall into the above categories. These were examined after 10% of the data are coded.

Note: The following categories were changed or removed from the final coding rubric: friend/acquaintance, other relative, personal task/duty, appetite/food cravings, increase in energy, decrease in physical size, organization, decision making and all of the subcategories under the intervention heading. The final list can be found on page 37.
Table 4
Final Coding Rubric for PMD Concerns

<table>
<thead>
<tr>
<th>Type of Concern</th>
<th>Description and Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explicit Worry</strong></td>
<td><em>A statement expressing concern or anxiety about something related to pmdd (i.e., one of the other categories in the manual)</em></td>
</tr>
<tr>
<td><strong>Interpersonal</strong></td>
<td><em>Mentions conflict with someone - links it to PMD symptoms</em></td>
</tr>
<tr>
<td>Parenting/children</td>
<td>Conflict with one’s child e.g. “I spanked Sue for the 1st time” or conflict with one’s parents e.g. “I locked myself in my room so I didn’t have to talk to my mom”</td>
</tr>
<tr>
<td>Romantic partner</td>
<td>“I can’t be around my wife when she’s like this”</td>
</tr>
<tr>
<td></td>
<td>“My husband and I fight over every little thing when I’m like this”</td>
</tr>
<tr>
<td>Other specific individual</td>
<td>“I avoid sitting with my friends at school/work”</td>
</tr>
<tr>
<td></td>
<td>“My cousin was so mad I missed her party”</td>
</tr>
<tr>
<td>General/unspecified individual</td>
<td>“I can’t get along with anyone”</td>
</tr>
<tr>
<td><strong>Functional Competence</strong></td>
<td><em>Comments indicate individual with PMD feels unable to perform a role or task</em></td>
</tr>
<tr>
<td>Parenting interruption</td>
<td>“I just can’t get out of bed to take the kids to the school”</td>
</tr>
<tr>
<td>School/Employment interruption</td>
<td>“I can’t do my job”</td>
</tr>
<tr>
<td></td>
<td>“I can’t go to work”</td>
</tr>
<tr>
<td>General/unspecified</td>
<td>“I can’t do anything”</td>
</tr>
<tr>
<td><strong>Diagnostic Clarity</strong></td>
<td><em>Indicates that one is trying to find a scientific or medical name, or label, for a group of symptoms that a woman is experiencing</em></td>
</tr>
<tr>
<td>Seeks to label experience</td>
<td>“I have X,Y, and Z is that pms or pmdd?”</td>
</tr>
<tr>
<td></td>
<td>“My daughter cries at school everyday when she’s getting her period. Is that pmdd?”</td>
</tr>
<tr>
<td><strong>Physical Symptoms</strong></td>
<td><em>Comments indicate the presence of physical symptoms</em></td>
</tr>
<tr>
<td>Sleep disturbance</td>
<td>Trouble falling asleep, insomnia, hypersomnia</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Change in breasts</td>
<td>Breast tenderness or swelling</td>
</tr>
<tr>
<td>Menstrual related physical pain</td>
<td>Headaches, joint pain, muscle pain, cramps</td>
</tr>
<tr>
<td>Increase in physical size</td>
<td>Feeling larger e.g. sense of bloating, weight gain, unable to lose weight</td>
</tr>
<tr>
<td>Decrease in energy</td>
<td>Feeling lethargic, getting tired easily, lacking energy</td>
</tr>
</tbody>
</table>

**Intervention**

*Writer mentions using a treatment or seeking out information about treatments and interventions*

- **Experience of seeking a treatment that is effective**
  - Mentions treatments she has tried in the past, is currently using or is considering using he in the future e.g.:
    - “I’ve been on Prozac for 10 years it helps”
    - “I’m looking into herbal remedies right now”

- **Seeking information about a Specific treatment**
  - Writer asks others reading his or her post about a specific treatment e.g.:
    - “What is Flax?”
    - “How does Prozac work?”
    - “How much maca do I take?”

- **Seeking help from a medical professional**
  - Mentions speaking with a doctor or other medical professional about help for her PMD symptoms e.g.:
    - “I went to my GP for help”
    - “I’m going to see a specialist about this”

- **Seeking advice or help not related to a specific treatment**
  - Writer asks others reading his or her post for help or advice about something related to PMD e.g.:
    - “If anyone has any tips I’ll take them”
    - “What should I do?”
    - “Please help me”

**Intrapersonal**

*Thoughts and feelings about one’s self and her internal characteristics during the time she is experiencing PMD symptoms*

**Emotional**

- **Angry/Irritable/ cranky**
  - Mentions feeling (or being) more irritable, or cranky than usual. Feels irritable or like snapping at people, feels always cranky
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sad/depressed</td>
<td>Writer mentions feeling sad, depressed or less happy than usual e.g. always in tears, or near tears</td>
</tr>
<tr>
<td>Suicidal thoughts/ fears of suicide</td>
<td>Mentions having thoughts of suicide or fears of becoming suicidal. e.g. “every month I have at least one day where I consider ending my life”</td>
</tr>
<tr>
<td>Anxious/nervous</td>
<td>Mentions feeling anxious, nervous, tense, or on edge</td>
</tr>
<tr>
<td>Mood swings</td>
<td>Writer mentions having mood swings or rapid changes in mood e.g.: “One minute I’m fine, the next I’m crying” “I go from happy to yelling so fast”</td>
</tr>
<tr>
<td>Out of control</td>
<td>Writer mentions feeling out of control e.g. writer indicates that a behaviour is beyond her control or she can’t stop herself</td>
</tr>
<tr>
<td>Overwhelmed</td>
<td>Writer mentions feeling (or being) overwhelmed e.g.: “I can’t deal with all the things mark asks me to do when I feel like this” “It’s like everything is too much to handle”</td>
</tr>
<tr>
<td>Lonely*</td>
<td>Mentions feeling lonely or alone e.g. “I get in such a dark and lonely place”</td>
</tr>
<tr>
<td>Identity</td>
<td></td>
</tr>
<tr>
<td>Altered sense of self</td>
<td>Mentions not feeling like herself (or her usual self) e.g.: “I’m not myself when I have pms/ before my period” “A different person takes over my body” “It’s like Dr. Jekyll and Mr. Hyde” “I’m not me”</td>
</tr>
<tr>
<td>Feeling crazy *</td>
<td>Explicitly mentions feeling in an altered state of mind or concern about her sanity e.g.: “I was worried I was going insane” “I turn into a lunatic”</td>
</tr>
<tr>
<td>Appraisals of others</td>
<td>Mentions being worried about (or knowing) how others view her or think about her e.g.: “My husband thinks I’m crazy” “My boss will think I’m incapable/incompetent” “My mom thinks I’m a drama queen”</td>
</tr>
</tbody>
</table>

**Cognitive**
<table>
<thead>
<tr>
<th>Memory and/or Concentration difficulty</th>
<th>References difficulty concentrating or trouble focusing when experiencing symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative thoughts</td>
<td>Mentions experiencing negative thoughts: self-deprecating, thoughts, more negative thoughts than normal</td>
</tr>
</tbody>
</table>

* Categories added or revised from initial rubric after training with coders.

**Enacted Social Support:** Each reply post was also treated as one unit for coding. The data from the reply messages were coded according to a revised version of the Social Support Behaviour Code (SSBC) developed by Cutrona and Suhr (1992). Originally created to evaluate the frequency of enacted social support between married couples, the SSBC has since been successfully adapted and used as a coding system for the analysis of online support group Internet forums (Coulson et al., 2007; Coursaris & Liu, 2009; Mo & Coulson, 2008). The coding framework assesses for the frequency of occurrence of the five broad forms of enacted support: emotional support (i.e., information that one is cared for and loved), esteem support (information that one is valued and esteemed), network support (i.e., information that one belongs to a network of persons with similar concerns or experiences), information support (i.e., provision of advice, factual input or feedback on actions), and tangible support (i.e., offers to provide material goods or perform a task). Cutrona and Suhr (1992) proposed 23 subcategories within these five categories. The subcategories, as adapted by Coulson et al. (2007) and Mo and Coulson (2008), were reviewed and some examples revised to increase the applicability of the coding scheme to PMDD (see Table 5). Additionally, an ‘other’ subcategory was added to each main category to permit coders to demark examples of social support not identified in the SBCC’s subcategories. These were reviewed during coder training to determine if additional
subcategories should be added to the coding rubric. According to Coulson et al., (2007), the authors omitted the original SSBC subcategory of “listening” from the coding scheme as it refers to the behavioural characteristics of the listener, which are not possible to observe or evaluate within an online discussion. Additionally the authors modified the subcategory “physical affection” to read “virtual affection” to capture instances where group members displayed virtual acts of affection such as written expressions (e.g., hugs, kisses, XOXO) and emoticons representing affection.

After training with the data coders, discussed in more detail below, the rubric was revised to reduce confusion between categories and better reflect the present data. Similar to the final categories used by Bambina (2007), it was determined that the category of esteem support could be combined with emotional support because of the overlap between the concepts and a lack of statistical difference between the two in previous research (Bambina, 2007). Additionally, as no new subcategories were suggested, the ‘other’ subcategories were removed. Due to conceptual overlap the category suggestion/advice was combined with the subcategory teaching. Similarly, access and referral were collapsed into one subcategory. Several subcategories were removed from the rubric during training when it was determined that they were not reflective of the data. Specifically: situation appraisal, confidentiality, relationship, and all of the tangible support subcategories that coded for direct physical actions of support (i.e., a loan or performing a task). The final rubric consisted of 4 main categories and 16 subcategories (Table 6). For each reply-post in the data set, one of four independent raters coded each variable as present –‘1’ or absent ‘0’

Each category and subcategory within the SSBC was mutually exclusive, meaning a supportive behaviour could only be coded as ‘present’ (or absent) in one subcategory. However,
even with mutually exclusive categories, an understanding of the support offered was often dependent on the context of the entire post. This results in cases where one unit (i.e., one post) could have been rated as ‘present’ for several subcategories. To help establish context, each coder was provided with a transcript of the entire thread, including the initial post, in order to code each unit (i.e., one post) for the presence of social support. The coder was instructed to read the conversation thread in chronological order.
Table 5

Brief Definitions of Initial Adapted Social Support Behaviour Codes

<table>
<thead>
<tr>
<th>Support Type</th>
<th>Purpose of the Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Informational support</strong></td>
<td></td>
</tr>
<tr>
<td>Suggestion/advice</td>
<td>Offers ideas and suggests actions</td>
</tr>
<tr>
<td>Referral</td>
<td>Refers the recipient to some other source of help e.g. websites, books, an organization</td>
</tr>
<tr>
<td>Situation appraisal</td>
<td>Reassess or redefines the situation</td>
</tr>
<tr>
<td>Teaching</td>
<td>Provides details, information, facts, or news about the situation, or about skills needed to deal with the situation</td>
</tr>
<tr>
<td>Sharing own experience*</td>
<td>Sharing a story about a personal experience that serves as a frame of reference rather than being educational</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td><strong>Esteem support</strong></td>
<td></td>
</tr>
<tr>
<td>Compliment</td>
<td>Says a positive thing about the recipient or emphasizes the recipient’s abilities e.g., “you’re so funny! You always make me smile” “you’re a great motivator”</td>
</tr>
<tr>
<td>Validation**</td>
<td>Offers validation of experience and validates that symptoms, or symptom severity is not imagined e.g.: “it’s not in your imagination, it is harder to focus when the pmdd hits”</td>
</tr>
<tr>
<td>Relief of blame</td>
<td>Tries to alleviate the recipient’s feelings of guilt about the situation e.g.: “it’s not your fault if you have a short fuse with your husband. Hormone make us cranky”</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td><strong>Emotional support</strong></td>
<td></td>
</tr>
<tr>
<td>Relationship</td>
<td>Stresses the importance of closeness and love in relationship with the recipient e.g.: “I’m sending you my love and well wishes”</td>
</tr>
<tr>
<td>Virtual affection*</td>
<td>Offers virtual affection including writing the words e.g.: “hug”, ”kisses”, “high five”</td>
</tr>
<tr>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Confidentiality</td>
<td>Promises to keep the recipient’s concerns in confidence</td>
</tr>
<tr>
<td>Sympathy</td>
<td>Expresses sorrow or regret for the recipient’s situation or distress</td>
</tr>
<tr>
<td></td>
<td>e.g.: “I’m sorry to hear things were so bad last month”</td>
</tr>
<tr>
<td>Understanding/empathy</td>
<td>Expresses understanding of the situation or discloses a personal situation</td>
</tr>
<tr>
<td></td>
<td>that communicates understanding e.g. “I know what you mean, I didn’t</td>
</tr>
<tr>
<td></td>
<td>tell my boyfriend about my pmdd for months after we started dating”</td>
</tr>
<tr>
<td>Encouragement</td>
<td>Provides the recipient with hope and confidence e.g.: “just hang in there,</td>
</tr>
<tr>
<td></td>
<td>remember things will all seem better in a few more days”</td>
</tr>
<tr>
<td>Prayer</td>
<td>Offers to pray for the individual e.g. “I’m keeping you in my prayers”</td>
</tr>
<tr>
<td>Expression of care*</td>
<td>Messages containing expressions of concerns toward other members</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

**Network support**

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Membership**</td>
<td>Informs the recipient that they are part of an extended network of</td>
</tr>
<tr>
<td></td>
<td>individuals in a similar situation (communicates a shared membership)</td>
</tr>
<tr>
<td>Access</td>
<td>Offers to provide the recipient with access to new companions e.g. another</td>
</tr>
<tr>
<td></td>
<td>Internet forum, or refers to an expert or specific doctor</td>
</tr>
<tr>
<td>Presence</td>
<td>Offers to spend time with the person, to be there for the recipient e.g.</td>
</tr>
<tr>
<td></td>
<td>offers to online chat with her or instant message her e.g. “message me if</td>
</tr>
<tr>
<td></td>
<td>you need to let off some steam” “IM me later if you’re still feeling sad”</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

**Tangible support**

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loan</td>
<td>Offers to lend the recipient something e.g. books, money, etc.</td>
</tr>
<tr>
<td>Perform direct task</td>
<td>Offers to perform a direct task related to a request e.g. “Send me your</td>
</tr>
<tr>
<td></td>
<td>email addy and I’ll forward the information I have on supplements”</td>
</tr>
<tr>
<td>Perform indirect task</td>
<td>Offers to take over one or more of the recipient’s other responsibilities</td>
</tr>
<tr>
<td></td>
<td>while the recipient is under stress e.g. “I can watch your kids after school</td>
</tr>
<tr>
<td></td>
<td>if you’re not up to it”</td>
</tr>
<tr>
<td></td>
<td>“I can cover for you at work tomorrow”</td>
</tr>
</tbody>
</table>

44
<table>
<thead>
<tr>
<th>Express willingness*</th>
<th>Expresses a willingness to help or perform a task e.g. “if you want I can send you the information about Prozac”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

* Items adapted from Mo and Coulson 2008  ** Item adapted for present study. Remaining items adapted from SSBC developed by Cutrona and Suhr (1992).
Table 6
Final Adapted Social Support Behaviour Codes

<table>
<thead>
<tr>
<th>Support Type</th>
<th>Purpose of the Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Informational support</strong></td>
<td></td>
</tr>
<tr>
<td>Suggest /advice/ teaching</td>
<td>Offers a specific idea or suggestion, or gives advice on a specific course of action</td>
</tr>
<tr>
<td>Sharing own experience*</td>
<td>Sharing a story about a personal experience that serves as a frame of reference rather than being educational</td>
</tr>
<tr>
<td><strong>Emotional support</strong></td>
<td></td>
</tr>
<tr>
<td>Compliment</td>
<td>Says a positive thing about the recipient or emphasizes the recipient’s abilities e.g. “you’re so funny! You always make me smile” “you’re a great motivator”</td>
</tr>
<tr>
<td>Validation**</td>
<td>Offers validation of experience and validates that symptoms, or symptom severity is not imagined e.g.: “It’s not in your imagination, it is harder to focus when the pmdd hits”</td>
</tr>
<tr>
<td>Relief of blame</td>
<td>Tries to alleviate the recipient’s feelings of guilt about the situation e.g.: “it’s not your fault if you have a short fuse with your husband. Hormones make us cranky”</td>
</tr>
<tr>
<td>Expression of care or concern*</td>
<td>Stresses the importance of closeness and love in relationship with the recipient and/or expresses concern about the well being of others e.g.: “I’m sending you my love and well wishes” “Let us know how you’re doing”</td>
</tr>
<tr>
<td>Virtual affection*</td>
<td>Offers virtual affection including writing the words e.g.: “hug”, “kisses”, “high five”</td>
</tr>
<tr>
<td>Sympathy</td>
<td>Expresses sorrow or regret for the recipient’s situation or distress. e.g.: “I’m sorry to hear things were so bad last month”</td>
</tr>
<tr>
<td>Understanding/empathy</td>
<td>Expresses understanding of the situation or discloses a personal situation that communicates understanding e.g.: “I know what you mean, I didn’t tell my boyfriend about my pmdd for months after we started dating.”</td>
</tr>
<tr>
<td>Well Wishes**</td>
<td>Expresses well wishes for the future and the expectation of a positive/favourable outcome e.g. “I hope things work out” “good luck”</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Encouragement</td>
<td>Provides the recipient with hope and confidence e.g.: “just hang in there, remember things will all seem better in a few more days”</td>
</tr>
<tr>
<td>Prayer/blessings</td>
<td>Offers to pray for the individual e.g. “I’m keeping you in my prayers” or offers blessings e.g. “God bless you”</td>
</tr>
</tbody>
</table>

**Network support**

| Membership** | Informs the recipient that they are part of an extended network of individuals in a similar situation (communicates a shared membership) |
| Access / referral | Offers to provide the recipient with access to some other source of help e.g. another Internet forum, websites, or refers to an expert or specific doctor |
| Presence | Offers to spend time with the person, to be there for the recipient e.g. offers to online chat with her or instant message her e.g. “message me if you need to let off some steam” “IM me later if you’re still feeling sad” |

**Tangible support**

| Express willingness to perform a task* | Expresses a willingness to help or perform a task e.g. “if you want I can send you the information about Prozac” |

* Items adapted from Mo and Coulson 2008 ** Item adapted for present study. Remaining items adapted from SSBC developed by Cutrona and Suhr (1992).

The following SSBC items were removed from the proposed coding scheme: Situation appraisal, confidentiality, loan, perform direct task, and perform indirect task.

**Ethical Considerations and Preservation of Anonymity**

An officer from the University of Guelph’s Office of Research reviewed the present study and after review of some websites likely to be included in the study determined that the
content of the websites was in the public domain. Therefore, the present study did not require formal review or approval from the University of Guelph Research Ethics Board (S. Auld, Director Research Ethics University of Guelph, personal communication May 13th 2013).

Many quotes from online content are traceable to the original source when entered into a search engine such as Google. To preserve the anonymity of the participants in this study, no direct quotes are included herein. The quotations demonstrated here were minimally modified in a manner to maintain the feel and content of the original message, an approach used in previous studies of online communities (Sherman & Greenfield 2013). For example, changing numbers printed as numerals to the spelt form (i.e., 2 into two), removing contractions (i.e., I’m to I am), correcting obvious typos (e.g., ‘overwhemed’ to overwhelmed), and changing pronouns to proper titles (e.g., ‘she’ to ‘the doctor’). Once completed, the edited version were entered into two Internet search engines, Google and Bing, to ensure they did not bring up the source website.

**Reliability**

In order to establish and later evaluate inter-rater reliability, a minimum of three coders were trained to evaluate the data and in some instances as many as five raters were trained. Each coder received training from the primary investigator on how to code each variable in the Premenstrual Dysphoria Concerns and SSBC coding rubrics. Training and coding for the premenstrual dysphoria concerns were conducted first over a four-month period, followed by the training and coding of the reply post data using the SSBC rubric for an additional six months.

The data coders were senior undergraduate students studying psychology or biological sciences. Prior to coding the data, coders reviewed assigned articles from the PMDD, social support and content analysis literatures. This was intended to familiarize the coders with relevant concepts, terminology and procedures. Subsequently, the coders independently reviewed the
proposed coding rubric and several sample posts. In a meeting with the primary investigator, areas of confusion and overlapping categories were discussed. In some cases, categories were revised to improve clarity. For example, the category of diagnostic clarity in the Premenstrual Dysphoria Concerns rubric, and the category of suggestion/advice/teaching in the revised SSBC rubric required several revisions and more than six rounds of training to reach reliability. In the case of suggestions/advice/teaching, not all coders could reach reliability. Therefore, instead of sharing the coding equally among the five available research assistants, the coding was shared between the coders who were most consistently reliable, for that subcategory, with the primary investigator throughout coder training.

After this initial familiarization process, and revision of the rubric, the coders and primary investigator individually coded approximately twenty sample items per round of training to establish reliability. After the first three rounds of training, the coding rubric for premenstrual dysphoria concerns was significantly revised to better reflect the data, improve clarity by reducing overlap in the categories and provide more guidance about when not to apply a category. The SSBC coding rubric was also revised using this process and some subcategories were collapsed, to improve the rubric. Specifically, the Access and Referral subcategories were deemed to be overlapping concepts of helping another individual find help from another source and were therefore collapsed. Similarly, The Esteem and Emotional support categories were collapsed to reduce confusion and overlap. The training examples were comparable to the final data. For example, concerns and social support behaviours that appeared very rarely in the training data were similarly found infrequently in the study data.

After a review of the final revised coding rubric, training continued until inter-rater reliability reached a minimum Krippendorff’s alpha (Ka) of .80 for each subcategory. The length
of time to reach reliability ranged from four rounds of training to as many as ten rounds for some categories. Once sufficient reliability was established, the data were divided equally among the coders for coding. To determine reliability of the final data, 20% of the data were selected at random and were independently coded by all coders; this approach aligns with other content analytic studies (Neuendorf, 2011). $K\alpha$ was calculated for each subcategory (see Table 7 and Table 8) and categories with an $K\alpha \geq 0.70$ were included in the final analysis. Krippendorff (2004) argues that the acceptable level of agreement below which data are to be rejected depends on the costs of drawing invalid conclusions from these data. He goes further to say that “where tentative conclusions are still acceptable, $K\alpha \geq .667$ is the lowest [limit]” (Krippendorff, 2004 p. 429). Given the exploratory nature of the present study, $K\alpha = .70$ was deemed an acceptable cut-off for reliability.
Results

Premenstrual Dysphoria Concerns General Overview

The data set consisted of 182 initial posts that started the discussion thread. Of those, 156 posts contained at least one mention of a premenstrual dysphoria concern (86.3%) and 34 out of the 156 posts with a concern had content that was explicitly stated as being a worry or concern (21.8%).

The Broad Premenstrual Dysphoria Concerns Categories: The first aim of the present study was to determine the frequency of premenstrual dysphoria concerns in six broad categories: a) the interpersonal consequences of PMDD symptoms; b) the intrapersonal consequences of PMDD symptoms; c) functional consequences of PMDD symptoms; d) physical symptoms related to PMDD; e) concerns about PMDD diagnosis and f) PMDD interventions. Five of these broad categories (excluding diagnostic concerns) comprised several smaller categories. However, the number of sub-categories within each larger category varied, ranging from three subcategories to 13 (Table 7). In the case of Intrapersonal consequences, the subcategories coded for in the data were further divided into various forms of intrapersonal concerns; specifically, emotional concerns, concerns about one’s identity and concerns related to cognition.

The frequencies for the broad categories were calculated by first summing the present (1) and absent (0) codes for each post across all of the sub-categories within a larger category. Given that the present study did not count every instance of a concern mentioned by an individual poster, the same principle of the present /absent coding was applied to the larger categories. Therefore, sums of 1 and greater were subsequently changed to a code of (1) for ‘present’. For example, in the category of Physical symptoms, if one post was rated as present in three of the
sub categories (e.g., increase in size, sleep disturbance and decrease in energy) those ratings would all be counted as a single code of ‘present’- (1) for the broad category of physical symptoms for that post.

Table 7 outlines the frequency of premenstrual dysphoria concerns from each broad category in the premenstrual dysphoria concerns coding rubric. Premenstrual dysphoria concerns were found in each of the broad categories examined: a) interpersonal consequences (41.7%); b) intrapersonal consequences (82.1%); c) functional consequences (21.8%); d) physical symptoms (44.2%); e) diagnostic concerns (10.3%) and f) intervention concerns (80.1%). The frequency of each broad category is expressed as a percentage of the 156 posts that contained at least one premenstrual dysphoria concern. Note that, a single post could contain many statements that were coded as ‘present’ for several categories. Since many of the 156 postings contained more than one broad category of concern, the sum of the percentages for the broad categories did not add to 100% (See note for Table 7, p.48).

Two of the broad categories, diagnostic clarity and explicit worry are, defined by a single construct and do not contain sub-categories. For example, the category of ‘explicit worry’ was intended to broadly capture a picture of how many comments were worded in a manner traditionally defined as ‘concern’ compared to the more broad definition of concern employed for the present study.

**Premenstrual Dysphoria Concerns Subcategories:** Given that the broad categories comprise varying numbers of subcategories, the relative frequency of premenstrual dysphoria concerns is best understood by looking at each individual subcategory within the context of its specific broader category. The frequency of each subcategory within these larger premenstrual dysphoria concerns categories is shown in Table 7. The percentages in the table reflect the
frequency of each subcategory as it relates to its broader category. For example, the frequency of concerns about one’s romantic partner was expressed as a percentage of all the posts that had one or more interpersonal concerns present (i.e. 47 posts with romantic relationship concerns out of 65 posts that contained at least one interpersonal concern).

Similar to the broader categories, several of the 156 postings contained statements relevant to more than one subcategory of a broader concern category. For example, one post could be rated as ‘present’ for anger, sadness and mood swings, but would only be counted once as ‘present’ for physical symptoms. Therefore, the sum of the percentages of the subcategories within a broader category did not add to 100%. The specific frequency of each of the subcategories is discussed below.
Table 7

Number and Percentage of Postings in Each Premenstrual Dysphoria Concern Category

<table>
<thead>
<tr>
<th>Premenstrual dysphoria concern category</th>
<th>Number of postings containing concern out of 156 posts</th>
<th>Percentage of postings</th>
<th>Reliability $K\alpha$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explicit Worry</td>
<td>34</td>
<td>21.8</td>
<td>.89</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>65</td>
<td>41.7</td>
<td>n/a</td>
</tr>
<tr>
<td>Romantic partner</td>
<td>47</td>
<td>72.3</td>
<td>1.0</td>
</tr>
<tr>
<td>Other specific individual</td>
<td>21</td>
<td>32.3</td>
<td>.80</td>
</tr>
<tr>
<td>General/unspecific individual</td>
<td>19</td>
<td>29.2</td>
<td>1.0</td>
</tr>
<tr>
<td>Parenting/children</td>
<td>14</td>
<td>21.5</td>
<td>.82</td>
</tr>
<tr>
<td>Functional Competence</td>
<td>34</td>
<td>21.8</td>
<td>n/a</td>
</tr>
<tr>
<td>School/Employment interruption</td>
<td>25</td>
<td>73.5</td>
<td>1.0</td>
</tr>
<tr>
<td>General/unspecified</td>
<td>16</td>
<td>47.1</td>
<td>1.0</td>
</tr>
<tr>
<td>Parenting interruption</td>
<td>2</td>
<td>5.9</td>
<td>1.0</td>
</tr>
<tr>
<td>Diagnostic Clarity</td>
<td>16</td>
<td>10.3</td>
<td>.78</td>
</tr>
<tr>
<td>Physical Symptoms</td>
<td>69</td>
<td>44.2</td>
<td>n/a</td>
</tr>
<tr>
<td>Sleep disturbance</td>
<td>15</td>
<td>21.7</td>
<td>1.0</td>
</tr>
<tr>
<td>Change in breasts</td>
<td>7</td>
<td>10.1</td>
<td>1.0</td>
</tr>
<tr>
<td>Menstrual related physical pain</td>
<td>35</td>
<td>50.7</td>
<td>.86</td>
</tr>
<tr>
<td>Increase in physical size</td>
<td>15</td>
<td>21.7</td>
<td>1.0</td>
</tr>
<tr>
<td>Decrease in energy</td>
<td>34</td>
<td>49.3</td>
<td>.71</td>
</tr>
<tr>
<td>Intervention</td>
<td>125</td>
<td>80.1</td>
<td>n/a</td>
</tr>
<tr>
<td>Experience of seeking effective treatment</td>
<td>100</td>
<td>80.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Category</td>
<td>Count</td>
<td>Percentage</td>
<td>Notes</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>-------</td>
<td>------------</td>
<td>-------</td>
</tr>
<tr>
<td>Seeking info about a specific treatment</td>
<td>20</td>
<td>16.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Seeking help from a medical professional</td>
<td>45</td>
<td>36.0</td>
<td>.76</td>
</tr>
<tr>
<td>Seeking advice or help not related to a</td>
<td>35</td>
<td>28.0</td>
<td>9.0</td>
</tr>
<tr>
<td>Specific treatment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Intrapersonal</strong></td>
<td>128</td>
<td>82.1</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Emotional</strong></td>
<td>113</td>
<td>88.3</td>
<td>n/a</td>
</tr>
<tr>
<td>Angry/Irritable/ cranky</td>
<td>57</td>
<td>50.4</td>
<td>.84</td>
</tr>
<tr>
<td>Sad/depressed</td>
<td>73</td>
<td>64.6</td>
<td>.92</td>
</tr>
<tr>
<td>Suicidal thoughts / fears of suicide</td>
<td>27</td>
<td>23.9</td>
<td>1.0</td>
</tr>
<tr>
<td>Anxious/nervous</td>
<td>27</td>
<td>23.9</td>
<td>.77</td>
</tr>
<tr>
<td>Mood swings</td>
<td>15</td>
<td>13.3</td>
<td>1.0</td>
</tr>
<tr>
<td>Out of control</td>
<td>27</td>
<td>23.9</td>
<td>.83</td>
</tr>
<tr>
<td>Overwhelmed</td>
<td>22</td>
<td>19.5</td>
<td>1.0</td>
</tr>
<tr>
<td>Lonely</td>
<td>14</td>
<td>12.4</td>
<td>.84</td>
</tr>
<tr>
<td><strong>Identity</strong></td>
<td>56</td>
<td>44.8</td>
<td>n/a</td>
</tr>
<tr>
<td>Altered sense of self</td>
<td>24</td>
<td>42.9</td>
<td>.76</td>
</tr>
<tr>
<td>Feeling crazy</td>
<td>30</td>
<td>53.6</td>
<td>.74</td>
</tr>
<tr>
<td>Appraisals of others</td>
<td>19</td>
<td>33.9</td>
<td>.76</td>
</tr>
<tr>
<td><strong>Cognitive</strong></td>
<td>38</td>
<td>29.7</td>
<td>n/a</td>
</tr>
<tr>
<td>Memory and/or Concentration difficulty</td>
<td>11</td>
<td>28.9</td>
<td>1.0</td>
</tr>
<tr>
<td>Negative thoughts</td>
<td>31</td>
<td>81.6</td>
<td>.80</td>
</tr>
</tbody>
</table>

Note: Bolded numbers, representing the data for broad categories, are expressed as a percentage of the 156 postings in the data set that contained at least one statement rated as representative of a category of concern. Since several of the 156 postings contained more than one broad category of concern, the sum of the percentages for the broad categories does not add to 100%.
The percentage values for the sub-categories are expressed as a percentage of the frequency of the presence of the broader category under which the specific sub-category falls. For example, since 47 of the 65 interpersonal statements contained a concern about a romantic partner, the percentage presence of romantic partner concerns was 72.3%. Again, since individual postings may contain statements rated under more than one subcategory, percentages do not add to 100%.

**Explicit Worries about Premenstrual Dysphoria:** In addition to coding for the presence of concerns as broadly defined in this study\(^3\) there were a minority of messages (34 of 156 posts, 21.8%) that contained content of explicitly worded worries for example “I worry that [my boyfriend’s] just going to give up on me”. The explicitly stated worries included a range of concerns from the subcategories discussed herein.

**Interpersonal Relationships:** Concerns about interpersonal relationships were found in 65 out of the 156 posts that contained at least one concern (41.7%). Concerns about romantic relationships were found in messages that referenced arguments, conflicts, and separation from one’s partner (47 of 65 posts, 72.3%). Individuals spoke of taking things out on their partner, and the posts also referenced the fear that a separation would happen in the future as a result of premenstrual dysphoria symptoms. In some instances the anger associated with premenstrual dysphoria was cited as leading to romantic relationship interruptions. Examples included:

“… and I am usually a raving lunatic at this time in my cycle and my poor partner get the brunt of it…”

“[I’m] trying desperately not to screw up my current relationship. He is a wonderful, wonderful man! But even a wonderful guy can only deal with a werewolf that I become for so long I fear.”

---

\(^3\) The term ‘concern’ is defined broadly in this study as an issue, related to premenstrual dysphoria that troubles individuals dealing with the presence of cyclical symptoms. This term is meant to capture both explicitly stated worries, as well as mention of PMDD symptoms (as listed in the DSM) and other associated consequences that have the potential to be inconvenient, annoying and unwanted.
“Every month before my period I would contemplate divorce … I felt the urge to hurt myself. I found my shaving razor and cut my wrist…my husband walked in and was so frightened. He broke out in anger and I can’t blame him.”

“… especially having the best boyfriend I ever had in my life. I worry that he’s just going to give up on me. Luckily most of the time I am my normal self. But even luckier he’s told me he can handle the emotions …”

“every month about seven to 10 days before I’m due, I have one week of HELL. I feel a drop in my mood, so low I feel like killing myself, and then [there is] the anger that fuels me into a rage at even the slightest things. The arguments with my husband have put us close to the breaking point many times.”

“I have been with my boyfriend for all of five months – I have up to now avoided seeing him during my luteal phase by making work excuses – he has never seen me unwell like this.”

Posters who mentioned conflict with other individuals generally mentioned categories of identifiable people such as friends and family who were affected by the poster’s premenstrual dysphoria symptoms (21 of 65 posts, 32.3%). For example:

“the people who suffer are my family.”

“I need to find help with this because it is severely affecting my life. My friends think I am anti-social and are slowly distancing themselves away from me”.

Sometimes instead of referencing a specific individual or category of individuals, posters spoke of losing relationships in general, due to the presence of premenstrual dysphoria symptoms (General/Unspecified individual- 19 of 65 posts, 29.2%). For example:

“I lash out at everyone.”

“I’ve lost a lot of good relationships because of lashing out during the bad time of the month, then when I get my period and come 2 my senses the other party does not care, or understand, that I did not mean it.”

Posts regarding parent child relationships (14 of 65 posts, 21.5%) conveyed two main ideas. The first is the idea that premenstrual dysphoria symptoms may cause mothers to feel separated from their children or behave in an uncharacteristic manner, for example,
“I just feel miserable and like I want to pull away from my daughter …”;

“I pick fights with my husband and snap at the kids.”;

“The way I act toward my husband and kids is not okay. I hate the person that I become.”

Secondly, posters spoke of being able to protect children from the effects of their negative moods. For example:

“I can walk away or breathe it out with the children if I feel angry or overwhelmed or anxious but with my husband I can’t. It’s like an attack dog. I just want to hurt him.”;

“My children never get my moods, I only take it out on my husband.”

**Interruptions in Daily Functioning:** Concerns about interruptions to daily functioning were found in 34 out of the 156 posts that contained at least one concern (21.8%). Messages addressing the topic of school and employment interruptions contained references to absenteeism, and failure to complete tasks that had been initiated before the onset of premenstrual dysphoria symptoms (25 of 34 posts, 73.5%). Examples included:

“I’ve flunked out of classes because of this and I feel entirely useless and stupid because of it. I take a class that lasts four weeks, I do well the first two weeks but cannot muster the strength to get out of bed to finish the last two weeks.”;

“I at times call in sick because I can’t handle being around anyone or myself. I will stay in bed in the dark all day long.”

“it has completely disrupted my life. I put off going to college because I need to learn how to cope with it.”

A similar pattern of messages was found regarding reduced ability to perform or complete domestic or professional duties (General or Unspecified Interruptions - 16 of 34 posts, 47.1%). In keeping with the cyclical nature of premenstrual dysphoria symptoms, message content included references to individuals having to work harder when not impacted by premenstrual dysphoria symptoms, for example:
“I feel no motivation… it’s like the ‘normal’ me has double work to do cause I know I have 2 weeks out of the month to get all that I need to do done.”

“It takes hours worth of persuading myself to brush my teeth & put on [my] clothes, let alone do anything else.”
“I’m losing two weeks because of this disorder and then the rest of the month to anxiously planning and making sure that everything is done and in place for when I’m incapacitated.”

“I sometimes don’t even like going out in public. I feel like I am a burden to others…”

Unlike other forms of daily functioning, interruptions in the ability to perform one’s parenting duties were found very infrequently (2 of 34 posts, 5.9%). Only two, of the 156 posts, reported interruptions to performing parenting duties. The posters grouped this lack of function in with a discussion of other responsibilities without going into details: “I am unable to go to work, look after my son …”; “I can’t function at work, home, as a friend, wife, or mom.”

**Diagnostic Clarity.** Some messages (16 of 156 posts, 10.3%) contained comments from posters trying to label their individual experience as PMDD and not some other form of mental illness, or as the less severe form of PMS. Posters at times sought clarification directly from others on the Internet forum, or spoke of their experience visiting a medical professional in person. For example comments included:

“I’m not sure if I officially have PMDD or maybe premenstrual exacerbation of my depression since the mood swings, anxiety, anger and fatigue do not improve once my period starts.”

“What are the key signs that would help to tell [PMDD] apart from other illnesses?”

“It was really hard to diagnose and I’m still not really sure my doctor is right.”

**Physical Symptoms.** There are six physical symptoms associated with the experience of PMDD listed in the DSM-5 criteria (APA2013). Five of these were examined in the present study. The sixth physical symptom, change in appetite/food cravings, was removed during the
revisions to the Premenstrual Dysphoria Concerns coding rubric during coder training. It was deemed that concerns about appetite and food cravings were not present. More specifically, there were no examples present in the data with which to conduct coder training or establish reliability. Concerns about physical symptoms were found in 69 out of the 156 posts that contained at least one concern (44.2%). The presence of these symptoms was typically mentioned in the present sample in the context of the poster listing her particular set of symptoms in the content of her post. This is especially true, for the experience of sleep disturbances (15 of 69 posts, 21.7%), changes in one’s breasts (7 of 69 posts, 10.1%) and menstrual related pain (35 of 69 posts, 50.7%). Generally, the content of the posts did not give details about the nature of those particular symptoms. For example, one poster who spoke in detail about her conflicts with her husband and her kids, only mentioned her pain and insomnia in a list of other symptoms:

“… then the crying for no reason, severe anxiety, cramps, insomnia, I feel out of control, and unable to function as a person …”

With regard to sleep disturbances, insomnia was reported most frequently. Only two messages, of the 15 that contained mention of sleep disturbance, referenced hypersomnia.

Users generally discussed the remaining two types of physical symptoms in more detail in their posts: experiencing an increase in physical size and experiencing fatigue. With regard to an increase in size (15 of 69 posts, 21.7%), users spoke of worry about gaining weight associated with taking medication to remedy the symptoms. For example:

“… my doctor prescribed Zoloft. I gained about 30 lbs and I didn’t feel the difference. So, I ended up fatter and more depressed… I vowed that I would never take any type of meds for this again … [But] the PMDD has been getting progressively worse and exercise doesn’t help anymore … I just found out the Depo shot also causes weight gain 😞 I’m now torn about getting it.”

“I took Cymbalta for a year and turned into a big fat blob that cared about nothing … so I am reluctant to go that route again.”
Additionally, messages contained content describing the presence of great fatigue and decreased energy during the premenstrual phase (34 of 69 posts, 49.3%), for example:

“It’s difficult to get out of bed some days, [I’m] exhausted even after sleeping 12 hours. Sometimes it’s too exhausting to even leave bed, too tired and depressed and empty to even bother doing so.”

**Intervention Related Concerns.** Concerns regarding treatment and remedies for premenstrual dysphoria were found in 128 out of the 156 posts that contained at least one concern (80.1%). Messages in this sample frequently included stories of the posters’ experience of seeking a treatment or remedy for their monthly symptoms (100 of 125 posts, 80.0%). The intervention seeking topics included the woman’s experience of trying an intervention or treatment in the past, and discussion of current remedies and treatments being used to alleviate symptoms. These remedies included pharmaceutical products, vitamins and diet, lifestyle choices and recreational drugs. Examples included:

“I was dx with [PMDD] many years ago. The doctor put me on a low dose of anti-depressants/anti-anxiety meds. The first did not work, so the doctor switched me. That was not working either. Then I got pregnant and stopped taking them on my own accord… I've been taking progesterone, but it only barely helps. I do not want to go to the doctor because I'm afraid the meds will do nothing (like last time).”

“I refused [SSRIs] as I have been on antidepressants [in the past] which helped me a lot at the time, but I didn’t want to go that way this time. For the time being I’m taking vitamin Ds, 5HTPs…[and] vitamin B12 inter muscular shot.”;

“I’m trying to prepare myself for the pmdd episode that has barely even begun: Eat healthy, take my vitamins, workout … and when nothing seems to work I have weed to help me through.”

“Please help. I don’t know what to do. I’ve tried everything: exercising more, eating better, cutting caffeine, alcohol, sugar, gluten free diets, anti-depressants in addition to Yaz.”

The experience of seeking information about treatment on the Internet forums at times took the form of asking others if they had tried a particular treatment and what the outcome was
or what the poster could expect if she tried the treatment also (20 of 125 posts, 16.0%). For example:

“I’m just wondering if anybody out there had a hysterectomy for pmdd or knows of someone that has, whether they found it useful/ difficult to achieve.”

“I’ve been [a drug] for several years now… I’m wondering if it’s possible to get off them or if I’ll have to stay on them for the rest of my life?”

Some posters (45 of 125 posts, 36.0%) described the experience of looking for help from a medical professional to remediate the symptoms associated with premenstrual dysphoria for example:

“I’ve tried explaining this to my doctor [who is male] and his answer is yes many females are emotional by their periods.”

“I finally went to my GP and told him about my horrid PMS … he suggested a few things and I can’t decide which to do.”

“I’ve gone to the doctor about this a coupe of times already and the doctor’s first suggestion is of course to put me on an SSRI …”

Although the response of the doctor was not coded for in the present study, a cursory review of the comments indicates that the behaviour of seeking help was met with varied responses including disregard of the symptoms, offers of antidepressants only, and offers of different remedies for the patient to choose from.

In addition to seeking information about a specific remedy, the posts contained requests for general advice, help, or suggestions from others on the Internet forum (35 of 125 posts, 28.0%). These requests came in the form of open ended requests such as:

“Just any info at all on your personal experience would be really great.”

“Any advice would be helpful”

“please someone help!”
“I’d appreciate any feedback or comments. I’ve never known anyone else with my PMS problems, so I’d love to hear from you if this is something you go through as well”.

Additionally there were questions about types of interventions (rather than one specific treatment) for example: “I guess my question to all of you on here – what natural methods have you tried to help with your PMDD? What has worked for you?”

**Emotional Concerns.** There are several emotional symptoms associated with PMDD. Messages related to the experience of emotional symptoms (113 of the 128 intrapersonal posts, 88.3%) typically included the poster generating a list of her specific symptoms and including the impact on her life. Messages coded for the presence of anger (57 of 113 posts, 50.4%) included mention of being angry, irritable or cranky. In some cases messages of this nature detailed how the individual’s anger manifests. For example,

- “I’ve realized I have PMDD. Ten days before my period, I become combative, feeling disproportionately rejected… and become verbally abusive.”

- “For me it’s the extreme emotional symptoms and angry behaviour that had caused me concern.”

- “I’m tired of becoming so irritated with trivial inconveniences that would typically go unnoticed.”

Messages recounting the experience of sadness during the premenstrual period (73 of 113 posts, 64.6%) spoke of an intense level of sadness during the premenstrual time and also the presence of tearfulness. Examples include:

- “Most of all the sadness is the toughest to endure.”

- “I don’t get angry or violent with PMDD - just profoundly sad.”

- “Then the week of hell comes. Everything falls apart. Work stinks, friends stink, my boyfriend makes me cry, the sunn makes me sad, the rain makes me sadder. Food becomes my best friend.”

- “I just lay on my bed crying for hours.”
The category for suicidal thoughts and fear of suicide (27 of 113 posts, 23.9%) captured both the experience of having suicidal thoughts during the premenstrual phase and also the worry that one would in the future experience suicidal thoughts. Some examples of comments include:

“The depression and mood swings ten to fifteen days before my period has driven me to plan out my suicide many times. If it weren’t for being a single mother I probably would have done it already.”

“I used to get suicidal each cycle like clock work. I never made any plans or acted on those feeling or anything.”

“I know this sounds bad but does anyone else during the awful pmdd state think of killing herself… even though you know totally [you] would not [it’s] just that good old war inside your head. I’d really like to know I’m not alone in this part.”

Similar to the experience of anger, when posters discussed the presence of anxiety (27 of 113 posts, 23.9%) as a part of the premenstrual dysphoria experience, it was listed with other symptoms endured during the premenstrual phase, for example:

“… I am now able to notice a pattern of when my low mood cones and boy when it comes, it sure does come!!! Weepy and argumentative over nothing, paranoid and anxious over nothing, depressed and down over nothing. Pretty much all the negative emotions one can feel at once.”

“I become a person I don’t like. Anxious, paranoid, self loathing and just down right nasty!!!”

Some posters spoke of experiencing rapid shifts and swings in mood as a part of their monthly symptoms (15 of 113 posts, 13.3%), for example:

“I go from yelling to crying in crazy circles.”

“I am sitting here crying my eyes out because these mood swings are getting worse.”

“Feelings of elation at one point and then one thing happens and I fall into crying spells.”

Messages detailing the symptom of loss of control (27 of 113 posts, 23.9%) outlined feeling a lack of control, both over one’s emotions and over one’s behaviour. Messages included:
“I become a person I don’t recognize for at least 7 days a month. It’s scary and embarrassing and I just feel lost. To not be in control of your emotions, behaviour, is maddening. … Feeling out of control, at times wanting to run away from my beautiful life and family.”

“The week before my menstrual cycle comes I am out of control! Depression, anxiety, no appetite, mood swings and a ton of physical elements.”

“I grew more frustrated as my disorder intensified. I was out of control. Emotions were off the chart…”

Some messages recounted the experience of feeling overwhelmed (22 of 113 posts, 19.5%) for example:

“during that time I feel so overwhelmed, tired and de-motivated.”

“It’s becoming so scary and overwhelming and really starting to affect my marriage.”

Others mentioned the feeling of loneliness associated with having premenstrual dysphoria (14 of 113 posts, 12.4%), for example:

“I felt quite alone as I know of no one else who reacts to their PMS quite as dramatically as I do.”

“PMDD is a lonely place. And you can’t ask for help when there’s no one listening.”

“ I do feel alone in this even though I have read a ton of stories on here.”

**Sense of Identity.** A subjective shift in one’s sense of personal identity can manifest in several ways when experiencing premenstrual dysphoria. Posters described this sensation or impression, in three distinct ways (56 of 128 intrapersonal posts, 44.8%). Several posters discussed the experience of temporarily not feeling like their ‘normal’ self, in other words, individuals spoke of having an altered sense of self (24 of 56 posts, 42.9%). Examples included:

“I feel like 2 people. The person who is angry suicidal and depressed and can’t function. Then the other 2 weeks of the month I am happy and function normally.”

“Please let [my period] start soon! I want to feel like myself again and not some lethargic, evil, crazy woman.”
“Sometimes I hate my life because of this. PMDD, in my best description is like Dr. Jekyll & Mr. Hyde.”

“All the while I am feeling this, I know that it is not the real me. It is hormone related and as soon as mother nature get here and waves her magic wand, PMDD disappears immediately leaving me feeling like a weight has been lifted, the dark cloud has evaporated and I and ME again. Happy, calm, fun, loving – in control – me.”

“I feel like I don’t even recognize myself, like I am looking down saying who the hell is this person in my body. It’s scary and overwhelming and getting worse month by month.”

Similarly, individuals posted concerns about their sanity as one experiences premenstrual dysphoria. More specifically, the idea of “going crazy” was expressed by posters as a worry about losing touch with reality (30 of 56 posts, 53.6%). Individuals posed questions to the board asking if others had experienced a similar sensation, or could provide validation that the premenstrual symptoms are real and not imagined, for example:

“Has anyone else experienced this? Or [am I] just losing my mind …”

“Can someone explain to me what goes on in my body that causes to me to feel like I am literally going crazy.”

“Titled: Maybe I’m Not Going Crazy??????? - Hi I just found this group and hoping that maybe I’m not really going crazy…”

In addition to concerns about one’s sanity, posters also spoke of concern about how they were being perceived and evaluated by others as a result of their PMDD symptoms (19 of 56 posts, 33.9%). This category captures worry about how one is ‘perceived’ by others. Examples of this include:

“My friends think I am anti-social....”

“Everyone thinks I’m just being a bitch or having an emotional day…”

**Cognitive Symptoms.** The final intrapersonal symptoms examined were the presence of cognitive differences, such as changes in memory or thoughts, during the experience of PMDD (38 of 128 intrapersonal posts, 29.7%). Messages espousing the presence of memory and
concentration difficulties listed this symptom, among others, as contributing to interruptions in daily functioning (11 of 38 posts, 28.9%). For example:

“Life is fine for two weeks, and then gets progressively worse for two weeks, until right before my period when I either explode in rage, can’t stop crying, avoid people, want to crawl in a hole and hide, can’t concentrate or remember anything.”

“I can’t work or focus. I don’t want to do any of the things I usually enjoy.”

“I cry sometimes for three hours on end. I can’t focus on my studies, I have poor memory, terrible retention, and seriously horrible depression.”

The other form of cognitive symptom experienced by users was the presence of negative thoughts (31 of 38 posts, 81.6%). When speaking of their PMDD time, users mentioned experiencing negative and self-deprecating thoughts, for example:

“I always feel down on myself, I feel ugly, worthless, and I sometimes do not even like going out in public. I feel like I am a burden to others.”

“I [feel] worthless, depressed and [see] no point in starting the day.”

“I feel bipolar, embarrassed, worthless, … I am from a good family ... I’m fortunate and I know that. I struggle badly when I feel suicidal during the darkest PMDD days. But honestly, who wouldn’t want to end it when all you have are dark thoughts and tears.”

“I just lay on my bed crying for hours about things I make up in my head. Somehow I convince myself that I’m not good enough and that all my friends hate me”.

Social Support General Overview

The data set consists of 525 reply posts – posts that followed the first post in the discussion thread. Of those, 357 (68.13%) contained at least one type of social support behaviour.

The Broad SSBC Categories. The second aim of the present study was to examine and quantify the nature of enacted social support on Internet forums related to PMDD using four broad categories: a) information support b) emotional support c) network support and d) tangible support. The frequencies for the broad categories were calculated by first summing the present
(1) / absent (0) codes for each post across all of the sub-categories within a larger category. Given that the present study did not count every instance of enacted social support, the same principle of the present / absent coding was applied to the larger categories. For example, if one post was coded ‘present’ for the subcategories of network support, and presence those ratings would all be counted as a single code of ‘present’ for the broad category of network support.

Table 8 presents the frequency of social support offered within the specific SSBC categories examined in the reply posts, expressed as a percentage of the 357 reply posts that contained one or more social support behaviours. The categories within this study are mutually exclusive but not strictly independent; in theory, a single reply post could contain many statements of social support that were coded as ‘present’ for several categories. Since many of the 357 postings contained more than one broad category of social support behaviour, the sum of the percentages for the broad categories does not add to 100%. As expected, emotional support (201 of 357 posts, 56.3%) and information support (184 of 357 posts, 51.5%) were the most frequent forms of social support observed. Network support was less frequently observed (79 of 357 posts, 22.1%) and tangible support was not observed at all (0%).

**The SSBC Subcategories.** Given that the broad categories are comprised of varying numbers of subcategories, the relative frequency of social support behaviours is best examined by looking at the distribution of each subcategory within the context of its specific broader category. The frequency of each subcategory within these larger SSBC categories is shown in Table 8. The percentages in the table reflect the frequency of each subcategory as it relates to its broader support category. For example, the frequency of virtual affection is expressed as a percentage of all the posts that had one or more emotional support behaviours present (i.e. 69
posts with a display of virtual affection out of 201 posts that contained at least one emotional support behaviour).

Similar to the broader categories, several of the 367 reply posts contained supportive statements relevant to more than one subcategory of a broader supportive behaviour category. For example, one post could be rated at ‘present’ for affection, sympathy and prayer, but would only be counted once as ‘present’ for the broad category of emotional support. Therefore, the sum of the percentages of the subcategories within a broader category does not add to 100%. The specific frequency of the subcategories is discussed below.
Table 8

Number and percentage of postings in each support category from the Social Support Behaviour Scale by Cutrona and Suhr (1992)

<table>
<thead>
<tr>
<th>Support category</th>
<th>Number of postings containing supportive behaviour</th>
<th>Percentage of total postings</th>
<th>Reliability $K_a$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Information Support</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sharing one’s experience*</td>
<td>184</td>
<td>51.5</td>
<td>.75</td>
</tr>
<tr>
<td><strong>Emotional Support</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Virtual affection*</td>
<td>69</td>
<td>34.3</td>
<td>.83</td>
</tr>
<tr>
<td>Sympathy</td>
<td>32</td>
<td>15.9</td>
<td>.90</td>
</tr>
<tr>
<td>Encouragement</td>
<td>34</td>
<td>16.9</td>
<td>.71</td>
</tr>
<tr>
<td>Well wishes **</td>
<td>77</td>
<td>38.3</td>
<td>.86</td>
</tr>
<tr>
<td>Understanding/Empathy</td>
<td>70</td>
<td>34.8</td>
<td>.85</td>
</tr>
<tr>
<td>Blessings</td>
<td>10</td>
<td>5.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Expression of care/concern*</td>
<td>47</td>
<td>23.4</td>
<td>.71</td>
</tr>
<tr>
<td><strong>Network Support</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Membership**</td>
<td>36</td>
<td>45.6</td>
<td>.95</td>
</tr>
<tr>
<td>Access/referral</td>
<td>33</td>
<td>41.8</td>
<td>.74</td>
</tr>
<tr>
<td>Presence</td>
<td>11</td>
<td>13.9</td>
<td>.70</td>
</tr>
<tr>
<td><strong>Tangible Support</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Express willingness to perform a task*</td>
<td>0</td>
<td>0</td>
<td>1.0</td>
</tr>
</tbody>
</table>

* Items adapted from Mo and Coulson 2008

**Items adapted for the present study
Note: Bolded numbers, representing the data for broad categories, are expressed as a percentage of the 357 reply postings in the data set that contained at least one instance of social support. Since several of the 357 postings contained more than one broad category of social support, the sum of the percentages for the broad categories does not add to 100%.

The percentage values for the sub-categories are expressed as a percentage of the frequency of presence of the broader category under which the specific sub-category falls. For example, since 32 of the 201 emotional support statements contained an instance of sympathy support, the percentage presence of sympathy support was 34.3%. Again, since individual postings may contain statements rated under more than one subcategory, percentages do not add to 100%.

The category of prayer/blessings was re-labeled as blessings due to a lack of prayers in this sample.

**Information Support.** Messages with an instance of ‘sharing one’s experience’ typically provided an account of the poster’s own experience with premenstrual dysphoria, and her coping methods (184 of 357 posts, 51.5%). For example:

“I can definitely relate. I’ve been keeping a mood chart and have noticed that these same thoughts pertaining to my husband arise every month. I am going through an episode now and my reasoning for being so angry & frustrated make sense ... but then I become more confused the more I think about it. Are these my thoughts or my pmdd? It’s very hard to think clearly. I feel you're [sic] frustration!”

“I understand your feelings ='( I see a therapist for my anxiety and the therapist has helped me a lot with my pmdd. I know it can be hard on relationships. I’m engaged now, but when i was dating him i almost broke-up with him once a month. idk why, but he understands it.. i hope you find happiness!”

**Emotional Support.** Of the reply posts containing social support behaviours, 201 of the 357 posts (56.3%) contained at least one statement of emotional support. Several instances of virtual affection offered as social support (69 of 201 posts, 34.3%) were found. Posters expressed affection using representations of facial expressions formed by various combinations of keyboard characters (emoticons), small digital pictures or icons used to express emotions or actions (emoji) such as ‘hugs’ and ‘kisses’, or by using words such as “Hugs to you all”. The affection was offered both to specific recipients, and to other members of the board in general.
Posters also offered emotional support by conveying a sense of sympathy in their messages that someone else is experiencing premenstrual dysphoria (sympathy - 32 of 201 posts, 15.9%). Some examples include:

“I'm so sorry! I get the fear of taking pills. I take an anti anxiety & X. It helps. But a pmdd episode can still B unbearable…”

“Hi [user name removed], Welcome to the group. So sorry that you’re one of our fellow-suffers. [IT] SUCKS!”

“I'm so sorry you r feeling hopeless. Have you been to couples therapy? maybe hearing from another person … that it’s real may help your hubby and then you can openly talk about it and work through it. I can definitely relate…”

Emotional support in the form of encouragement was offered in response to the stories of others on the board (34 of 201 posts, 16.9%). For example, in response to one posters request for advice about getting her ovaries removed the following encouragement was given:

“U R going to be ok. It sounds like U R on the right track. Give your self some more time to learn to manage this crappy condition. It’s not U, it’s your hormones. Don’t let ’em rule your life. Good luck! Stay strong. Stay positive. Keep your ovaries!”

“…all this to say, don’t suffer needlessly… hang in there and take care of yourself.”

Emotional support was also given in the form of well wishes for a positive future outcome (77 of 201 posts, 38.3%). Examples include:

“I hope that treatment you are getting continues to work well.”

“I’m a guy so I don’t know about premenstrual dysphoric disorder. I offer you tulips and hope you get relief for your hurting. I hope things get better for you! (6 flower icons).”

Posters expressed sentiments of empathy, by conveying an understanding of what the poster of the initial post experienced (70 of 201 posts, 34.8%). Comments of empathy included:

“I can completely relate. My periods are super regular, but that just makes the premenstrual dysphonic disorder very predictable…”
“Right there with you. Premenstrual dysphoric disorder has only been evident for around 4 years now though. I know it's going to get worse, and I still can't imagine how it could.” and “Omg I can sooo totally relate to u ...”

In the present sample, there were no offers to pray for others, but when another poster on the board spoke in detail of her struggle with premenstrual dysphoria emotional support was sporadically offered by others giving blessings (10 of 201 posts, 5.0%). For example:

“I hope you find happiness! Add me if you ever want to chat about it cuz I know what you’re going thru. Good luck and god bless.”

“Bless you for going through this. I really sympathize with you as it isn’t nice at all.”

Many messages offered support by expressing care or concern to others (47 of 201 posts, 23.4%). Individuals posted enquiries about how others were doing such as “how is it going girl, any better?”;

“how are you feeling? Is the SSRI (is it Zoloft?) working for you?” and also with messages that expressed concern for her well being. For example,

“Firstly, [user name removed] please do not use the word simple when it comes to premenstrual dysphoric disorder bcuz it isn’t. Not for any of us. I’m glad to here you are looking after yourself.”

“I hope in time you remember the good times more than the bad and you both find happiness. Take care.”

Network Support. Although found relatively infrequently (79 of 357 posts, 22.1%), messages of network support were present in the current sample. Messages of membership were the most frequent form of network support (36 of 79 posts, 45.6%). These messages offered emotional support by conveying a shared sense of belonging to the community of individuals affected by premenstrual dysphoria. The recipient of the support was informed that she is not alone in her experience of premenstrual dysphoria. Comments of membership included:

“…But as I get older, and if this is not getting better, then a road similar 2 yours would be an option. You are not alone!”
“You’re not alone. I hope it gets better and that more people will know what this is and become aware of it.”

“Hello & welcome. Yes, you are not alone. I would advise you 2 keep posting.”

“Hey there, so sorry you’re going through this. Welcome to the group, finally some real understanding and empathy!”

The second most prevalent example of network support was that offered in the form of access or referral to another source of information or support (33 of 79 posts, 41.8%). Individuals who offered this form of support provided links to other sources of help or referred readers to another part of the website. Examples included comments such as:

“[visit] https://www.facebook.com/groups [rest of url removed] a private support group for PMDD women” and “If this is permitted here, I would like to invite you to take a look at my website, written with Christian women in mind, at … and I’d be happy to hear from you!”

Some network support messages contained the supportive behaviour of offering to be present for another individual (11 of 79 posts, 13.9%). These offers were in the form of prompting the reader to send a message to the poster of the reply post. For example:

“Message me anytime you need to talk!”;

“Add me if you ever want to chat about it cuz I know what you're going thru”,
and “… I hope all is well and always here if you want to talk …”.

**Tangible Support.** There were no instances of tangible support in the present sample.

**Categories Removed.** Due to low inter-rater reliability ($\text{K} \alpha < .70$) the ‘suggestion/advice/teaching’, validation, and compliments categories were removed from the analysis. This decision was made after more than 12 rounds of coder training, a change of individuals responsible for coding, and several revisions of the description of the categories. For each of these three categories, the coders were able to achieve a $\text{K} \alpha = .80$ during the extensive training.
However, the inter-rater reliability for the coding of the study data dropped to $K\alpha = .66$ for each of the categories. The relief of blame category was removed, as there were no instances of this behaviour in the training examples data thereby preventing the appropriate training and establishment of inter-rater reliability. During coding the raters were asked to flag any instance of relief of blame behaviour, no cases were reported from the study data.
Discussion

General Premenstrual Dysphoria Concerns

The present study used content analysis to examine both the premenstrual dysphoria concerns of individuals who posted messages in Internet forums dedicated to PMDD, as well as the types of social support offered in those discussions. The first aim of this study was to examine the frequency of specific premenstrual dysphoria concerns as they were discussed in online postings on PMDD related Internet forums. The term ‘concern’ is defined broadly in this study as an issue, related to premenstrual dysphoria that troubles individuals dealing with the presence of cyclical symptoms. This term is meant to capture both explicitly stated worries, as well as mention of PMDD symptoms (as listed in the DSM) and other associated consequences that have the potential to be inconvenient, annoying and unwanted. The content analysis focused specifically on Internet forums that allowed users to generate new content in the form of comments, stories and questions that other visitors to the website hosting the forum could read and potentially respond to with subsequent online comments.

To date, there is no prior research on the frequency of the concerns related to PMDD, either from in-person studies or Internet based research. Although some studies have examined the experience of living with PMDD using interviews (Ussher 2002; 2003; Wittchen, Becker, Lieb & Krause, 2002) and surveys (Chaturvedi, Chandra, Gururaj, Dhanasekara Pandian, & Beena, 1995; Heinemann et al., 2010a; 2010b), no comparative conclusions were drawn as to which concerns were most prevalent or most salient for the individuals participating in that study. The findings from the present content analysis may serve to provide some information from which comparative conclusions can be drawn.
In general, the distribution of concerns indicated that some concerns were mentioned very frequently while others were relatively infrequent. More specifically, intrapersonal concerns and concerns related to seeking an intervention were the two categories of concerns that appeared most frequently. The present findings suggest that the emotional symptoms associated with premenstrual dysphoria may be the most troubling for these Internet posters, or perhaps be the symptoms least likely to be adequately resolved.

With regards to the finding of intervention related concerns, the relatively high frequency of this form of concern found in Internet forums differs from previous research based on in-person interviews with women with PMDD. For example, Although Ussher (2002) focused on the appraisal and coping of women with PMDD, she did not report intervention seeking for PMDD to be a major theme within her sample. Conversely, the presence of treatment related concerns in this Internet sample is consistent with findings from previous research on Internet forums related to cancer (Mao et.al., 2013; Schultz, Stava, Beck & Vassilopoulou-Sellin, 2003) menopause (Cousineau, Rancourt, & Green, 2006), and complex regional pain syndrome (Rodham, McCabe & Blake, 2009).

The finding that intrapersonal concerns were mentioned most frequently supports the second expectation of this study, which stated that the majority of concerns would fall under the broad category of intrapersonal concerns. Given that PMDD is classified as a mental illness, concerns about one’s emotional wellbeing and subjective changes in thinking were likely to be most frequent. More specifically, the primary diagnostic features of PMDD are changes in mood and somatic symptoms (APA, 2013). In support of the second expectation, in the present study intrapersonal concerns were mentioned most frequently (found in approximately 82% of posts with at least one concern) of all the concerns examined. This is consistent with previous
research on websites dedicated to menopause in that this type of concern was quite commonly reported (Cousineau, Rancourt, & Green, 2006).

Concerns regarding diagnostic clarity – finding the proper medical term to describe one’s collection of symptoms- were quite infrequent. These concerns were found in only 10% of posts that contained at least one concern. Cousineau and colleagues (2006) also found that approximately 10% of their sample asked questions about menopause diagnosis. The findings from the present study suggests that posters in the present sample may not have been particularly concerned about what label to apply to their collection of symptoms, or perhaps that these posters already knew what term to apply, and therefore were not in need of clarification from the other members of the Internet forum. The specific distribution of concerns within all of the broad categories is discussed herein.

**Comparison between Intrapersonal vs. Interpersonal Premenstrual Dysphoria Concerns**

**Intrapersonal concerns.** In the present sample, a substantial majority (80%) of the posters who expressed at least one concern, reported the presence of intrapersonal concerns - thoughts and feelings about one’s self and her internal characteristics. This broad category of concerns was expected to be found in the present sample and is consistent with the findings from the in-person interviews (Ussher, 2002; 2003; Wittchen et. al., 2002), and a survey-based study (Chaturvedi et. al., 1995), which found a variety of emotional symptoms attributed to PMDD. The distribution of these intrapersonal concerns revealed that the experience of emotional symptoms in general, and sadness in particular was mentioned most frequently. Although each of the symptoms are given equal weight in the DSM-5 (APA, 2013), in the present sample feelings of sadness were mentioned two thirds as often as the experience of anxiety or the experience of feeling out of control. This differs from the findings of Hartlage and colleagues
(2012) who found that depressed mood was less frequently reported than anxiety in both epidemiologic and clinical samples. However, the present findings from a non-clinical sample are consistent with those of Wittchen and colleagues (2002) who found that depressed mood and affect liability were the most frequent emotional symptoms reported in a sample of women with PMDD. Unlike Hartlage et. al., (2012) Wittchen and colleagues did not confirm the presence of PMDD with prospective daily ratings. Therefore, it is possible that similar to Wittchen et. al., women posting on PMDD Internet forums may not have the same experience as those meeting the stringent diagnostic criteria for PMDD.

This large frequency of concerns related to the intrapersonal symptoms of premenstrual dysphoria suggests that women may be more troubled by the changes in one’s internal experience and emotional wellbeing than the other consequences of recurring monthly symptoms. More specifically, they may have been more troubled by internal symptoms than the intermittent relationship interruptions or disruptions to productivity at school or work.

**Interpersonal concerns.** In addition to concerns about their internal experience of premenstrual dysphoria, as expected several posters spoke of disruptions to interpersonal relationships. Nearly 40% of the posts that contained at least one concern had a worry about conflicts in the poster’s interpersonal relationships. In the present sample, conflicts within romantic relationships were mentioned most frequently, in three quarters of posts with at least one interpersonal concern present. These findings suggest that with regard to relationships the individuals sampled are most concerned about conflict or interruptions to their romantic relationships. Although not coded for frequency, a review of the comments suggests that worries included fear of arguments or physical fights, and worry of being left by one’s partner.
This finding of premenstrual symptoms impacting relationships is consistent with previous research on premenstrual symptoms and relationships (Frank, Dixon & Grosz, 1993; Halbreich et al., 2003; Hylan et al., 1999; Kuczmierczyc, Labrum & Johnson, 1992; Roberston & Swindle, 2000). However, much of this previous research conflates minor premenstrual symptoms with more severe PMDD in the selection of participants and analysis of the data. The role of this limitation in the present study is discussed below. Of the studies listed above, only Dixon et al. (1993) applied the DSM criteria and used prospective symptom rating to confirm the diagnosis in each participant. The present finding that individuals visiting PMDD themed message boards frequently had concerns about the impact of premenstrual dysphoria on romantic relationships, suggests that further research into interpersonal consequences of PMDD is needed with participants with DSM-5 confirmed diagnoses of PMDD.

**Comparing the categories.** Although the presence of troubling intrapersonal symptoms (Chaturvedi et. al., 1995; Ussher 2002; Wittchen et. al., 2002) and interpersonal difficulties (Frank et. al., 1993; Heinemann et. al., 2010b) have been reported in previous studies of PMDD, the present study is the first investigation to compare the frequency of premenstrual dysphoria concerns across both emotional and interpersonal domains. It is interesting to note, that the frequency of interpersonal concerns is approximately half that of the intrapersonal concerns. This seems to suggest that posters who are visiting PMDD themed Internet forums are more concerned about the intrapersonal consequences of premenstrual dysphoria , as defined in this study, than the physical symptoms, interpersonal, or functional consequences associated with premenstrual dysphoria.

This fits with the present trend of research focus being primarily on interventions for the affective and intrapersonal aspects of PMDD (Maharaj & Trevino, 2015; Nevatte et. al., 2013). It
may be interesting in future research to explore if those who report intrapersonal concerns, view these as more distressing than the other types of concerns, or if perhaps individuals view the intrapersonal concerns as the *cause* of their interpersonal and functional impairment. This would align with previous findings that individuals speaking about premenstrual symptoms view those symptoms as something that ‘happens to them’ (King, Ussher & Perz, 2014; Ussher, 2002). Delineating this difference may lead to new research into interventions targeted at interpersonal consequences of PMDD. Perhaps posters who spoke of intrapersonal concerns are more inclined to discusses intrapersonal concerns and treatments for their premenstrual dysphoria because they believe that a treatment for the emotional concerns will ameliorate the other non-intrapersonal concerns as well. For example, if one can prevent the onset of premenstrual induced sadness, anger or mood swings, perhaps that will prevent conflicts with one’s romantic partner or children. Further research is required to elucidate the interrelation between intrapersonal and interpersonal concerns.

**PMDD and Suicidal Ideation**

One particularly interesting finding in the present study is the presence of emotional concerns related to suicide and suicidal ideation. Similar to previous studies using surveys from samples of German (Wittchen, Becker, Lieb & Krause, 2002) and Indian (Chaturvedi et al., 1995) women, the present sample of Internet posters endorsed suicide or suicidal ideation in almost one quarter of the posts with emotional concerns present. Specifically, woman on these Internet forums voiced a fear of experiencing, or in some instances re-experiencing, suicidal ideation during their premenstrual interval.

This finding of concern about suicidal ideation in individuals posting on PMDD related Internet forums, is consistent with those found elsewhere (Chaturvedi et. al., 1995; Wittchen et.
al., 2002). However, it should be interpreted with caution if being generalized to individuals with a definitive diagnosis of PMDD. Similar to the present study, the aforementioned German and Indian research studies did not confirm the presence of PMDD in their sample using the DSM diagnostic criterion that requires prospective daily symptoms ratings (APA, 2000; APA, 2013). The interview study by Ussher (2003) did confirm the presence of PMDD using DSM-IV diagnostic criteria; however, the author of that study did not report the presence of suicidal ideation in that sample. The differences in these finding may be accounted for by differences in the sample. Moreover, it is also possible that surveys and Internet forums aid in the discussion of difficult topics.

As found in research from websites with discussions of suicide (Cash, Thelwall, Peck, Ferrell & Bridge, 2013; Ikunaga, Nath & Skinner, 2013), one’s worry about suicide, and plans to carry out suicide are often easier to speak about in an online format than in an in-person context. Increased comfort of disclosure about stigmatized matters in an anonymous setting (Gold, Boggs, Mugisha, Lancaster-Palladino, 2012; Ikunaga et. al., 2013; Rodham et. al., 2009) may explain the mention of concern about suicide in the present study. Lastly, it is possible that the posters in the present study who expressed suicidal ideation may be experiencing suicidal ideation for reasons unrelated to premenstrual dysphoria For example, if those individuals were experiencing either a major depressive episode, or premenstrual exacerbation of another mood disorder, then that may account for the finding of suicidal ideation in an online sample. Further research employing a sample of women with confirmed diagnoses of PMDD, as well as the added benefits of online discussion may facilitate further clarity into the relationship between PMDD and suicidal ideation.
DSM-5 Criteria

It is recognized that the participants in the present study did not necessarily have formal diagnoses of PMDD and that even for those who purported to have such a diagnosis this information was not independently confirmed. As such, one can only reflect on possible implications for DSM-5 criteria with great caution. However, this sample was representative of individuals who were interested in PMDD and discussing their perceived experience with the disorder on Internet forums. These individuals may have been visiting these sites due to a belief of a shared symptom experience; an experience which may speak to the salience of diagnostic criteria for individuals who are sharing posts on PMDD themed internet forums.

Similar to the themes expressed in the interview study by Ussher (2003), in the present study frequent mention of experiencing an altered sense of personal identity were found. This altered sense of identity was the second most frequent intrapersonal concern reported in the present sample, found in almost half of the posts that contained an intrapersonal concern. More specifically, of those concerned about experiencing an altered sense of identity, approximately 43% of them spoke of not feeling like their “normal self.” Paralleling the interview study conducted by Ussher 2003, and media representation of the premenstrual period (Chrisler & Caplan; 2002) some posters in the present sample recounted experiencing a change in personality and temperament they likened to the fictional story of Dr. Jekyll and Mr. Hyde. This was characterized by a sudden and dramatic change in one’s sense of identity and behaviour, a shift from rational individual to irrational monster. This subjective sense of a change in personality is not addressed in the DSM-5 criteria for PMDD (APA, 2013).

Given that the purpose of diagnostic criteria is, in part, to facilitate differential diagnosis, the addition of an altered sense of identity to the diagnostic criteria may not be necessary. Firstly,
this worry of one being in an altered state may be better explained by the presence of increased anxiety in the context of a society that has specific notions about the role and desired temperament of women (Chrisler & Caplan 2002; Chrisler, Rose, Dutch, Sklarzky, & Grant, 2006). Chrisler and Caplan (2002) have argued that these societal expectations better account for the feelings of not being oneself, than the presence of a genuine diffuse sense of identity as found in other psychiatric disorders such as borderline personality disorder. Perhaps with additional research this particular symptom could be incorporated into the DSM description as an example of how anxiety is manifested. With regard to the present findings, it may be useful to incorporate the symptom of not feeling oneself into screening measures for PMDD.

In addition to concerns about changes in personality and temperament, the most frequent identity concern mentioned was worry about being mentally ill (typically presented as “going crazy”), found in approximately 54% of posts that contained at least one concern about personal identity. In the present sample, the posters did not specifically define or elaborate on the concept of mental illness as experienced during premenstrual dysphoria that caused worry of “going crazy”. The posters did not speak explicitly about losing touch with reality, hallucinating or other indicators of disordered thinking. In some cases, posters did mention fear of finding out they had bipolar disorder (e.g. “I thought I was bipolar”) but this was the minority of posters.

The users did not provide a definition of “crazy” when using the term, and there was no mention of losing touch with reality. Therefore, one can only speculate about the cause of their concerns of ‘going crazy’. For example, one may conjecture that the presence of intense emotions such as anger, sadness, or suicidal ideation, which were mentioned in the present sample, without any identifiable causal link, could contribute to the feeling that she is seriously disturbed. Similar to the accounts presented in Ussher (2002), posters in the present sample did
mention experiencing rapid shifts in mood, anger at spouses that was disproportionate to the situation, and feeling out of control. It is possible, for example, that when a usually even-tempered and non-emotional person suddenly experiences unexplained tearfulness or outbursts of anger, she may worry that the experience is indicative of a mental illness, or that others would stigmatize her as “going crazy”.

The DSM-5 includes a ‘subjective sense of difficulty concentrating’ as a symptom (APA, 2013), yet this symptom was found much more infrequently in the present sample, about one fifth as often, as concerns about one’s sense of identity. It may be that difficulty concentrating is conceptualized as causing more functional impairment but the experience of living one’s life in an altered state of personal identity is more common and concerning for women even if it does not impact their functioning.

Alternatively, difficulties in concentrating may have been mentioned less frequently since the requirements for concentration are often context dependent. A subjective feeling of impaired concentration may not be as readily identifiable if one is not in a situation that demands concentration. Conversely, sudden feelings of being overwhelmed by sadness or anger is likely more immediately noticeable in a variety of contexts, including when one is just sitting alone quietly. A change in concentration may only be noticeable if one overcomes the feelings of sadness and tries to engage in an activity that requires some concentration such as holding a conversation, watching television, work, or school.

In the present sample posters also spoke of concern about the loss of affection and losing their romantic relationships altogether once a partner experiences one’s premenstrual dysphoria symptoms. Even though worry of this nature was found relatively frequently, the only mention of the concept of rejection is in the criterion related to affective lability in B.1: “Marked affective
liability (e.g. mood swings, feeling suddenly sad or tearful, or increased sensitivity to rejection” (American Psychiatric Association, 2013, p.172). Individuals in the present study expressed concern about the total loss of one’s relationship as a result of having severe premenstrual symptoms beyond direct conflict with one’s partner or transient sensitivity to rejection. There is a dearth in the literature regarding PMDD’s impact on interpersonal relationships. There have been no published studies since the work of Frank and colleagues (1993) which is now decades old. The present findings suggest that this is an area of concern for individuals who visit PMDD Internet forums. In order to determine the impact on confirmed cases of PMDD, and perhaps the most appropriate interventions, further research is needed.

The present wording of the DSM -5 criteria accounts for disruptions to interpersonal relationships but only in the context of anger, and mood swings (APA, 2013). There is reference to how PMDD symptoms may impact relationships if avoidance of social activities is present. But it appears that fear of rejection and other symptoms besides anger, such as increased sadness and tearfulness, may affect romantic relationships too. It is also possible a spouse’s reaction to the presence of symptoms contributes to the conflict. Stress associated with a conflictual relationship may also exacerbate PMDD symptoms. Future research is needed to elucidate the role of other emotional and contextual symptoms on interpersonal relationships where PMDD is present. A clearer picture of the factors which contribute to interpersonal conflicts could perhaps result in a revision of wording that does not group relationship conflicts with the presence of anger and irritability for individuals with PMDD.

Physical symptoms. Concerns about the physical symptoms that accompany premenstrual dysphoria were relatively frequent in the present sample - found in 44% of all posts with at least one concern present. The most frequent physical symptoms mentioned were a
decrease in energy (fatigue, lethargy, etc.) and menstrual related pain. Each of these physical complaints was found in approximately half of all posts that had at least one physical symptom present. The least frequent physical symptoms mentioned were concerns about a change in one’s breasts (10% of posts that contained at least one physical symptom), and disturbances to one’s sleep (approximately 20% of posts that contained at least one physical symptom). In general, compared to concerns about emotional symptoms and looking for an intervention, concerns about the physical symptoms associated with premenstrual dysphoria were found less frequently. However, all of the physical symptoms characteristic of PMDD, according to DSM-5 criteria (APA, 2013), were examined and located to some degree. It is interesting to note that the relative importance of each symptom as evidenced by that symptoms’ placement in the diagnostic criteria, differs from the ranking of how frequently those symptoms were mentioned by the present sample of message board posters. Specifically, in the DSM-5 criteria (APA, 2013), hypersomnia/insomnia is isolated in the list of symptoms as a single criterion, B. 5. However, the symptom of pain is not a stand alone criterion and is grouped together with other examples of physical symptoms in criterion B.7: “Physical symptoms such as breast tenderness, or swelling, joint or muscle pain, a sensation of “bloating”, or weight gain” (American Psychiatric Association, 2013). The absence of a specific symptom in an individual’s post does not necessarily mean that symptom is not a part of her experience. However, given that sleep disturbances are very infrequently mentioned, it is not unreasonable to assume that they were not present for a vast majority of the posters in this sample. The presence of all symptoms listed in the diagnostic criteria is not necessary for diagnosis of PMDD. However, future research may wish to examine that criteria to determine whether sleep disturbance is a part of the symptom
cluster that make up the PMDD diagnosis or if those receiving a diagnosis only endorse a specific subset of symptoms, thus rendering some symptoms irrelevant for the diagnosis.

In the present sample, menstrual pain was mentioned in over half of the comments which contained at least one reference to a physical symptom. This frequent mention of menstrual pain suggests that pain as a physical symptom may be a more concerning aspect of premenstrual dysphoria than the symptom of sleep disturbance. It could be argued that pain is not highlighted in the DSM with a stand-alone criterion because it is a part of many menstrual cycles, even those without the psychological symptoms associated with PMDD. However, it appears that women may talk about pain as a more salient symptom more often than discussing sleep disturbance. This finding is also consistent with the finding that individuals with PMDD have lower pain thresholds and lower tolerance for pain (Straneva et al., 2002).

In the event that individuals also speak more frequently of pain in person as they do in an online setting, this trend could help to inform screening for PMDD. Mention of frequent or intense menstrual pain would be an opportunity to engage in screening for other mood related symptoms. Additionally, those involved in screening for PMDD may wish to consider placing more emphasis on menstrual pain, than sleep disturbance even though the diagnostic criteria may suggest placing emphasis on the latter.

**Intervention Related Concerns and Implications for Future Interventions**

**Intervention concerns.** Previous research on the online discussions of patients with complex regional pain syndrome (Rodham et al., 2009), lupus (Mazzoni & Cicognani 2014) and patients with cancer (Schultz et. al., 2003) indicated that the topic of treatment is frequently discussed in online forums and message boards dedicated to a specific illness. Similarly, intervention related concerns were the second most frequent category of concern in the present
sample - found in 80% of all posts containing concerns. It appears that looking for a treatment or intervention is a key component of the experience of living with premenstrual dysphoria as the overwhelming majority of individuals mentioned this experience in their posts. The experience of seeking a treatment or intervention included listing all previous and current medications (80% of interventions posts), asking for help from medical professionals (36% of interventions posts) and asking for assistance or advice from other members of the Internet forum (28% of interventions posts).

The high frequency of intervention seeking suggests that women are impacted by symptoms to such a degree that they want the symptoms ended or significantly reduced. This finding supports the view of the DSM-5 authors who indicated that although the classification of PMDD as a psychiatric disorder is a contentious one, the inclusion of PMDD is the DSM-5 is intended to help those women who are seeking help for persistent and troubling symptoms (APA, 2012). One third of intervention related concerns were related to the experience of seeking help from a medical professional. This encompassed stories of going to speak with a medical professional such as a doctor or nurse, as well as mention of the intention to visit a medical professional. Similarly, Rodham and colleagues (2009) found that patients with complex regional pain syndrome spoke of visiting the hospital and their hopes and concerns about impending medical appointments. The present study did not examine any factors related to the medical visits mentioned in the posts in depth; factors such as satisfaction or number of professionals visited before finding a helpful intervention would be valuable to examine in a sample of women with PMDD. These questions appear to remain unexamined in the scientific literature regarding treatment seeking for PMDD.
Although the aetiology of PMDD has yet to be determined, there is evidence to support the effectiveness of several treatments in improving symptoms (Pearlstein & Steiner 2000, Steiner, 2000). The types of treatments and interventions fall into several broad categories such as vitamins, natural supplements, surgical options, ovulation suppression, antidepressants, and talk therapy. Specific options within those categories to manage PMDD include: vitamin B6, flax seed, hysterectomy surgery, birth control, Prozac and cognitive behaviour therapy (Cunningham et al., 2009; Hunter et al., 2002; Lustyk, Gerrish, Shaver & Keys, 2009; Ussher, Hunter & Cariss, 2002).

Despite this plethora of intervention options, unlike cancer message boards where posters asked questions about specific treatments (Mao et. al., 2013; Schultz et. al., 2003), only 15% of intervention related concerns in the present study involved inquires about a specific treatment or medication such as vitamin B6 or Prozac. This lack of questions related to specific treatments may suggest that in the present sample, the posters were perhaps unaware of some of the specific treatments available for the management of premenstrual dysphoria. Without knowledge of a specific treatment, individuals on the Internet forums could not ask specifically for more information about that intervention; For example “has anyone had success with Prozac?” As stated, 80% of intervention related comments involved posters detailing the treatments they had tried in the past and were currently using to manage symptoms. Therefore, alternatively the low frequency of questions related to a specific intervention may suggest that the posters on these messages boards had already tried the treatments they were aware of and were more interested in asking broad questions that could elicit suggestions of new treatments from the others on the board.
Prior to the approval of SSRI’s for treatment of PMDD by the U.S. Food and Drug Administration, research in the area of treatment seeking revealed that women with pre-menstrual symptoms reported seeking treatment from an average of $3.75 \pm 3.22$ physicians and for an average of $5.33 \pm 6.23$ years before being diagnosed as having PMS (Kraemer & Kraemer, 1998). The decision to seek treatment is predicted by greater symptom severity, number of symptoms experienced with each cycle, and age (Hylan et al., 1999). One concern with the method and findings of these studies is the conflation of PMS and PMDD. Although the authors looked at women with self-reported ‘severe’ symptoms they did not apply the DSM-IV criteria to the samples to confirm that the participants met criteria for diagnosis of PMDD (Hylan et al., 1999; Kraemer & Kraemer, 1998).

After the introduction of Fluoxetine (Prozac) as a treatment for PMDD in 2000, as the rebranded Sarafem, industry market research analysts investigated treatment seeking in women with PMDD. Market research by analyst Scott-Levine (as cited in Halbreich et al., 2003) found that most women in the American sample sought treatment and received prescriptions from obstetrician-gynaecologists (52%) or primary care physicians (40%). This investigation appears to be an improvement over that of Kramer and Kramer (1998), in that it tracked PMDD diagnoses specifically and not PMS in general. However, this information is now over a decade old and specific to a time when PMDD and Sarafem were receiving substantial media attention.

There is a broad range of treatments available for PMDD (Chou & Morse, 2005; Steiner, 2000; Yamada & Kanba, 2007; Zhou & Qu, 2009) and many professionals including medical doctors, psychologists, naturopathic doctors and traditional Chinese medicine practitioners offer these treatments. Given the variety of service providers treating PMDD, and growing popularity of the Internet as a source of treatment information, an updated examination of treatment seeking
behaviour, and the overall experience of seeking treatment, is warranted. Based on the present study, it appears that finding an intervention was a salient concern for individuals visiting PMDD Internet forums. Further research may shed additional light on the current experience of women seeking intervention and why it is such a frequent concern for individuals who post online.

Additionally, in an effort to assist in the dissemination of helpful treatment information, it would be interesting to investigate which sources individuals are choosing to visit in pursuit of information about PMDD. Data from the present study revealed that online Internet forums specific to PMDD are not heavily trafficked. However, this does not discount the possibility that individuals are using the Internet to find information about PMDD and its treatments. In addition to information seeking on the Internet, it would be important to evaluate the level of satisfaction individuals have with their experience of seeking treatment from a primary care physician or obstetrician – gynaecologist as this may relate to a willingness to seek further help (Kraemer & Kraemer 1998). For example, if women are speaking with physicians as a first source of relief, do they find that experience helpful? Are individuals receiving effective treatment? Are they finding the type of treatment they want (i.e. natural or pharmacological interventions vs. lifestyle changes), and are most willing to be compliant with the treatment recommended by the physician? Further research may reveal that a visit to one’s family doctor is only the first step toward seeking intervention and women are subsequently pursuing other health providers or alternative treatment practitioners for an effective treatment. More specific knowledge of the processes individuals employ when seeking help for severe premenstrual symptoms has the potential to inform front line practitioners and augment screening and diagnosis by suggesting which physicians may need additional training and screening tools for DSM-5 guided diagnosis. Also, information about which practitioners were most helpful or resulted in the greatest
satisfaction may help to streamline or improve the process of finding an effective intervention for PMDD symptoms. Particularly if that information is communicated to consumers by primary care physicians and/or though Internet based information about PMDD treatment. For example, by having a primary care physician refer a woman to a psychologist for CBT, as recommended by Steiner (2000), rather than to a gynaecologist.

Although the presence of relationship conflict is a consistent finding in the literature (Frank, Dixon & Grosz, 1993; Halbreich et al., 2003; Hylan et al., 1999; Kuczmiczczycy, Labrum & Johnson, 1992; Roberston & Swindle, 2000), and was frequently mentioned in the present study, there is a dearth of research into specific relationship interventions for couples affected by PMDD. This lack of research may be related to a perception of the emotional symptoms of PMDD as the cause of the conflict. Similar to low productivity at work, individuals impacted by PMDD may believe that if one were to remove the negative intrapersonal symptoms of PMDD, the interpersonal conflicts would resolve themselves. However, the present findings indicate both a high frequency of concerns related to intervention seeking, and intervention seeking behaviours, plus a high frequency of relationship concerns. Further research is needed to determine if the current interventions available are reducing interpersonal conflict and other PMDD symptoms, or if additional relationship specific interventions are also needed to address the concerns about interpersonal relationships.

Additionally it could be worthwhile to confirm the presence of the described interpersonal conflicts by soliciting the opinion of both romantic partners. Most of the previous research has only looked at the report of the women with the diagnosis of PMDD. Given that an altered sense of self, increased sensitivity, and perhaps by extension an altered perception of reality, are known symptoms of this disorder, it would be prudent to confirm the presence of
relationship conflicts to determine if the conflicts are in fact compounded by PMDD, or if they are consistent with the conflicts found at asymptomatic times. This could be accomplished by having both partners monitor conflicts, marital satisfaction, and marital communication for several menstrual cycles.

Although worry about interpersonal relationships was discussed frequently in the present sample, there is a dearth in the literature about interventions or tools to help relationships in which one partner has PMDD. The recurring and cyclical nature of the symptoms may require interventions be tailored to that unique situation. For example, the onset of PMDD symptoms is often predictable, both in the nature of symptoms, and the date of symptom onset. Therefore, this predictability can be used to guide couples in selecting the appropriate relationship or communication techniques needed to reduce conflict. Alternatively, couples may choose to defer conversations, or situations, likely to cause conflict to periods of the woman’s cycle when she may feel more capable of handling a stressful situation. Lastly, there is some evidence to suggest that level of partner empathy, responsiveness to needs, open communication, and responsibility sharing had a positive impact on the experience of premenstrual symptoms (Ussher & Perz, 2008). Further research is needed to determine if promoting this relationship style will lessen the presence of interpersonal concerns and conflict.

There appears to be only one study that looked at the usefulness of a PMDD specific intervention for couples affected by PMDD (Frank et al., 1993). A sample of married couples, in which one spouse had a confirmed PMDD diagnosis, participated in a several months long intervention in which both spouses tracked the woman with PMDD’s daily symptoms all month long. Frank et al. (1993) found that this conjoint monitoring helped to reduce conflict within the
marital relationship compared to couples where only the spouse with PMDD engaged in daily monitoring.

The high frequency of intervention seeking behaviour mentioned in comments within the present sample suggests that finding a treatment for premenstrual symptoms is not a straightforward and rapid process. It may be helpful for researchers to explore ways to support individuals with PMDD and their romantic partners in the area of interpersonal relationships during the process of seeking treatment.

**Implications for Parenting and Other Daily Responsibilities**

The present study also examined the frequency of concerns related to parent/child interpersonal relationship. There were very few concerns in the present sample about interruptions to the relationships between parents and children due to the presence of premenstrual dysphoria. Similar to the lack of concern about interruption to parenting duties, very few people spoke of conflict in their parenting relationships or the relationships with their own parents. As discussed previously, the differing demands and context of parent-child interactions may impact this low frequency of concern about parent/child relationships. For example, one could argue that the parent/child relationship is more permanent than a romantic relationship. Perhaps, withdrawal of affection, rejection, or the loss of the relationship entirely is less likely in a parent/child dyad.

As stated, the scant research in the field of PMDD and its impact on relationships focuses primarily on the report of women experiencing symptoms. Future research is needed to examine the impact of PMDD on parent/child relationships from the perspective of both actors in the relationship dyad. It would be interesting to assess if children of various stages of development are aware of cyclical symptoms within their mother, or notice changes in her behaviour, and
furthermore if those children who are sensitive to the changes subsequently adjust their
behaviour. It would also be beneficial to examine if recurring monthly symptoms and the
associated romantic relationship conflict is having an indirect impact on the children in those
relationships. For example, if parents are having repeated arguments and interruptions to their
relationships, does this have an impact on the children’s sense of security about their parents’
relationship?

**Interruptions to daily functioning and productivity.** Concerns about functional
interruptions (i.e., difficulty performing domestic chores or tasks related to employment) as a
whole were not frequently mentioned in the present sample. Unlike the frequent concerns about
one’s intrapersonal wellbeing, concerns about one’s capacity to perform well in all her daily
duties were relatively infrequent, found in only approximately 20% of posts that contained at
least one concern. When women spoke about interruptions to daily functioning, the interruptions
to education or employment were mentioned most frequently (approximately 75% of posts with
mention of functional impairment). Overall it appears that in the present sample posters were
more frequently concerned with interruptions to their economic productivity than other roles,
such as parenting or domestic responsibilities.

This finding of premenstrual dysphoria impacting a woman’s productivity in her
employment is similar to previous research on the impact of PMDD on productivity and daily
functioning (Heinemann et al., 2010a; Robinson & Swindle, 2000). However, the relatively
infrequent mention of these productivity issues in the present samples could suggest that these
interruptions to optimal functioning at school and work are not as pressing a concern or as
worthy of posting online about as the other premenstrual dysphoria symptoms and experiences.
Previous research on the impact of PMDD has found that, on average, women with the disorder experience a greater decrease in productivity and more absenteeism than women with no, or mild, pre menstrual symptoms (Heinemann et al. 2010a). Heinemann and colleagues conducted a multi-national study sampling 822 women across Austria, Germany, Spain and Brazil. They collected information both retrospectively and prospectively. They found that reduced work productivity and increased absenteeism were consistent across countries. More specifically, women with moderate to severe premenstrual syndrome/PMDD were absent from work, on average, more than 8 hours per cycle. Similarly, Robinson and Swindle (2000) conducted a study of the impact of severe premenstrual symptoms on functioning in a variety of domains, including work and schooling. When asked to rate the impact of impairment on a Likert scale of ‘never, occasionally, often and always’ 70% of respondents in that study rated their work/school impairment on the scale between occasionally to always.

The difference in the methodology between the current study and these prior research studies may account for the difference in findings. More specifically, in the studies authored by Heinemann et al. (2010a 2010b) and, Robinson and Swindle (2000) participants were asked directly to reflect or prospectively track how PMDD symptoms impacted functioning at work and in domestic and parenting duties. The findings from those studies indicate that when women are asked directly about the impact of their monthly symptoms on functioning at work, they frequently report impairment to functioning at school and work.

Unlike the above reports, the present study conducted an analysis of Internet content that was generated by the poster without any direct communication from the researcher. The findings from the present study suggest that when in a context where women are not prompted by a
researcher to reflect on a specific topic, but instead, simply write an online post about what they want to share, functional impairment at one’s work/school is relatively infrequently mentioned.

Of the daily functioning interruptions mentioned in the present sample, interruptions to work/school were mentioned most frequently (73.5% of posts with mention of functional impairment). The specific reasons for women’s concern in the area of work/school were not examined in the present study. However, specific qualities about the employment/school context, such as the necessity of daily attendance, or specific demands placed on the worker, may influence why posters chose to post about this more often than functional impairment in other domains. It is possible that absenteeism and reduced productivity, highlighted in previous research (Heinemann et al., 2010a; Robinson & Swindle, 2000), is concerning to individuals because, in many cases, it involves the repeated disclosure to others that one is unable to work. For example, repeated disclosures of symptoms or illness to one’s supervisor, co-workers, teachers, classmates, or clients.

In the present sample, there was very infrequent mention of premenstrual dysphoria impacting women’s parenting: only 2 posts out of the 156 posts. This lack of concern about interruption to parenting is interesting, considering posts were collected from PMDD specific Internet forums on two parenting websites, and there were mentions of being a parent in other instances, for example, with regard to parent child relationships. Although previous research found the presence of PMDD symptoms impacted hobbies and daily routines (Heinemann et al. 2010a, Robinson & Swindle, 2000), unlike productivity and absenteeism, there have been no studies to date which asked specifically about interruptions to parenting duties. The lack of mention about the impact of premenstrual dysphoria on parenting duties could be attributed to several factors. Firstly, it may be that the presence of premenstrual dysphoria symptoms do not
impact a woman’s capacity to carry out duties related to parenting, or perhaps something about the demands of parenting, contextual, or situational factors make it such that individuals do not experience impairment in these duties. For instance, it could be that the demands of daily parenting allow for more variation in their execution than duties related to employment or school. As an example, if one is feeling too overwhelmed or upset to prepare a meal for children, she may have the capacity to order food for dinner rather than cooking. Similarly, if one is experiencing temporary pre-menstrual symptoms she may have the option of shifting more difficult parenting duties to the other parent such that the children are not impacted.

Alternatively, it is possible that despite experiencing interruptions to some parent duties (for example, preparing meals, carrying out bedtime routines, driving children to school or extracurricular activities) women may not feel comfortable sharing their experience of being inefficient in that area in an online forum due to fear of judgment. In the present sample, there was one poster who described using alcohol to help her get through her daily routine when she experienced PMDD symptoms. She spoke specifically in that post about fear of judgment for her drinking while parenting.

I have figured out how to cope. So I get into my PMDD mode. After my cup of coffee (or 3) I open a beer. No, I don't feel bad about it. If it wasn't a beer it'd be popping a pill and at least I know what to expect with alcohol. A bottle here, do a couple of chores, a bottle there, do some more chores, another bottle, more chores, another bottle finish up the night exhausted and go to bed. No one neglected, no one mad/frustrated, I'm semi happy, the voices in my head are quieted, I haven't killed myself, and I haven't driven halfway across the state. Counting down the days till I feel human again. I feel accomplished. Children get breakfast, lunch and dinner. The house might look a little more lived in but...
choose your battles. Right? Of course try to admit to drinking to feel better and everyone gives you crap. But let that guilt get to you, and you do without, and you're two steps away from either running away, killing yourself or ruining your whole family, which all equates to the same thing. At least with a few drinks throughout the day I can function, feel a little less desperate, and I don't end the evening with [someone] threatening to leave… I spend ten days slightly overdoing it, so that I can spend twenty days of the month being the perfect mom, perfect lover, perfect housewife and perfect friend. I'm not giving up those twenty days of bliss just because society has an issue with self-medication. I seriously doubt that four beers over the course of 16 hours is doing me a lot of damage considering how much better I feel.

It appears that if women have limited emotional resources, they may be channeling them into parenting duties at the expense of work/school. Further research that specifically queries and measures the impact of PMDD symptoms on specific domains of parenting is needed to shed light on the exact impact, if any, of PMDD on parenting.

**Social Support**

**Social Support Behaviours.** The second aim of the present study was to use content analysis to explore and quantify the types of enacted social support behaviour found in reply messages on Internet forums dedicated to PMDD. Over the course of training the coders to use the coding scheme and establishing initial inter-rater reliability some changes were made to the coding scheme to improve clarity and reduce overlap. The primary change involved collapsing the emotional support and esteem support categories into one category called emotional support. This change was similar to that made by Keating (2013) in his use of the Social Support
Behaviour Code (SSBC) developed by Cutrona and Suhr (1992). After this change, the analysis in the present study consisted of the examination of four main categories instead of the five initially proposed. The present analysis revealed the presence of social support behaviours, on the PMDD Internet forums examined for this study, in only three of the four categories examined: emotional support, information support and network support. No instances of tangible support were found within the present sample.

The findings also support the expectation that PMDD related Internet forums contain instances of information and emotional support more frequently than network support or tangible support. Consistent with that expectation the online communication examined in this study indicated that information support and emotional support were the most frequently provided. This finding is consistent with other content analyses of Internet forums for other chronic conditions. Previous research on individuals living with AIDS (Mo & Coulson, 2008), Huntington’s disease (Coulson et al., 2007) and physical disabilities (Braithwaite, Waldron & Finn, 1999) found that information support and emotional support behaviours were enacted more frequently than network and tangible support behaviours on Internet communities. The specific distribution of support behaviours within the broad categories is discussed below.

**Information support:** As expected there were social support behaviours in the broad category of information support. In the present sample more than half of reply posts that contained at least one instance of social support pertained to the provision of information support. The category of information support was initially made up of two subcategories: suggestions/advice/teaching (SAT) and sharing one’s experience of having PMDD. The SAT subcategory was removed from the analysis due to low inter-rater reliability. The possible causes of this low reliability are discussed later. Due to the removal of the SAT subcategory, the present
study can only speak to the presence of the supportive behaviour of ‘sharing one’s experience’ as a form of information support.

The act of sharing one’s experience as a form of social support observed in the present study is similar to that found on message boards for other health concerns such as cancer patients (Mao et. al., 2013; Shultz et. al., 2003), HIV/ AIDS (Mo & Coulson, 2008) and complex regional pain syndrome (Rodham, McCabe & Blake, 2009). In the present sample, more than half of the reply posts with at least one social support behaviour present contained instances of individuals sharing their personal experience as a means of informing other readers on the board. The sharing experience sub-category was designed to capture the behaviour of an individual sharing a personal story that a reader could use as a frame of reference for her own premenstrual dysphoria experience: In other words, a story with which one could compare her journey. For example regarding the use of SSRIs for treatment: “…different medication schedules work too. In my case, I found taking Prozac only when I have my bad days more helpful than taking it all month long.” This type of personal account was distinguished from instances of experience sharing where the author was clearly not telling her story for the benefit of others. For example complaints about the use of SSRI for treatment: “It’s been such a bad month I hate taking these Prozacs every day they make me feel so sick. I wish I could just take it on the bad days.” This distinction is important, because, by definition, a form of enacted social support should have an intended recipient who is receiving the support. By telling a personal story of how one deals with a specific struggle, the author of the reply post often communicated information to others about how they might also cope with a similar struggle. In addition to information about coping, sharing one’s experience often provided information about what the reader could expect should she attempt a similar course of intervention or specific treatment described in the story.
This form of social support may have occurred with such frequency because it serves a dual purpose. In addition to offering social support to the recipient, sharing a personal story can have the secondary gain of soliciting additional support from others, as found in HIV/AIDS message boards (Coursaris & Liu 2009). Another possible explanation for the relatively high frequency of this supportive behaviour may lie within the nature of the initial posts that start the discussion threads. As discussed above, 80% of initial posts had at least one mention of seeking or using an intervention for premenstrual dysphoria. Given that the topic of intervention is mentioned with such great frequency, this may have prompted subsequent posters to discuss their personal experience of intervention use in a way that is characteristic of information support, that is, sharing a personal story that a reader could use as a frame of reference for her own premenstrual dysphoria experience.

Increasingly, consumers view information provided on Internet forums and social networking websites as credible sources of health information (Haji, Sims, Featherman & Love; 2015). Sharing one’s story, as a form supportive behaviour occurred frequently in the present sample, found in over 50% of reply posts. This high frequency of the behaviour suggests that it may be fruitful to further examine the quality of information communicated in these messages; more specifically, to determine if the information shared about personal experiences is clinically valid advice, if it is unwittingly perpetrating myths about pre-menstrual symptoms, or perhaps providing interventions without empirical support.

**Emotional Support:** As expected, emotional support was one of the categories of support found. Providing emotional support to other posters on the Internet forums occurred relatively frequently, in over 50% of posts that contained at least one supportive behaviour, and in various forms. Overall, the emotional support offered appeared to focus on helping the
recipient of the support deal with the stress associated with the experience of premenstrual dysphoria. Posters on the boards communicated this support primarily through empathy, virtual affection and by offering well wishes.

The supportive behaviour of showing empathy was found in approximately one third of posts that contained at least one instance of emotional support. Empathy was defined as the supportive behaviour of communicating to the recipient an understanding of how difficult it is to deal with premenstrual dysphoria. A review of the statements indicated that statements of empathy could be found in the context of relating one’s own struggle. Specifically, the author of the reply post would use her expression of empathy as an opening to then relate her particular premenstrual dysphoria struggle. This combination of expressions of empathy and then relating one’s personal story may be used to add authenticity and credibility to the empathy offered. The reply poster may be demonstrating how genuinely she understands the problem by giving her own parallel story.

Unlike previous studies which found relatively low rates of virtual affection (i.e., representations of physical affection in an online setting) (2.3% in Coulson et al., 2007, 0.9% in Coursaris & Liu, 2009, and 6% in Mo. & Coulson, 2008), in the present sample, virtual affection was found in more than one third of posts (34.3%) which contained at least one instance of emotional support. Virtual affection was one of the second most frequent forms of emotional support (along with understanding/empathy). This affection took the form of pictorial representations (emoticons) of hugs and other forms of physical affection individuals may have shown in person, as well as written expressions (e.g., “hugs” and the letters XOXO). In the present study, authors of reply posts on the Internet forums seemed to use virtual affection to reply to the hurt feelings of others. This greater expression of virtual affection may be related to
the very frequent instances of emotional concerns in the initial posts. As discussed above, almost 90% of the initial posts with an intrapersonal concern present had at least one mention of an emotional concern. In particular, sadness was the emotional concern mentioned most frequently. It may be that in response to the very frequent instances of emotional concerns in the present sample, the other members of the board chose to express emotional support in the form of virtual affection.

Another frequent form of emotional support found in the present study was the expression of well wishes for the future, found in almost 40% of posts that contained at least one instance of emotional support. This behaviour encompassed individuals who shared general wishes for the wellbeing of all readers on the Internet forum in addition to well wishes aimed at a specific individual. The cyclical nature of premenstrual dysphoria may have contributed to the frequent impetus for sharing well wishes. The comments could be found to take the form of wishing other posters a better month next time, in other words, one with fewer symptoms or negative experiences. Also, given that intervention seeking was very frequently discussed in this community, well wishes also involved hope that the reader would find success with the current treatment or intervention being pursued. The expression of care/concern, found in slightly less than one quarter of reply posts, followed a similar pattern.

Similar to other research of online social support that employed the SSBC rubric, empathetic behaviours were found more frequently than sympathetic ones (Coulson et al., 2007; Coursaris & Liu, 2009; Mo & Coulson, 2008) and blessings were offered infrequently (Coursaris & Liu 2009). The greater presence of empathetic support behaviours than sympathy and blessings, suggests that the reply posters were more inclined to offer a sense of understanding
and shared experience than simply expressing simple blessings, regret, or sorrow at the hard time of others.

It would be interesting in future research to investigate the correlation between the types of social support behaviours offered to others and the social support desired by the members of the community. It is conceivable that posters who visit these sites know that they desire a sense of understanding and belonging so they offer those forms of emotional support to others more often than prayers. A genuine understanding of the difficulties associated with premenstrual dysphoria is perhaps the one thing other women with premenstrual dysphoria can offer one another that is unique, whereas anyone can offer prayers so the reply posters offer the understanding more often.

It was expected that some individuals posting on PMDD themed Internet forums would provide validation support, not found in other research on similar topics. Many researchers have reviewed and/or disputed the validity of PMDD as a psychiatric disorder (Caplan, 2004; Di Giulio & Reissing, 2006; Offman & Kleinplatz, 2004, Ussher, 2002) and the rebranding of Prozac as Sarafem to treat PMDD prompted discussion in the popular media about the pathologizing of the menstrual cycle (Parker-Pope, 2001; Vedantam, 2001). With the recent addition of PMDD to the main text of the DSM-5 (APA, 2013), it was expected that some posters on the messages boards would exhibit the supportive behaviour of confirming the existence of PMDD to others who were skeptical. Unfortunately, due to an inability to establish coder reliability for this category validation was not coded for in the present study.

This confirmation that PMDD exists as an illness, and that one’s symptoms are not imagined, was expected to be offered in an attempt to assuage one’s fears of being “crazy”, having a serious mental illness such as bipolar disorder, or fear of losing one’s mind. As
discussed above these worries about one’s sense of identity were in fact found in almost half of all posts that contained at least one mention of an intrapersonal concern.

**Network Support:** As expected, the present sample had supportive behaviours in the broad category of network support. However, compared to information and emotional support, network support occurred relatively infrequently. Less than one quarter of all posts that had at least one instance of social support. Of the forms of network support found, communicating a sense of shared membership was found most frequently. This behaviour was found in slightly less than half of the posts which contained at least one instance of network support. The finding supports the expectation that, on Internet communities geared toward PMDD, the authors of reply posts would offer readers a shared sense of membership in a community of women affected by PMDD. The presence of membership support suggests that members of the online PMDD community view their experience as distinctly different from the premenstrual experience of other women. By conferring to a reader the perception of membership into a disparate group of women who also suffer from PMDD, this form of social support may also promote the idea that PMDD is a valid, distinct and more severe experience of premenstrual symptoms.

**Tangible Support:** Previous research on social support and the Internet has found that tangible support is the least prevalent social support behaviour enacted, (Coulson et al., 2007; Mo & Coulson, 2008). Contrary to expectations, there were no instances of tangible support present. The complete lack of tangible support found in the present study may be a reflection of the smaller sample size. The current sample of 524 messages is less than half the size of samples analyzed in other similar studies (Coulson et al., 2007; Mo & Coulson, 2008).
PMS and PMDD Culture Bound Syndromes?

The development of psychiatric diagnostic criteria for a premenstrually-based disorder has been met with much criticism (see Hartlage et. al., 2014 for a review). Many professionals have argued that PMDD is a socially constructed phenomenon intended to medicalize the natural cyclical changes associated with the female reproductive system. Furthermore, they argued that by creating the label of PMDD, women were portrayed as being at the mercy of raging hormones, a state of illness which requires medical intervention to restore a ‘normal’ state (Caplan, 2004; Chrisler & Caplan, 2003; Offman & Kleinplatz, 2004; Ussher 2002).

Additionally, Ussher (2002) believed that the very existence of PMDD criteria, even if it is not in the main text of the DSM, would be harmful to women. She argues that the existence of diagnostic criteria would lead women to interpret their personal monthly changes within a view that they are ‘symptoms’ and medically abnormal. Although the research on the impact of diagnostic criteria is scant, there is some evidence to suggest that this concern was unfounded. Nash and Chrisler (1997) found that knowledge of the specific diagnostic criteria of PMDD did not affect women’s perceptions of their own menstrual cycle related symptoms.

Although the present study was not designed to assess a causal link between knowing the DSM criteria and interpretations of symptoms, the present results somewhat reflect the accepted medicalization of the premenstrual experience (APA, 2013). In the present study, 36% of comments with at least one mention of seeking treatment for premenstrual dysphoria, referenced going to a medical professional (a physician or nurse). This suggests that, of the posters visiting PMDD themed Internet forums and social networking websites, several of them did view their experience of premenstrual symptoms as needing medical intervention. More specifically, the coding criteria for the category were designed to capture both mentions of visiting a medical
professional and statements of the intent to seek medical consultation. Due to the fact that participants in this study were not contacted directly, it cannot be confirmed if the symptoms they mentioned met the diagnostic criteria of PMDD. However, it is interesting to note that the participants themselves viewed their premenstrual changes as worthy of medical intervention.

The argument that premenstrual syndromes and, by extension, PMDD, are socially constructed disorders describes the idea that societal expectations of women contribute to their perception of premenstrual changes as “symptoms”. More specifically, proponents of this theory argue that the expectations of society dictate that women are expected to be calm, pleasant and in control at all times (Caplan, 2004; Chrisler & Caplan, 2003; Offman & Kleinplatz, 2004; Ussher 2002). Therefore, if one feels extreme sadness, irritability, anger, or other negatively valenced emotions it must be due to an illness. Chrisler and Caplan (2003) believe that this discrepancy between a woman’s experience of negative emotions and societal expectations helps to explain the experience of an altered sense of self. The concern about an altered sense of self or change in identity was found in the present study.

Unlike PMDD, which has defined diagnostic criteria and exclusionary criteria, premenstrual syndrome (PMS) is the term used to describe an undefined collection of physical, emotional and behaviour changes that are associated with the premenstrual phase in professional and popular literature. The term PMS has been described as including over 100 different changes, and has no agreed upon time of onset or remission (Chrisler & Caplan 2003). The prevalence of PMS has been estimated to be as high as 80% of women (Halbreich et. al., 2003). Although a review of all the criticisms of PMS as a valid medical syndrome is beyond the scope of this study, there is one argument about the symptoms associated with PMS that is relevant to PMDD as well. In the research on premenstrual syndrome (PMS), several “symptoms” have
been reported that could be considered positive changes. For example, bursts of energy, increased activity and creativity, increased sex drive, feelings of affection and increased personal strength, and feelings of connection to other women (Chrisler, Johnston, Champagne & Preston, 1994; Lee, 2002; Nicholas, 1995). Chrisler and Caplan (2003) argue that these positive premenstrual changes are rarely mentioned in the professional literature because they do not fit with the conceptualization of the pre-menstrual period as a time of dysphoria and illness.

In the present study, the initial coding rubric contained one subcategory to code for an increase in energy and one for weight loss. It is interesting to note that these were both removed from the rubric after initial coder training due to a lack of presence in the data. Although the present study was designed to code specifically for concerns related to the experience of living with PMDD, there was the opportunity for coders to suggest new categories if a term was found repeatedly in the data. In fact, the category of loneliness was added to the rubric for this reason after suggestions from the coders. Therefore, if in the present study some positively valenced symptoms, such as those mentioned by other studies (e.g., Chrisler et al., 1994; Lee, 2002; Nicholas, 1995), did appear there was an opportunity for the coders to bring them to the attention of the primary author. This did not occur. This suggests that in the PMDD themed board, these positive changes, if they were present, may not have been discussed. Further research is required to determine if positively valenced experiences are present in an online sample. More specifically, are these symptoms not being discussed frequently because they are not present, or perhaps as Chrisler and Caplan (2003) theorize, these positive changes are not being linked to the PMDD due to the idea of PMDD as a time of illness and dysphoria. It would be interesting to examine what comments posters would bring to a forum titled “the best thing about my PMDD” or “Good changes that come with PMDD”.
Research Limitations

As with all research, the present study has some limitations. The primary limitation of the present study is that findings may not generalize to other women with a diagnosis of PMDD, including those who do not discuss their premenstrual dysphoria concerns online. The goal of the present study was to examine the premenstrual dysphoria concerns of individuals who visit PMDD themed Internet forums and social networking websites. However, due to the nature of the Internet - as a domain on which information shared by individuals cannot always be verified for authenticity - the present study could not confirm the diagnosis of PMDD among the individuals whose posts were analysed and who purported to have PMDD symptoms. Therefore, although many of the posters whose experiences were analysed reported having PMDD, there is no way to confirm their diagnoses. This lack of diagnostic confirmation limits the generalizability of the findings and requires that comparisons to other studies of PMDD populations be made with caution.

Similarly, it is possible that many of the Internet posters in the present sample spoke of symptoms and concerns that are due to the premenstrual exacerbations of another disorders (e.g. major depressive disorder), or sub-threshold levels of premenstrual dysphoria. As such, it is possible that the findings of the present study may differ from previous research on PMDD due to the inclusion of individuals with this different symptom cluster.

The present study examined online posts on Internet forums and social networking websites related to PMDD within the public domain between November 2011 and November 2013. Internet forums and social networking websites that met criteria for the present study were not heavily trafficked. Therefore, it is likely that the entirety of the content on the Internet from 2011 to 2013, which met the present criteria, was examined. However, several years have passed
since the data were collected. It is a limitation of the present study that the concerns highlighted as the most frequent may have changed in the period since the data were collected. That said, given the low frequency at which these sites gain new posts, the likelihood of the relative frequency of concerns changing in that time is unlikely. Additionally, due to the low rate of forum traffic, it is possible that the concerns and forms of social support offered by a few vociferous individuals may be overrepresented in this sample. As the initial posts were gathered from a variety of websites, this limitation is likely more relevant to the social support study where several reply posts were gathered from one conversation. If that were the case the results of the social support study may be more reflective of the support style of a few individuals than of the culture of PMDD Internet forums in general.

The inability to interact with the participants is also a limitation of the present study. For the purpose of this study, the term concern was broadly defined as an issue, related to premenstrual dysphoria, which troubles individuals dealing with the presence of cyclical symptoms. However, without having direct contact with the participants, it was impossible to confirm that the points they listed as being a part of their experience of living with premenstrual dysphoria are actually concerns or are troublesome to them.

**Limited demographic variability.** Although the choice of Internet forums and social networking websites as a means of collecting data allowed for the discovery of several premenstrual dysphoria concerns, there are some limitations to this sampling method. In particular, in this sample the overwhelming majority of posters were women. Therefore, although the purpose of the study was to evaluate the concerns of the posters who visit the Internet forums, and this sampling method was appropriate, it is conceivable that men who are in interpersonal relationships with women who are affected by premenstrual dysphoria also have
concerns related to the experience of living with premenstrual dysphoria that were not captured in this study. This form of online content analysis may not be the appropriate methodology for determining the needs and concerns of men whose partners experience premenstrual dysphoria. Examining the concerns of men may be relevant to developing an intervention for relationship stress that meets the needs of all individuals involved in an interpersonal relationship where premenstrual dysphoria symptoms are present. Further research in this area is needed.

Specific Premenstrual Dysphoria Concerns and Specific Forms of Social Support. It could be argued that it would be informative to compare the link between a specific premenstrual dysphoria concern and the subsequent presence of specific forms of social supports. However, this analysis is beyond the scope of the present study. For the purpose of analysis in the present study the term ‘concern’ is defined broadly in this study as an issue, related to premenstrual dysphoria, that troubles individuals dealing with the presence of cyclical symptoms. This term is meant to capture both explicitly stated worries, as well as mention of PMDD symptoms (as listed in the DSM) and other associated consequences that have the potential to be inconvenient, annoying and unwanted. Given this broad definition, the method of analysis employed herein involved coders reading each individual post in its entirety and rating that post as one unit of data for the presence of concerns. The majority of initial posts in this study contained the presence of more than one concern. Subsequently, the reply posts were analysed for the presence or absence of specific supportive behaviours, but not for the specific concern that prompted the support. For example, if someone stated, “I totally, get what you’re going through!” that would be coded for the presence of empathy/understanding. However, it would be impossible to match one concern within the initial post that this specific aspect of social support was referencing. Another barrier to directly linking specific concerns to specific form of support is the conversational nature of
Internet forums. In the present study, only the initial post of the online discussion was coded for the presence of concerns. However, within the reply posts, many other posters shared stories that contained concerns. Therefore, much of the social support coded for in this study was from that ongoing conversation and not directly linked to the initial post that started the discussion.

**Coding validation support.** Another limitation of the present study is the inability to reliably code for the presence of validation as a supportive behaviour. During the course of coder training, the validation category was revised four times to expand upon the criteria and provide more examples of when to apply the code of validation support and when not to apply the code. As described above, the validation subcategory was removed from the coding scheme after several rounds of training failed to result in satisfactory inter-rater reliability. Although the frequency of this behaviour could not be reliably coded or calculated in the present study, the coders did flag the suspected presence of validation support in the data. The suspected presence of validation in the sample suggests that the nature of the supportive role of validation may be better examined in the future using thematic analysis. More specifically, although specific behaviours indicative of validation were difficult to find and code using a present/absent methodology, a thematic analysis could be used to examine each post as whole, or even an entire discussion thread, to determine if the theme of validation appears in the online content. For example, thematic analysis could be used to capture an individual disclosing her desire for validation and then later finding that validation. Examining the data for this theme could potentially capture the importance of that experience even if it comes from sources other than the Internet forum or social networking website (i.e., from physicians or therapists). An additional benefit of using thematic analysis to evaluate the importance of validation is that it can be used even if a theme occurs very infrequently (Braun & Clarke, 2006).
**Researcher bias.** It is important to consider the influence of the lens through which the data were categorized. The data were examined from the initial position that PMDD is a genuine, valid, biologically-based psychiatric disorder. This position influenced how the codes were selected, created, and implemented. Additionally, this theoretical stance and interpretive epistemology influenced the definition of the term ‘concern’ used in the present study to guide analysis. As demonstrated in the work of Ussher (2002; 2003), PMDD narratives can be grouped thematically in very different ways depending on the epistemological stance of the researcher. Ussher examined stories of interpersonal conflict and variations in mood in terms of how individuals interpret and attribute their symptoms and the ways societal expectations influenced those interpretations. This is a very different approach than that used in the present study. As such, the conclusions drawn in this study may be very different from those of previous PMDD studies, based solely on the perspective of the researchers. Similarly, the codes and definitions used in this study were not shared with the participants. As such, there was no confirmation that the participants would have viewed the meaning of the codes and the categories in the same manner as the researchers.

**Accounting for decreases in inter-rater reliability.** In the present study the vast majority of categories had a final Krippendorff’s alpha (Kα) value above the recommended cut off of .80. During the coder training phase of the study all categories achieved an inter-rater reliability Kα ≥ .80. Once this value was achieved for all categories during the training phase, the independent coders proceeded to code the study data. Despite this initial inter-rater reliability of at least Kα = .80 for every category during the training, a minority of categories underwent a drop in reliability when the study data were coded. These decreases in inter-rater reliability can be attributed to several factors.
$K_\alpha$ is a measurement of the reliability of the category being coded. In effect, it indicates a combination of the clarity of the variable description (premenstrual dysphoria concerns) and the categories, the information and background provided in the coding manual and the instructions given during training (De Swert, 2012). If $K_\alpha$ is low, one might look for an explanation in one of these elements. If there is a breakdown in one of the areas meant to clarify the meaning of a category content analysts may disagree on the reading of a text. An example of a problem in this area is unclear coding instructions, either in the manual or during training. More specifically, the definitions of categories may be ambiguous or seem inapplicable to what they are supposed to describe.

In the present study, a lack of clarity in the description of some variables within the social support coding manual may have contributed to the lower reliability found in the social support variables of ‘sharing one’s experience’ and ‘encouragement’. A review of the reliability data (those posts which were coded by all coders in order to calculate inter-rater reliability) indicated that there were no identifiable patterns of errors. This means that no one coder stood apart from the others as coding in a biased or incorrect manner. The absence of one biased coder as an explanation for the decrease in reliability suggests instead that there may be a problem with the definition of the category. A review of the coding manual criteria for ‘encouragement’ revealed a rather short definition of the term ‘encouragement’: providing one with hope and confidence. The concept of encouragement is an abstract construct that, in part, refers to the intent of the author. Therefore, to improve use of this category, the definition in the manual may have benefited from more detail. One improvement could have been the inclusion of synonyms for encouragement to help improve understanding, for example: heartening, cheering up, or inspiration.
Although the category of encouragement included more than five examples of statements of encouragement, the category lacked instruction on when *not* to apply the code. These factors may have contributed to the drop in reliability. It is worth noting that although this category was reliable during training, at that time the coders were participating in twice weekly meetings to discuss all categories. It is possible that for the encouragement category the definitions in the manual were insufficient in the absence of these discussions.

The second factor that likely contributed to a drop in inter-rater reliability is a function of how $K_{\alpha}$ interacts with infrequent values. The $K_{\alpha}$ measurement of inter-rater reliability is a very robust measure that is not affected by the number of raters or the presence of missing data (Krippendorff, 2012). However, $K_{\alpha}$ is often affected when used in a sample where one code is very infrequent. This is especially true of binary variables for which one of the values (1 or 0) is very rare. For instance in the present study, if a certain concern appeared rarely, then the value 1 ($1 = \text{present}$) would be coded for very infrequently compared to the value 0 ($0 = \text{not present}$). In case of infrequent values, $K_{\alpha}$ returns low inter-rater reliability even when the coders make very few mistakes (De Swert, 2012). This sensitivity to infrequent values likely explains why many of the initially reliable categories returned $K_{\alpha}$ values $< .80$ after the final data were coded.

For instance, of the 105 posts coded for reliability, the ‘presence’ category only had five instances of that behaviour present and the category of ‘access and referral’ had only four. In each of these categories, the four independent coders each made only one mistake out of 105. Due to the low frequency of these social support behaviours within the 105 posts chosen for reliability testing, these very infrequent mistakes had a larger impact on the $K_{\alpha}$ value of these categories than one mistake would have had on a category that was used more frequently. The sensitivity of $K_{\alpha}$ to infrequent values is such that even if raters have percent agreement over 98%
one mistake in an infrequent category could still return a $\kappa$ value below .59 (De Swert, 2012, Krippendorff, 2012).

The final factor that could potentially contribute to a drop in inter-rater reliability is performance of the coders. Coder performance can be affected by a variety of situational factors including stress, inattentiveness, personal issues, laziness, insufficient selection before starting to code among others (Krippendorff, 2012). Additionally divergence, or drift, of coder performance over time can affect reliability as the meaning of categories for any one coder may drift over time, or as new coders are introduced. In the present sample it is unlikely that coder performance contributed to the decrease in $\kappa$ observed in some categories. Firstly, a correlation analysis of each coder, as suggested in De Swert (2012) identified that the ratings of the coders were all positively correlated in the categories in question. The analysis did not show any one rater acting systematically different from the others. Furthermore the premenstrual dysphoria concern categories, and subsequently all social support behaviour categories, were coded simultaneously for each post. One would expect that if one coder in particular were biased, this bias would affect multiple categories, as they were all coded simultaneously. A wide-ranging systematic bias was not observed. Finally, the concept of coder drift is also unlikely to have contributed to drops in reliability. The data for the present study were coded within a relatively short time frame, in some cases as quickly as within three days, and at the most two weeks. It is unlikely that the coders would have drifted significantly in their understanding of one category but not the others. If drift were present one would also expect the effects to reach beyond one category, and to be evident in an analysis of coder bias.
Ethical Concerns

Consideration of ethical concerns is important in research. The present analysis of written posts on Internet forums requires consideration of ethical issues that may not be relevant to in-person interviews. The information content analysed in this study existed on the Internet prior to the commencement of this study, meaning the posts were not generated specifically for the purpose of analysis. Also, the users of the Internet forums were not aware of the subsequent content analysis of their posts. It could be argued that the Internet messages analysed in the present study were utilized in a way other than how the participants intended that they be used. Therefore, it is important to consider the use of public information for research.

The current convention of content analysis research is that content in the public domain, by nature of being public, can be used for research (Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada and Social Sciences and Humanities Research Council of Canada, 2010; S. Auld, Director Research Ethics University of Guelph, personal communication May 13th 2013). However, researchers often still have a responsibility to preserve the anonymity and or confidentiality of individuals who are a part of the research, as they would have with in-person participants (Rodham & Gavin, 2006). To ensure that data were collected from public sources, the present study only collected comments from public Internet forums that did not require a password to access the content. These messages boards and websites often had Terms of Use policies that declared: all comments and content on the boards can be viewed by other users who post comments, as well as any individual visiting the site. For example one such policy stated: “When you publish content or information using the Public setting, it means that you are allowing everyone, including people
off of Experience Project, to access and use that information, and to associate it with you (i.e., your username and profile picture)” (Experience Project: Statement of Rights and Responsibilities, n.d.). One could argue that by choosing to post messages in public media such as the Internet, individuals are consenting to the use of that content in ways other than the online discussion. Despite this possibility, it is also important to consider that users of Internet forums and social networking sites may be vulnerable and in desperate need of help. This vulnerability may cause users to ignore the warning, or perhaps not fully consider the consequence of posting in a public forum.

Therefore, despite the clearly worded privacy policies and warnings to users that content posted to the Internet forums may be associated with user names, the present study took several steps to ensure anonymity of posters whose content was used in the analysis. Firstly, no identifying information such as email addresses, user names or real names were collected during the data collection process. Additionally, when direct quotes were used in this paper, small editorial changes were made to the excerpts. These editorial changes served to preserve the meaning of the comment but prevent one from copying and pasting the comment into a search engine and finding the original source.

This method of research has many benefits over the use of in-person interviews. Firstly, the data were collected and transcribed in a very short time frame – five hours total. Secondly, by utilizing stories from the Internet, the experience of women from many different regions and countries could be included in the analysis. Also, as expected, there is some evidence that more sensitive topics such as suicidal ideation during the premenstrual time were discussed online in a manner not found in the in-person interview study by Ussher (2003). Therefore, given that researchers can employ procedures to protect the anonymity and confidentiality of Internet
posts, content analyses of Internet material may be a practical method to generate information not as easily accessible as in person interviews.

**Clinical Implications**

More than 70% of concerns related to interpersonal relationships contained a concern about romantic relationships. These findings from the present study, and King et. al.’s (2014) study of the website PMSBuddy.com suggest that both men and women are visiting the Internet to talk about concerns related to the premenstrual phase of the menstrual cycle. This suggests that the Internet may be an appropriate place to reach individuals who have concerns about premenstrual dysphoria and offer support and intervention. Previous research (Frank et. al. 1993) found improved interpersonal functioning and reduced conflict in relationships when both partners monitored the cycle of the individual with PMDD. It is possible that the Internet and cell phone mobile applications (apps) could be used to facilitate or deliver an intervention for couples impacted by PMDD symptoms. A website dedicated to empirically informed psycho-education and interventions could be used to deliver reliable information about communicating with partners and family members about one’s PMDD. Additionally, the website could provide psycho-education about the role of stress and societal expectations on the exacerbation of symptoms, as well as strategies to improve communication and problem solving in relationships. There is evidence to support the efficacy of mental health interventions delivered via mobile device applications (apps) (Donker et. al., 2013). Therefore, in addition to the psycho-education on the website, development of a mobile phone application (app) would allow couples to easily track the symptoms of the person with PMDD and sync their phones to ensure both partners were aware that symptoms were occurring.
In the present study, nearly one quarter of the respondents with emotional concerns spoke of the presence of, or worry about, suicidal ideation. Although the present study did not screen participants to verify the diagnosis of PMDD a specific diagnosis is not necessary to provide support for suicidal ideation. Even if the posters consist of women with pre-menstrual exacerbation of other disorders such as depression, suicide is being discussed in these PMDD dedicated forums. Therefore, it may be helpful for the creators and moderators of these Internet forums and social networking communities to include advertising for suicide crisis hotlines and crisis interventions as a part of the website. These can be designed as pop up messages or banners specific to the region of the world of the visitor, in a manner similar to how advertisements are often targeted to a specific user (Dingmann, Yukselier & Marotte, 2014).

As discussed above, due to the eclectic collection of emotional and physical symptoms associated with PMDD, there are many suggested treatment options to manage or alleviate the symptoms (Bhatia & Bhatia, 2002; Cunningham et al., 2009; Fryer, Kaspi, Fallon, Moline & Severino, 1992; Lustyk et al., 2009; Steiner, 2000). The frequent presence of intervention seeking concerns, 80% in the present sample, suggests that finding means of alleviating symptoms of premenstrual dysphoria is likely of great concern to women who visit PMDD related Internet forums. According to published treatment guidelines for PMDD (Steiner, 2000), one of the initial treatment recommendations for severe premenstrual symptoms, prior to starting a course of SSRI medications, is to implement life style changes as a means of reducing symptom number or severity. More specifically, treatment guidelines suggests women with pre-menstrual changes be encouraged to change their diet, by avoiding caffeine, alcohol, sugar and sodium during the luteal phase of one’s cycle, to engage in more exercise, and reduce stress (Bhatia & Bhatia, 2002; Steiner, 2000).
Currently, there are no empirical studies that have examined the success for individuals who attempt to either implement these recommended changes, or follow and maintain a new treatment regimen. As discussed by Cunningham and colleagues (2009), many of the non-pharmacological treatments, such as vitamins and supplements, have little clinical evidence to suggest efficacy in treating PMDD. Furthermore, even those pharmacological interventions that demonstrate positive treatment effects are not effective at reducing all of the associated symptoms of the disorder (Cunningham et al., 2009).

The posts from this study indicate that posters in the present sample tried many interventions in their quest to find the one most helpful in reducing or managing symptoms. Further research is needed to examine if there are any impediments to implementing some of the recommended life style changes or treatment protocols. For example, given the cyclical nature of PMDD symptoms, and the temporal disconnect between the onset of negative symptoms and the life style changes needed to ameliorate those symptoms, one could surmise that it may be difficult for some individuals to adhere to a treatment plan during the periods of the months when they are asymptomatic. Similarly, even before taking on a treatment plan, some individuals may find the idea of implementing daily life changes, such as dietary restrictions, or consuming multiple supplements, prohibitive and difficult to maintain compliance. This may be especially so when a daily commitment is required during the lengthy asymptomatic periods to ameliorate only a handful of days with severe symptoms. Previous research demonstrated the link between poor treatment compliance in individuals who are asymptomatic (Solomon et. al., 2005) and who have chronic illness (Miller, 1997). It is conceivable that both of these factors may play a role in poor treatment adherence in individuals with PMDD.
It would be interesting to evaluate the potential of therapeutic techniques such as motivational interviewing to assess a patient’s willingness and readiness to engage in lifestyle changes. An understanding of a patient’s readiness for change, and capacity to implement the recommended treatment protocol could have the potential to help guide an individual toward the intervention she is most likely to implement and maintain. For example, a patient with PMDD may verbalize an aversion to taking anti-depressant medication. However, conducting an assessment that informs the patient of the commitment necessary for lifestyle changes, and daily monitoring, as well as assesses readiness to change, may reveal that taking a daily dose of an antidepressant is the treatment most manageable, and likely to be adhered to over time. Further study is required to assess if this form of assessment-based treatment planning has the potential to reduce the amount of trial and error in finding an effective intervention protocol for PMDD.

Posters in the present sample spoke of interruptions to their optimal performance in employment and education settings, as well as feeling changes in personal identity during symptomatic phases. There was reference to differing levels of functioning during symptomatic days versus “normal” (asymptomatic) days. If one were to implement the intervention regimens mentioned in the literature, the initial assessment, treatment, and management of PMDD would likely require a daily commitment to monitor symptoms, both during symptomatic, and asymptomatic phases. For example, Steiner (2000) recommends daily tracking of symptoms for the entire menstrual cycle to identify changes in mood and accompanying situational triggers that occur over several months. Similarly, the recommendation of avoiding certain foods and chemicals during the luteal phase, or consuming SSRI medication only during the luteal phase (Bhatia & Bhatia, 2002) requires one to track her cycle daily to determine the onset of the this phase.
Further study is required to assess the impact of the premenstrual symptoms themselves on an individual’s capacity to remain compliant to her treatment regime and daily tracking. It is possible that at the time in a woman’s cycle when adherence is most necessary, that is, in the luteal phase, that may also be the time when it is most difficult to be compliant, as that is the phase when symptoms are most present.

Several studies have discussed the use of Cognitive Behavioural Therapy as a treatment, or additional support, for women with PMDD (Hunter et al., 2002; Lustyk et al., 2009; Ussher et al., 2002). However, these studies did not specifically address the symptom of altered sense of self. In the present sample, posters mentioned feeling different from their “normal” selves during the premenstrual time. In the presence of sudden mood changes, women spoke of feeling like Dr. Jekyll and Mr. Hyde. Previous authors have suggested this sense of feeling abnormal, or not one’s usual self, stems from societal pressure for women to externalize and disavow negative emotions such as anger and irritability (Caplan, 2004; Taylor, 2006; Ussher, 2003).

Regardless of the cause of these feelings of an altered sense of self (i.e. societal expectations or a hormonally caused change in cognitions specific to PMDD), future research is needed to evaluate the role of CBT to ameliorate this experience. More specifically, the concept of cognitive restructuring (i.e. challenging unrealistic thoughts) may have the potential to empower individuals to examine the validity of the troubling thoughts related specifically to an altered sense of self. This can occur by challenging black or white thinking (i.e. I am Jekyll or I’m Hyde), examining the role of societal expectations (i.e. I’m expected to be nice all the time and that’s why this irritability feels odd), or helping to remain cognizant of the impact of PMDD symptoms (i.e. my level of emotional arousal is higher at this time and that’s why I feel like crying more easily than other times). Given that CBT has demonstrated efficacy in treating
PMDD (Hunter et al., 2002; Lustyk et al., 2009; Ussher et al., 2002), it would be of value to examine its application to this specific concern.

Similarly, the therapeutic techniques suggested by Acceptance and Commitment therapy (ACT) may also have the potential to address concerns about an altered sense of self, and promote greater integration of the different parts of one’s self (Harris, 2009). More specifically, it would be interesting in future studies to evaluate the effectiveness of three particular therapeutic processes from ACT. The therapeutic process of ACT includes teaching cognitive defusion as a means of distancing oneself from intense negative thoughts (Harris, 2009), such as the self deprecating thoughts posters in the present sample spoke of experiencing. Additionally, ACT teaches acceptance of painful emotions, sensations and urges (Harris, 2009), all of which are associated with PMDD. This process, in particular, may have the potential to facilitate the acceptance and integration of emotions often labeled as negative or unfeminine.

Lastly, the third relevant principle from ACT involves instruction on committed action. Committed action is a therapeutic principle which incorporates behavioural strategies with the other facets of ACT to address motivation and readiness to change (Harris, 2009). As mentioned above, the presence of PMDD symptoms may influence an individual’s capacity to be faithful to treatment suggestions. Improving behavioural motivation may be one method of assisting in improving the experience of treatment seeking and adherence to a treatment regimen.

With regards to personal identity, this study also found the presence of concerns related to not being able to maintain a sense of normal mental health or sanity. This symptom is not addressed in the current DSM-5 criteria (American Psychiatric Association, 2013). Although the present study cannot speak to changes in diagnostic criteria, it may be useful for professionals who are involved in diagnosing PMDD, to reassure patients that their symptoms and perceived
changes in identity are not unusual; and furthermore that they are likely not indicative of a more severe mental illness which includes losing touch with reality or severely disordered thinking.

The presence of membership support in these online communities suggests that individuals who visit these websites view their shared experience of severe premenstrual symptoms as distinct from that of the common experience of other women. Therefore, some reassurance from medical practitioners may also serve to provide social support to women seeking an explanation for their symptoms.

**Conclusion**

The majority of women experience some form of premenstrual symptoms (Pearlstein & Steiner, 2008). However, the severe emotional symptoms, impact on interpersonal relationships (Frank et al., 1993) and disruption to daily functioning (Heinemann et al., 2010a; 2010b) characteristic of PMDD, affect only 1.3%-5% of menstruating women (American Psychiatric Association, 2013; Hartlage et. al., 2012). The results of the current study illuminate the frequency with which various premenstrual dysphoria concerns are mentioned in Internet forums and social networking websites related to PMDD. A substantial majority of concerns mentioned fell within the analysis category of emotional and cognitive intrapersonal concerns. These primary concerns mentioned in the present sample are consistent with the psychiatric community’s classification and characterization of PMDD within the realm of mood disorders (American Psychological Association, 2013). In particular, women in the present sample frequently mentioned experiencing sadness. The results of the present study also support the notion that these Internet posters view the experience of severe premenstrual symptoms as unwanted and in need of intervention.
The results also established that mentions of premenstrual dysphoria concerns were frequently met with reply messages containing social support. Overall, supportive behaviours within the broad category of emotional support were offered most frequently. The observation of affection, well wishes and empathy toward fellow posters suggests that the Internet can be a supportive environment for women who are dealing with premenstrual symptoms more severe than the average experience.

Although studied for decades (Endicott, 2000; Zachar & Kendler, 2014), the labeling of severe premenstrual symptoms as the psychiatric disorder of PMDD is often fraught with controversy (Hartlage et al., 2014). The current study is the first to examine the concerns of individuals who suffer with severe premenstrual symptoms as found in content from the Internet. The individuals whose posts were analysed were not directly influenced by the researcher, and in fact, were unaware of the impending analysis of their comments. Thus, the results from this study may help to guide future research concerning the specific needs of women with severe premenstrual symptoms and the types of social support most desired and effective for those women.
References


Cohen, B.H Gottlieb & L.G. Underwood (Eds.), *Social Support Measurement and Intervention* (pp. 3-25). New York, NY: Oxford University Press.


Harris, R. (2009). ACT made simple: An easy to read primer on Acceptance and Commitment


Kaplan, A.M., & Haenlein, M. (2010). Users of the world unite! The challenges and

doi:10.1016/j.bushor.2009.09.003


Krawczyk, K. (2014). Google is easily the most popular search engine, but have you heard who’s in second? Retrieved from http://www.digitaltrends.com/web/google-baidu-are-the-worlds-most-popular-search-engines/


Psychology, 5, 162-169. doi:10.1177/0959353595052004


trauma characteristics are correlates of premenstrual dysphoric disorder. *Archives of Women’s Mental Health, 14*, 383-393 doi: 10.1007/s00737-011-0232-4


prefers-Yahoo-Map-reveals-different-internet-giants-dominate-countries-globe.html

