ROLE OF SOCIAL SUPPORT IN THE RELATIONSHIP BETWEEN COGNITIVE DIFFICULTIES AND ACADEMIC PERFORMANCE AMONG FEMALE YOUNG ADULTS WITH PREMENSTRUAL SYMPTOMS

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DECLARATION

I, **Ms. AYESHA CHUGHTAI**, Registration No. **493-FSS/MSCP/F23** student of **MS** in the subject of Psychology, session **2023-2025**, hereby declare that the matter printed in the thesis titled**: Role of Social Support in the Relationship between Cognitive Difficulties and Academic Performance among Female Young Adults with Premenstrual Symptoms** is my own work and has not been printed, published and submitted as research work, thesis or publication in any form in any University, Research Institution etc in Pakistan or abroad.

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RESEARCH COMPLETION CERTIFICATE

Certified that the research work contained in this thesis titled**: Role of Social Support in the Relationship between Cognitive Difficulties and Academic Performance among Female Young Adults with Premenstrual Symptoms** has been carried out and completed by **Ms. AYESHA CHUGHTAI** Registration No. **493-FSS/MSCP/F23** under my supervision.

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Dedication

"To my dearest parents the silent architects of my soul, whose boundless love, sleepless sacrifices, and unshakable faith lit every dark path I walked. This work is not just mine, but a reflection of your dreams wrapped in patience, prayers, and unconditional devotion. I owe it all to you."

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List of Abbreviations

APA	American Psychological Association
DSM	Diagnostic and Statistical Manual of Mental Disorders
SPSS	Statistical Package for Social Sciences
PMS	Premenstrual symptoms/premenstrual syndrome
PMDD	Premenstrual Dysphoric Disorder
PSST	Premenstrual symptoms screening tool
CAQ	Cognitive assessment questionnaire
MSPSS	Multidimensional scale of perceived social support
APS	Academic performance scale
THDOC	Tetrahydrodeoxycorticosterone
TRH	Thyrotrophin-releasing hormone
CLT	Cognitive Load Theory

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Abstract

The present study aimed to examine the role of social support in the relationship of cognitive difficulties and academic performance among female young adults with premenstrual symptoms. A purposive sample of 300 female university students aged 18–25 was selected from various universities in Islamabad. Participants completed standardized self-report measures, including the Premenstrual Symptoms Screening Tool (Steiner et al., 2003), Cognitive Assessment Questionnaire (Broadbent et al., 1982), Academic Performance Scale (Kumar, 2015), and the Multidimensional Scale of Perceived Social Support (Zimet et al., 1988). Data were analyzed using Pearson correlation, simple linear regression, moderation analysis, and t-tests. Results revealed a significant negative correlation between cognitive difficulties and academic performance, while social support showed a positive correlation with academic performance and a negative correlation with cognitive difficulties. The linear regression results indicated that cognitive difficulties were a significant negative predictor of academic performance, explaining 24.9% of the variance. Higher cognitive difficulties were associated with lower academic performance. Moderation analysis indicated that social support significantly buffered the negative effects of cognitive difficulties on academic performance. Independent t-tests showed that students with irregular menstrual cycles experienced significantly more cognitive difficulties than those with regular cycles, while no significant differences were found based on education level or age. In conclusion, the study highlights the cognitive dimension of PMS as a key factor affecting academic performance and underscores the protective role of social support. These findings support the need for academic and psychological interventions tailored to female students within the Pakistani context.

Keywords: Premenstrual symptoms, cognitive difficulties, academic performance, social support

Chapter 1

Introduction

The menstrual cycle represents a natural physiological process for individuals with a uterus. Although it plays a crucial biological role, the premenstrual phase is frequently misunderstood and inadequately addressed in both academic and clinical contexts. The range of premenstrual symptoms spanning physical discomfort, emotional disturbances, and cognitive impairments can significantly interfere with the daily lives of young adult women, especially in educational settings (Yonkers et al., 2008).

Among these, cognitive difficulties are particularly important yet often under recognized. These issues encompass challenges in attention, memory, decision-making and mental clarity core cognitive faculties essential for academic success (Farage et al., 2008). University students face complex cognitive tasks such as sustaining attention, abstract thinking, and multitasking. Consequently, experiencing cognitive disturbances during the premenstrual phase can adversely affect academic performance and perceived competence in academic tasks (Rapkin & Winer, 2009).

Academic performance is a multidimensional construct that extends beyond grades and test scores, encompassing the ability to maintain focus, exert sustained effort, and engage in goal-directed behaviors within academic settings (Credé & Kuncel, 2008). Among female students, premenstrual cognitive difficulties such as impaired concentration, memory lapses, and reduced attention control may interfere with these capacities, thereby influencing academic outcomes (Çobanoğlu, 2021; Omara et al., 2024).

One such factor is perceived social support, which refers to an individual's sense of being supported, understood, and assisted by others in times of stress or emotional need (Cohen & Wills, 1985). Within the context of premenstrual experiences, social support from family, friends, or academic institutions can serve as a buffer against psychological and cognitive stressors.

It is hypothesized that social support may mitigate the impact of premenstrual cognitive impairments on academic functioning by reducing stress, encouraging effective coping, and bolstering emotional resilience (Thoits, 2011). Despite theoretical and empirical backing for each of these variables individually, their interconnectedness remains underexplored.

Premenstrual Symptoms

Many women of reproductive age experience varying degrees of physical and emotional discomfort in the days leading up to menstruation. While most symptoms are mild, approximately 5–8% of women experience severe forms of premenstrual syndrome (PMS), and many of them also meet the diagnostic criteria for premenstrual dysphoric disorder (PMDD) (American Psychiatric Association, 2013; Halbreich, 2003). Emotional symptoms such as irritability, mood swings, tension, and depressed mood are often particularly distressing, while physical symptoms like bloating and breast tenderness can also interfere with daily life (Halbreich, 2003). Menstruation follows a circadian-like rhythm, influenced by hormonal fluctuations across the cycle, which interact with physiological and behavioral processes (Hirschfield & Schmidt, 2005). Understanding these experiences within a biopsychosocial framework highlights how biological, psychological, and social factors jointly shape women‘s menstrual health across different socioeconomic and cultural contexts (Kues & Kues, 2018).

During the late luteal phase of the menstrual cycle, a significant number of women experience a mix of somatic, emotional, behavioral, and cognitive symptoms, commonly categorized as PMS. These typically resolve shortly after menstruation begins (Lavu et al., 2017; Matsumoto et al., 2017). Different premenstrual symptoms have been identified, with significant variation in type and intensity among individuals. Even when these symptoms do not meet diagnostic criteria for severe PMS or PMDD (as defined by DSM-5; APA, 2013), they can still interfere with social relationships, occupational performance, and overall well-

being

Young women, particularly those in academic settings, often report that PMS symptoms negatively affect their academic performance, resulting in decreased grades (Tolossa & Bekele, 2014) and increased absenteeism (Tadakawa et al., 2016). Furthermore, persistent symptoms may elevate the risk of long-term psychological issues, including postpartum depression (Buttner et al., 2013). Despite ongoing research into PMS, ambiguity remains around its most dominant symptoms and contributing factors. These concerns are especially critical considering that PMS often emerges during adolescence and extends into early adulthood (Matsumoto et al., 2017; Tadakawa et al., 2016).

PMS refers to recurring physical, emotional, and behavioral symptoms that arise two weeks before menstruation. These are classified as PMS when they significantly disrupt daily functioning and impact well-being (Kathleen et al., 2010). Emotional symptoms such as irritability, sadness, and anxiety, alongside physical symptoms like bloating and breast tenderness, typically subside with the onset of menstruation (Jensvold & Dan, 2001). According to the American College of Obstetricians and Gynecologists, approximately 85% of menstruating women report experiencing at least one PMS symptom monthly, although most do not require clinical intervention (Lete et al., 2011). However, 3% to 8% of women experience more severe symptoms classified as PMDD (Lustyk et al., 2004), which include intense mood swings, anger, and emotional instability.

Women with PMS or PMDD frequently report elevated levels of anxiety and depressive moods during the premenstrual phase, with symptoms typically resolving after menstruation (McMillan & Pihl, 1987). Research suggests these women are more likely to be diagnosed with anxiety and mood disorders (Steiner et al., 2006), experience suicidal ideation or attempts, and face interpersonal difficulties due to emotional instability (Slade et al., 2009). Hence, assessing mood and emotional well-being in individuals with PMS or PMDD is essential.

PMDD is recognized as a more severe, affective subtype of PMS that significantly disrupts emotional regulation and general well-being. The primary distinction lies in the greater severity and psychological impact of PMDD symptoms (Aperribai et al., 2016), with a global prevalence estimated at 3–8% among women of reproductive age (Accortt et al., 2011). PMDD is considered a psychoneuroendocrine disorder manifesting emotional and physical symptoms during the premenstrual phase, often beginning about a week after ovulation (Protopopescu et al., 2008).

According to DSM-5 (APA, 2013), PMDD is officially classified as a mental disorder, recognized worldwide and not limited by cultural context. Nonetheless, cultural norms do influence how women perceive and seek treatment for these symptoms. Symptom intensity and frequency are also shaped by environmental and sociocultural factors. Although the exact genetic basis remains unclear, research suggests that approximately 50% of PMDD symptoms may be heritable (APA, 2013).

University students are at a developmental stage where their psychological and social resources are often insufficient to manage daily stressors effectively (Hamdan-Mansour et al., 2012). The pursuit of academic excellence, career security, and self-actualization places immense pressure on them, especially when paired with limited coping resources and heightened psychological demands (Hamdan-Mansour et al., 2012; Neumann et al., 2009). This vulnerability increases their risk for mental health issues and undermines their academic performance (Hamaideh & Hamdan-Mansour, 2012). Despite these challenges, many students avoid seeking help due to fear of stigma and concerns about their mental health deteriorating further (Eisenberg et al., 2007).

Among gender-specific psychological concerns, menstruation-related mental health issues in women stand out. PMDD, in particular, has received considerable attention from mental health professionals. The hormonal changes during the luteal phase are closely linked with cognitive, behavioral, and emotional symptoms categorized as premenstrual symptoms

(APA, 2013).

Menstruation is regulated by cyclical hormonal fluctuations in estrogen and progesterone, which leads to various symptoms collectively, termed menstrual-related disturbances (Farage et al., 2009). Among these, primary dysmenorrhea (PD) and PMS are the most prevalent and are known to impair daily life and overall quality of living (De Sanctis et al., 2016; Bernardi et al., 2017). PD refers to menstrual pain without any underlying pathology and is common among adolescents, whereas PMS comprises emotional, physical, and behavioral symptoms that begin in the luteal phase and resolve with menstruation (Direkvand-Moghadam et al., 2014).

Several contributing factors, such as stress, poor sleep, irregular menstrual cycles, low BMI, and unhealthy lifestyle choices, have been found to aggravate premenstrual symptoms (Faramarzi & Salmalian, 2014; Hu et al., 2020). These symptoms typically emerge following menarche and recur cyclically during the luteal phase, encompassing a mix of cognitive, emotional, and physical disturbances (Eriksson et al., 2000; Johnson, 2004). While PMS includes these disturbances, PMDD represents their more severe variant, often associated with marked psychological distress and functional impairment (Demir et al., 2006). Among adolescents, such disorders have been correlated with lower self-confidence, troubled relationships, and academic underachievement (Demir et al., 2006).

Emotional and behavioral manifestations like irritability, mood instability, restlessness, indecision, and forgetfulness are common, along with cognitive challenges such as reduced attention and concentration (Forrester-Knauss et al., 2011; Wittchen et al., 2002). Although research has documented neurocognitive impairments in adult women with PMS and PMDD, including memory lapses, poor concentration, and decreased psychomotor efficiency, there remains a noticeable gap in adolescent-specific studies (Diener et al., 1992; Hylan et al., 1999; Keenan et al., 1992; Reed et al., 2008; Steiner et al., 2003).

Most adolescent-focused research has been limited to prevalence estimates, neglecting

the broader cognitive implications of PMS and PMDD. These conditions, defined as a mix of psychological, physical, and behavioral symptoms during the luteal phase, become clinically significant when they interfere with daily functioning and degrade quality of life. Although most women experience mild forms of PMS, a subset develops PMDD, marked by intense emotional instability and psychological impairment (Lustyk et al., 2004; Kathleen et al., 2010).

Women suffering from PMS or PMDD frequently display heightened levels of anxiety and depression during the luteal phase, returning to a more stable state after menstruation (Hoyer et al., 2013; Tarı-Selçuk et al., 2014). These women are at greater risk of mood and anxiety disorders, with elevated risks for suicidal ideation and interpersonal communication difficulties due to mood volatility (Baca-Garcia et al., 2004). These findings underline the importance of comprehensive emotional and cognitive assessment in women with PMS and PMDD, especially in academic or occupational contexts where functional impairment is evident (Steiner et al., 2006).

History

The phenomenon of menstruation and its associated symptoms has been acknowledged and recorded for nearly four thousand years. One of the earliest known references is found in the Kahun Gynaecological Papyrus (circa 1800 BCE), which represents one of the oldest surviving medical manuscripts. This document detailed a range of complaints, including lower back pain, migraines, excessive bleeding, leg discomfort, and even dental pain, often interpreted at the time as manifestations of physical or spiritual imbalances linked to the uterus. Descriptive terms such as "discharges," "wrappings," and the "wandering womb" were frequently employed to conceptualize these conditions (Hanson, 1990; King, 1998).

Cultural perceptions of menstruation varied across societies. In many traditional hunter-gatherer communities, menstruation was regarded as a sacred and liberating process,

temporarily exempting women from domestic responsibilities and patriarchal authority (Turnbull, 1960). Conversely, in several historical civilizations, menstruation was framed within narratives of purification or pollution, perpetuating negative connotations.

By the era of classical antiquity, Greek physicians developed the concept of "hysteria," a condition attributed to a restless or displaced uterus. Hippocrates introduced the term, arguing that sexual abstinence resulted in the accumulation of harmful substances, thereby causing both psychological and somatic disturbances. Philosophers like Plato advocated for childbirth as a remedy to stabilize the so-called "wandering womb," while Aristotle attributed mysterious and mystical traits to menstruating women (Veith, 1964). These early interpretations forged a longstanding association between female biology and psychological instability.

During the seventeenth century, Thomas Sydenham advanced medical understanding by relocating the cause of hysteria from the uterus to the nervous system. He characterized women as emotionally fragile, influenced by their biological makeup (King, 1998). This reconceptualization entrenched a medical paradigm that anthologized women's emotional and cognitive functioning, further perpetuating myths surrounding female irrationality (Ussher, 2005).

Etiology

The etiology of premenstrual syndrome (PMS) remains multifactorial and incompletely understood. Contributing factors include hormonal fluctuations, particularly reduced progesterone levels during the luteal phase (Mortola, 1998), as well as altered aldosterone activity, which contributes to sodium and water retention. Dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis, leading to abnormal adrenal hormone secretion (Chrousos et al., 1998), has also been implicated. Additional contributors include disturbances in neurotransmitter function, functional hyperprolactinemia (Backstrom et al., 2003), and nutritional deficiencies involving calcium, magnesium, and vitamin B6, alongside

lifestyle factors such as alcohol intake, obesity, stress, and poor carbohydrate metabolism (Backstrom et al., 2003; Rapkin, 2003; Singh et al., 1998).

Although early theories emphasized the role of progesterone deficiency during the luteal phase, recent empirical evidence has shown inconsistency in hormonal irregularities among PMS sufferers. Furthermore, progesterone supplementation has not demonstrated significant efficacy in placebo-controlled clinical trials (Rubinow et al., 1998; Wyatt et al., 2001). Current research has turned attention toward neuroactive progesterone metabolites, particularly allopregnanolone and tetrahydrodeoxycorticosterone (THDOC), which act on GABA(A) receptors and exhibit anxiolytic, analgesic, and sedative effects (Gruber & Huber, 2003). Conversely, pregnenolone sulfate (PS), a neuroactive precursor, functions as a GABA (A) receptor inverse agonist and exhibits anxiogenic effects through interactions with NMDA receptors and calcium channel modulation (Spence et al., 1991). Elevated levels of estradiol, pregnenolone, and PS during the premenstrual phase have been associated with heightened symptom severity, whereas increased concentrations of allopregnanolone and THDOC are correlated with reduced symptom burden (Monteleone et al., 2000).

Alcohol consumption may further exacerbate PMS by disrupting the synthesis and function of neurosteroids. Experimental studies suggest that even low-dose alcohol infusions can decrease peripheral allopregnanolone levels during the late luteal phase, potentially explaining increased alcohol use among women affected by PMS (Nyberg et al., 2005; Perry et al., 2004). Additionally, mastalgia, a common PMS symptom, has been linked to functional hyperprolactinemia characterized by disrupted prolactin secretion patterns and exaggerated responses to thyrotrophic-releasing hormone stimulation (Peters, 1988; Milewicz, 1997; Milewicz et al., 1988).

There is also strong evidence linking PMS to diminished serotonergic neurotransmission, including altered serotonin receptor sensitivity and monoamine oxidase activity (Ashby et al., 1988; Biegon & McEwen, 1982). The therapeutic efficacy of selective

serotonin reuptake inhibitors (SSRIs) in treating PMS and PMDD lends further support to this hypothesis (Rapkin, 2003; Backstrom et al., 2003).

Dysregulation of nitric oxide (NO) during the luteal phase has been proposed as another physiological mechanism contributing to PMS symptoms. Elevated estrogen and progesterone levels can induce excessive NO release, potentially leading to systemic symptoms (Levin, 2004). Some studies suggest that low-dose oral contraceptives containing drospirenone may alleviate PMS and PMDD symptoms by modulating steroid hormone levels and their neuroactive derivatives (Parsey & Pong, 2000; Rapkin, 2003).

Prevalence

The precise prevalence of PMS remains uncertain due to variation in symptom expression, severity, and diagnostic criteria, all of which hinder consistent prevalence estimates across populations. PMS is widely regarded as one of the most contentious topics in women‘s health (Henshaw, 2007). Review studies have reported prevalence rates ranging from 14% to 88%, with 5% to 10% of women experiencing severe forms (Bakhshani et al., 2009). Other investigations suggest prevalence figures between 20% and 90%, reflecting substantial heterogeneity across cultural and societal contexts (Wittchen et al., 2002).

It is estimated that approximately 90% of menstruating women report experiencing at least one PMS symptom, while around 20% report emotional, behavioral, or physical symptoms that significantly interfere with their daily functioning (Freeman, 2003).

Several explanatory models have been proposed to account for PMS etiology. A dominant hypothesis suggests that certain women exhibit heightened physiological sensitivity to normal fluctuations in estrogen and progesterone, rendering them more susceptible to PMS. In addition to biological sensitivity, psychological, medical, nutritional, and social factors have also been identified as potential contributors. These interacting factors may lead to considerable personal distress and broader social consequences (Bertone, 2009; Dadvar & Fathabadi, 2011; Lee et al., 2011).

Premenstrual symptoms encompass a wide range of physical, emotional, and behavioral changes, yet an equally important dimension lies in their cognitive impact. Research has shown that women with PMS often experience impairments in attention, working memory, and concentration, which may intensify during the late luteal phase of the menstrual cycle (Baller et al., 2013; Epperson et al., 2012). These cognitive difficulties are not isolated phenomena but are closely intertwined with the hormonal and neurochemical changes underlying PMS, particularly fluctuations in estrogen and progesterone that influence serotonergic and GABAergic pathways (Hammar et al., 2022). Such disruptions can compromise higher-order cognitive processes, making cognitive impairment a core component of the premenstrual experience rather than a secondary effect. This link highlights the need to consider cognitive difficulties as an integral aspect of premenstrual symptomatology, shaping women‘s daily functioning, well-being, and academic performance.

Cognitive Difficulties

Cognitive functioning plays a central role in daily activities, and difficulties in this area can manifest as poor concentration, reduced attention span, memory lapses, or challenges in problem-solving. Such difficulties are not uncommon and may vary in intensity depending on individual circumstances and psychological states. These impairments can significantly disrupt academic, social, and occupational functioning, highlighting the importance of understanding cognitive challenges within broader psychological and health-related contexts (Diamond, 2013; Rock et al., 2014).

Bever and Mehler (1967), who pioneered the term "cognition," noted that cognitive difficulties typically refer to problems in learning, reasoning, and decision-making. Jean Piaget contributed significantly to understanding cognitive development, emphasizing the formation of structured reasoning patterns that guide behavior. His work, particularly regarding children's egocentric and intuitive thinking, reflected earlier ideas by Baldwin

about limited intentional capacity in children. Developmental psychologists have inferred that many differences between children and adults result from children‘s limited ability to understand and manage complex situations.

Neo-Piagetian theorists proposed that cognitive tasks impose demands on an individual's mental processing system (Morra et al., 2008). Consequently, cognitive difficulties can interfere with daily functioning and hinder students‘personal growth and overall adjustment, potentially leading to maladaptive behaviors. Cognitive psychology encompasses all mental processes, emphasizing that the mind and brain have evolved to serve specific and overlapping functions that facilitate survival and adaptation.

Cognitive difficulties can be understood from both clinical and functional perspectives. Cognitive disabilities are broadly categorized as either clinical or functional. Clinical cognitive disabilities include conditions such as autism, Down syndrome, traumatic brain injury (TBI), and dementia (Bishop et al., 2015). Milder forms include attention-deficit disorder (ADD), dyslexia, dyscalculia, and various learning disorders, which are often approached from a medical perspective (APA, 2013). However, when considering everyday functioning, especially in academic and social contexts, it is often more useful to examine cognitive difficulties from a functional standpoint. Functional cognitive difficulties generally involve impairments in memory, problem-solving, attention, reading comprehension, and language processing (Salthouse, 2012).

From birth through adolescence, the acquisition of knowledge, skills, and cognitive abilities represents a significant developmental process. Cognitive growth is unique to humans and serves as a defining characteristic of our species. We interact with the world by processing sensory information visual, auditory, olfactory, and more, received from our surroundings. Contemporary cognitive psychology defines mental processing capacity in terms of working memory: the system responsible for temporarily holding and manipulating information despite potential distractions. This working memory is often referred to as the

"workbench of cognition" (Jarrold & Towse, 2006).

Cognitive difficulties not only affect the cognitive development of students but also extend to their emotional and motor development. Disorders such as Premenstrual Syndrome (PMS) and Premenstrual Dysphoric Disorder (PMDD) are known to disrupt normal psychological and cognitive functioning. Women frequently report cognitive symptoms during the premenstrual phase, including distractibility, forgetfulness, and reduced concentration (Souza et al., 2012). These difficulties often appear as minor cognitive mistakes in routine tasks.

Two primary factors have been identified as contributing to these impairments: hormonal fluctuations, particularly in estrogen and progesterone, and personality traits linked to cognitive failures (Jadhav & Bansod, 2014). Several studies have documented performance deficits among women with PMS and PMDD. For example, women with PMDD perform worse on cognitive tasks during the luteal phase, with notable deficits in working memory (Reed et al., 2008). Women with PMS also show lower accuracy and higher error rates on cognitive tasks (Kumari & Corr, 1998). Slyepchenko et al. (2017) reported ongoing working memory and selective attention deficits in women with moderate to severe PMS. Although hormonal changes are suspected contributors, the direct role of the menstrual cycle in cognitive decline remains uncertain (Le et al., 2020).

Cognitive functioning plays an essential role in everyday behavior. For instance, response inhibition is crucial for controlling impulses (Leshem, 2016) and making thoughtful decisions (Noël et al., 2007; Stevens et al., 2015). Impaired response inhibition is linked to increased irritability.

Women with PMDD often exhibit greater impulsivity and irritability (Ko et al., 2014; Yen et al., 2012; Yen et al., 2023). However, it is not yet fully understood whether cognitive deficits during the late luteal (LL) phase contribute to these emotional symptoms. Certain domains of cognitive impairment, such as reduced psychomotor speed, are state-dependent (i.e., associated

with current depressive symptoms), while others like executive dysfunction, may be more consistent over time and serve as trait markers (Hammar et al., 2022; Lee et al., 2011).

Cognitive functioning not only governs individual behavior and emotional regulation but also shapes the way people connect with others. Deficits such as poor impulse control, reduced attention, or heightened irritability may interfere with interpersonal relationships and the ability to seek or maintain supportive ties. Since social connectedness and supportive networks are vital in buffering stress and promoting well-being, cognitive challenges experienced during premenstrual phases may indirectly influence how women perceive and utilize social support. This makes it important to view cognitive functioning and social support as interrelated factors rather than isolated constructs.

Social Support

Social support plays a vital role in maintaining psychological and physical well-being. It refers to the perception or reality that one is cared for, valued, and has assistance available from others within a social network (Aziz et al., 2021). Social support serves as a buffer against stress and emotional distress, providing individuals with coping resources during challenging circumstances. Adequate social support has been associated with better mental health outcomes, improved resilience, and reduced vulnerability to anxiety and depression (Taylor, 2011). Researchers have highlighted that social support significantly influences both emotional regulation and cognitive functioning (Cohen & Wills, 1985; Taylor, 2011).

It not only provides emotional comfort but also practical help, which can alleviate psychological strain and improve quality of life. For students, strong social support systems are essential because academic environments often impose high demands and stress, which can affect performance and well-being. Several studies have demonstrated that individuals with higher perceived social support tend to show greater emotional stability and lower levels of stress (Lakey & Orehek, 2011). This suggests that social support contributes not only to mental health but also to cognitive and academic performance, making it an essential factor to

explore in relation to premenstrual symptoms (PMS).

Young women experiencing PMS often report mood disturbances, irritability, and cognitive difficulties that can negatively affect academic activities (Yonkers & Simoni, 2018). In such circumstances, social support serves as a protective factor by reducing perceived stress and improving coping mechanisms. Perceived support from family, friends, and significant others has been shown to moderate the impact of PMS on both emotional and cognitive domains, allowing individuals to maintain better academic functioning despite the presence of symptoms (Direkvand-Moghadam et al., 2016; Shah et al., 2022).

Types of Social Support

Social support is generally categorized into three major types: emotional, informational, and instrumental support, each playing a unique role in helping individuals manage stressors (Taylor, 2011; Thoits, 2011).

Emotional Support. Emotional support involves expressions of empathy, love, trust, and care. It provides individuals with reassurance and comfort during stressful situations. For young women with PMS, emotional support from friends, family, and partners helps reduce feelings of isolation and anxiety (Lakey & Orehek, 2011). Studies have shown that emotional support is strongly linked to positive psychological outcomes and improved coping during periods of emotional distress (Aziz et al., 2021).

Informational Support. Informational support includes advice, guidance, and knowledge that help individuals solve problems or make informed decisions. In academic contexts, informational support might include providing study tips, explaining concepts, or advising on effective time management. For women experiencing PMS, informational support from healthcare professionals or peers can help them understand symptoms better and adopt effective coping strategies (Yonkers & Simoni, 2018).

Instrumental Support. Instrumental support refers to tangible help or practical assistance, such as financial help, academic aid, or performing certain tasks. This type of

support becomes critical when PMS symptoms interfere with academic tasks or daily activities. For example, a classmate offering to share lecture notes during a symptomatic phase reflects instrumental support. Research indicates that instrumental assistance reduces stress and prevents performance decline (Thoits, 2011).

Cultural Considerations in Social Support

The perception and utilization of social support are influenced by cultural norms and values. In collectivistic societies like Pakistan, family-based support is highly valued and often prioritized over formal or institutional assistance (Asghar, 2025). Extended family systems provide emotional and instrumental resources that help individuals cope with stress and maintain psychological well-being. However, these cultural norms can also discourage individuals from seeking external help, such as counseling or mental health services, due to concerns about stigma or privacy (Khawaja & Kausar, 2025). Understanding these cultural dynamics is crucial for implementing interventions that enhance social support systems and address the unique needs of young women experiencing PMS-related difficulties in academic settings.

Importance in Academic Context

Social support has been consistently linked to academic achievement and psychological resilience among students. Several studies have found that students with strong support networks exhibit higher academic motivation, better emotional regulation, and improved overall performance (Lakey & Orehek, 2011; Shah et al., 2022).

Social support is a well-documented factor influencing students‘ academic functioning. Support from family, peers, and teachers contributes to academic motivation, engagement, and persistence, while reducing dropout rates (Aqeel & Mehmood, 2025). Family support provides emotional security and, in many cases, financial stability, enabling students to concentrate on academic tasks. Peer support fosters collaborative learning, encourages participation in academic activities, and offers a sense of belonging that enhances

self-confidence and academic engagement (Khawaja & Kausar, 2025).

Conversely, students who lack adequate social support often experience loneliness, poor stress management, and reduced academic performance (Grey et al., 2020; Lee & Robbins, 2000). A study by Aqeel and Mehmood (2025) on Pakistani secondary school students revealed that those who reported strong support systems, including parental involvement and peer relationships, achieved significantly better academic results compared to those without such support. Similarly, international research emphasizes that the quality of social connections matters more than quantity. Killam (2025) argues that dependable and emotionally close relationships have a stronger influence on academic persistence and psychological well-being than large but superficial networks. Supporting this, Johnson et al. (2024) found that students with a few close and reliable friends demonstrated better academic adjustment and coping abilities than those with many weak social ties. These findings indicate that social support acts as both a psychological resource and an academic facilitator, particularly during stressful academic periods.

Social support not only influences emotional well-being but also affects cognitive functioning and academic outcomes. Adequate emotional and informational support can reduce stress, thereby minimizing cognitive overload and improving attention and memory processes (Lakey & Orehek, 2011). For women with PMS, social support helps manage cognitive challenges such as impaired concentration and forgetfulness, which commonly interfere with academic tasks (Yonkers & Simoni, 2018). Additionally, supportive social relationships enhance motivation, increase engagement, and create a positive learning environment that promotes academic success (Aqeel & Mehmood, 2025).

In the context of PMS, where cognitive and emotional difficulties are common, social support serves as a key protective factor. It enables students to maintain academic engagement and overcome symptom-related challenges. Therefore, social support is not only essential for mental well-being but also plays a central role in sustaining academic

performance during PMS phases.

Academic Performance

Academic performance represents a fundamental outcome of the educational process and is considered a central goal within academic institutions (Narad & Abdullah, 2016; Rono et al., 2014). It generally refers to the knowledge, competencies, and skills acquired by students, typically assessed through grades or other educational benchmarks set collaboratively by students and educators within a defined time frame. According to Adeyemo (2001), achieving high academic performance is the primary objective of educational institutions, as it reflects students‘ academic excellence. Osiki (2001) also emphasized that academic performance holds critical importance for all education stakeholders.

Narad and Abdullah (2016) highlighted that institutional success heavily depends on student academic achievement, which is also perceived as a precursor to stable careers and brighter futures. Ali et al. (2009) linked strong academic performance with a nation's socio-economic advancement, suggesting that students who excel academically are more likely to become productive contributors to national progress. Akinleke (2017) echoed that individuals who surpass societal expectations in education often foster sustainable societal development. Singh, Malik, and Singh (2016) confirmed a robust association between students' academic outcomes and national development, with Farooq et al. (2011) stating that academic success indicates knowledge acquisition and skill development crucial to economic growth.

Given its far-reaching implications, academic institutions prioritize students' academic achievement. It is often defined in terms of measurable educational attainment, skill acquisition, grade point averages, persistence in learning, and career progression (York et al., 2015). Among these, academic achievement and knowledge acquisition typically receive the highest emphasis.

In today‘s competitive academic and professional environment, the importance of

academic performance has become increasingly significant, as employers often prioritize graduates with strong academic credentials and practical competencies (Arora & Singh, 2022). Consequently, educational institutions carry the dual responsibility of fostering academic excellence while simultaneously preparing students to meet workforce demands (Kuh et al., 2011). This growing emphasis on performance has prompted researchers to examine various factors influencing student achievement, including cognitive abilities, learning strategies, motivation, and social support (Richardson et al., 2012).

Factors Influencing Academic Performance

Research examining the variables affecting students‘ academic outcomes often focuses on two main domains: direct student feedback on dropout reasons and analytical studies examining correlations with demographic or psychological characteristics such as gender, personality traits, and financial conditions (Woodley, 2003). To advance beyond fragmented findings, scholars have proposed theoretical models to explain academic performance and retention more comprehensively.

Three notable frameworks underpin such understanding: Spady‘s sociological model (1970), Tinto‘s student integration theory (1975), and Bean‘s student attrition model (1980). Of these, Tinto‘s theory forms the foundation for the present discussion. Tinto emphasized the importance of academic and social integration for student success in higher education. His model adopts a broad perspective, incorporating pre-entry individual characteristics, experiences within academic environments, and external factors that can hinder or enhance performance. This holistic approach continues to shape contemporary efforts to analyze and support student academic success.

Theoretical Framework of Premenstrual Symptoms

Biological Perspective

The scientific exploration of premenstrual conditions emerged in the early twentieth century. One of the pioneering figures in this area was Robert Frank (1931), an American

gynecologist who established a foundational link between hormonal fluctuations and premenstrual symptomatology. He introduced the concept of "premenstrual tension," attributing such symptoms to excessive estrogen production, a hormone that had only recently been identified at that time. Frank's findings gained prominence during the era of the Great Depression, a period characterized by societal efforts to displace women from the workforce under the guise of biological vulnerability (Martin, 1987).

Nevertheless, Frank‘s estrogen-based explanation was later challenged by Katharina Dalton, a British physician. Dalton posited that the etiology of premenstrual syndrome (PMS) was not rooted in elevated estrogen levels, but rather in a deficiency of progesterone. Her collaborative research with Greene (1953) revealed that administering natural progesterone to women alleviated many premenstrual symptoms. Moreover, Dalton broadened the conceptualization of PMS beyond Frank‘s limited scope of nervous tension, incorporating manifestations such as depression, irritability, fatigue, and even asthma. Through her contributions, the term premenstrual syndrome‖ gained broader acceptance and clinical recognition.

Psychodynamic perspectives

Psychodynamic perspectives also contributed theoretical insights into PMS. Sigmund Freud's psychoanalytic theory interpreted premenstrual disturbances as outcomes of unresolved unconscious sexual conflicts, including the so-called ―femininity complex,‖ involving suppressed reproductive desires and penis envy. In stark contrast, feminist psychoanalyst Karen Horney rejected Freud‘s biologically reductionist view. Instead, she argued that premenstrual distress stemmed from sociocultural limitations, systemic frustrations, and internalized anxieties about women‘s societal roles (Limosin, 2001).

The medical legitimization of PMS within psychiatric diagnostics unfolded progressively. The DSM-III-R (1987) initially recognized it as Late Luteal Phase Dysphoric Disorder (LLPDD). Subsequently, DSM-IV and DSM-5 reclassified it under the name

Premenstrual Dysphoric Disorder (PMDD), placing it within the category of depressive disorders (American Psychiatric Association, 2013). The ICD-10 also endorsed this classification.

Sociocultural Perspective

This sociocultural perspective emphasizes that PMS cannot be fully understood through biological mechanisms alone. Researchers such as Barnhart et al. (1995) proposed that internalized gender norms may shape women‘s emotional responses to menstruation, effectively resulting in learned patterns of emotional dysregulation.

Biopsychosocial Model

The current dominant paradigm for understanding PMS is a biopsychosocial model. This framework integrates hormonal and neurochemical mechanisms with psychological factors and broader societal influences. It underscores the dynamic interplay between hormonal changes, neurotransmitter imbalances, and socio-environmental pressures. This integrative model enables a more nuanced understanding of PMS and informs the development of holistic and individualized treatment approaches (Matsumoto et al., 2012).

Theory on Cognitive Difficulties

Cognitive Load Theory

Cognitive Load Theory (CLT), originally proposed by Sweller (1988), offers a foundational perspective on how cognitive capacity influences learning and task performance. The theory is grounded in the premise that the human brain has a limited working memory capacity, which can become overloaded when the demands of a task exceed this cognitive limit. When working memory is overburdened, the ability to process, retain, and apply information becomes significantly compromised, leading to cognitive inefficiency and reduced performance outcomes.

CLT identifies three primary types of cognitive load: intrinsic, extraneous, and germane. Intrinsic load refers to the inherent complexity of the material being learned.

Extraneous load arises from how information is presented or environmental distractions that do not aid learning. Germane load involves the mental resources allocated to schema construction and meaningful learning processes. Optimal learning occurs when intrinsic and extraneous loads are balanced, and cognitive resources can be devoted to germane processing (Cobanoglu et al., 2021).

In the context of premenstrual symptoms, individuals often report cognitive impairments such as poor attention, forgetfulness, and slowed information processing. These difficulties can heighten both intrinsic and extraneous cognitive load. For instance, hormonal fluctuations associated with the luteal phase may disrupt concentration and working memory efficiency, thereby overwhelming cognitive resources. Consequently, academic tasks that typically require focused attention and mental flexibility become more challenging during this period.

Literature Review

Premenstrual Symptoms and Cognitive Difficulties

Le et al., (2020) conducted a narrative review to examine how fluctuations in sex hormones across the menstrual cycle influence cognitive functioning, particularly among women with premenstrual disorders such as PMS and PMDD. While healthy women showed inconsistent cognitive changes across menstrual phases, those with PMDD exhibited subtle impairments in executive functions and working memory, especially during the luteal phase. These deficits, however, were not consistently replicated due to methodological limitations, such as small sample sizes and lack of hormonal verification. The review suggested that hormone sensitivity, rather than hormone levels alone, may be a key factor influencing cognitive performance in premenstrual disorders. It called for more standardized research to better understand the cognitive implications of menstrual hormone fluctuations (Le et al., 2020).

Reiber (2009) advanced an evolutionary model of PMS, proposing that symptoms are

not inherently pathological but rather reflect a decline from a hormonally optimized follicular phase. Based on data from 170 women and prospective symptom tracking, the study emphasized enhanced mood and cognitive clarity during the follicular phase, contrasted with affective and cognitive deficits in the luteal phase. Reiber linked these changes to reproductive and environmental factors, highlighting how symptom intensity varies based on age, parity, and resources.

Yen et al. (2023) examined cognitive dysfunctions in women with PMDD across early and late luteal phases. In a sample of 63 women with PMDD and 53 healthy controls, attention and response inhibition were assessed using the Go/No-go task. Results showed significantly reduced attention in the late luteal phase and impaired inhibitory control in both phases. Additionally, impulsivity correlated negatively with inhibition, while a preference for deliberative decision-making was positively associated with attention. These findings emphasize that cognitive impairments in PMDD fluctuate throughout the luteal phase and interact with personality traits such as impulsivity and irritability.

Lin et al. (2022) conducted a prospective study to evaluate executive functioning, emotional regulation, and associated cognitive and somatic symptoms in PMDD. Using Simon‘s task and psychological assessments across early and late luteal phases, results showed significantly impaired executive function, especially in the late luteal phase. Cognitive reappraisal ability was also diminished and was negatively associated with depressive symptoms and functional impairment. Inattention was identified as the most influential factor affecting both depression and functional impairment, reinforcing the need for clinical interventions addressing executive and attention deficits in PMDD.

Cobanoğlu et al. (2021) extended the literature by examining neurocognitive functioning in adolescents diagnosed with PMS and PMDD. Using standardized tests such as the Stroop and Visual Aural Digit Span during both menstrual phases, they found that adolescents with PMS/PMDD performed significantly worse on the Stroop test during the

luteal phase, indicating impairments in executive function and cognitive flexibility. Short-term memory performance was also lower in the luteal phase, confirming phase-specific cognitive vulnerability.

Yen et al. (2012) explored working memory in women with PMDD using N-back and Go/No-go tasks. Their study indicated decreased working memory performance during the luteal phase, with no changes during the follicular phase. These impairments in working memory may reduce problem-solving and organizational abilities and could explain reports of reduced concentration during the premenstrual phase.

Reed, Levin, and Evans (2008) supported these findings by evaluating various cognitive and mood functions in 29 women (with and without PMDD) using multiple tasks, including digit recall and delayed word recognition. Women with PMDD performed worse on delayed recall tasks, particularly during the luteal phase. The study also noted mood disturbances and increased appetite for high-calorie foods during this phase, reinforcing the multidimensional impact of PMDD on cognition and behavior.

Joseph et al. (2012) emphasized that working memory is essential for processing and understanding new information. Impairments in this domain can hinder multiple cognitive tasks. Their work provides theoretical support for why PMS- and PMDD-related cognitive disruptions may significantly affect daily functioning.

A controlled study by Ercan et al. (2022) assessed mood, physical symptoms, cognitive failure, and life satisfaction among women with PMDD, PMS, and minimal symptoms. PMDD participants scored higher on anxiety, depression, and cognitive failures, though cognitive differences were not statistically significant in post-hoc analysis. Nevertheless, the consistent reporting of cognitive slips, including forgetfulness and poor concentration, suggests a real-world impact on tasks requiring sustained attention.

Similarly, the earlier study by Ercan Doğu et al. (2022), which compared 195 women across diagnostic groups, reinforced that PMDD participants experienced greater

psychological distress and more frequent cognitive failures. Although the difference in cognitive failure scores was not significant in post-hoc testing, the trend still indicated challenges that could disrupt academic performance.

Premenstrual Symptoms and Academic Performance

Premenstrual syndrome (PMS) has been identified as a psychophysiological condition instigated by stress, resulting in disturbances in the balance of the sympathetic and parasympathetic nervous systems. These imbalances are frequently reflected through physiological alterations such as variations in heart rate and blood pressure (Padmavathi et al., 2014). To explore the association between PMS and academic performance, a correlational survey was conducted among 60 adolescent girls enrolled in a higher secondary school in the Namakkal District. Participants were assessed using standardized tools that measured their baseline characteristics, common PMS symptoms, stress linked to student life, and distress associated with academic demands. The findings revealed a higher frequency of symptoms and elevated levels of distress during the follicular phase compared to the luteal phase. Furthermore, academic pressures, particularly the volume of assignments and projects, were significantly correlated with the perception of symptoms and related distress, most prominently during the follicular phase. These results emphasize the complex interaction between academic stress and the intensity of PMS symptoms, suggesting that increased academic workload may exacerbate PMS-related distress and thereby hinder academic performance (Padmavathi et al., 2014).

A cross-sectional study by Hashim et al. (2014) examined how PMS affects the academic performance of female medical students at the Army Medical College, Islamabad. The sample comprised 224 participants, of whom 92.4% met the diagnostic criteria for PMS based on the ICD-10 framework from the World Health Organization. Frequently reported symptoms included backache, fatigue, low mood, anxiety, excessive sleep, and emotional instability. These symptoms were found to significantly interfere with academic tasks such as

group discussions, written exams, and oral assessments. The study concluded that PMS substantially disrupts academic engagement and achievement, underlining the need for tailored health education and psychological support services within academic institutions to promote the well-being and academic success of female students (Hashim et al., 2014).

In a more recent study, Omara et al. (2024) conducted a descriptive cross-sectional investigation to determine the prevalence and severity of premenstrual tension syndrome (PMT) among university students in Ras Al Khaimah, UAE, and its influence on academic performance. Data were gathered over six months from 251 students using a revised PMT self-rating scale. Findings showed a high prevalence of PMT, with 78.9% reporting symptoms and 16.3% qualifying for a diagnosis of premenstrual dysphoric disorder (PMDD). Commonly noted psychological symptoms included anxiety and depressive mood, while physical discomfort and emotional overload were among the frequent behavioral symptoms. Importantly, 90% of participants indicated that these symptoms negatively affected their academic performance, particularly their ability to concentrate during lectures. PMT was also shown to reduce engagement in physical and extracurricular activities. These results emphasize the importance of implementing structured support services and therapeutic interventions to mitigate the impact of PMT on students academic and personal functioning (Omara et al., 2024).

The academic impact of menstrual disorders has gained recognition as a significant concern among university students. Elnagar et al. (2017) found that menstrual disorders, including dysmenorrhea, menorrhagia, secondary amenorrhea, and PMS, are prevalent among nursing students, with dysmenorrhea being most common. Their descriptive study involving 986 undergraduate female students from the Faculty of Nursing at Mansoura University indicated a statistically significant association between menstrual disorders and decreased academic performance. Reported symptoms such as pain, fatigue, and emotional disturbances were linked to increased absenteeism, poor concentration, drowsiness during

class, and diminished practical skills. The authors advocated for the integration of menstrual health awareness and management into academic support systems to enhance students' educational outcomes (Elnagar et al., 2017).

Social Support and Premenstrual Syndrome

Zainab et al. (2024) suggested that PMS is linked to heightened psychological distress, while the presence of social support may help alleviate these effects. Their study aimed to assess the contribution of PMS to psychological distress and examine whether social support moderates this relationship. A purposive sample of 300 females completed standardized measures including the Premenstrual Symptoms Screening Tool (Steiner et al., 2003), the Berlin Social Support Scale (Schwarzer & Schulz, 2000), and the Depression Anxiety Stress Scale-21 (Lovibond et al., 1995). Pearson correlation analysis showed a moderate positive association between PMS and psychological distress, and a weak yet significant negative correlation between social support and psychological distress. PMS showed a weak and non-significant correlation with social support. Regression analysis confirmed that PMS significantly predicted psychological distress, accounting for 32% of its variance. Furthermore, moderation analysis revealed that social support significantly buffered the impact of PMS on psychological distress, indicating that individuals with greater social support experienced reduced psychological difficulties associated with PMS. Age-related differences in PMS symptoms were not significant, highlighting the broad applicability of the findings (Zainab et al., 2024).

Social support has increasingly been acknowledged as a critical factor in reducing the severity of PMS symptoms and improving well-being in affected women. Kim et al. (2019) conducted a quasi-experimental study among South Korean university students, which demonstrated that social-media-based support delivered through smartphone apps, text messages, and emails significantly reduced PMS symptoms across fourteen different symptom domains. In addition to symptom reduction, participants also reported increased levels of physical activity. These findings point to the effectiveness of digital social support

interventions in managing PMS symptoms (Kim et al., 2019).

In a related study, Hunter and Rendell (1996) assessed the impact of a health promotion program combining social support and cognitive reframing techniques aimed at changing women's perceptions of menstruation. Over a period of four menstrual cycles, this intervention significantly reduced perimenstrual impairment and improved emotional states and self-efficacy, although no major changes were observed in activation levels. These findings suggest that psychological coping mechanisms, when integrated with social support, can effectively reduce the emotional and functional difficulties associated with PMS (Hunter & Rendell, 1996).

Further evidence comes from a systematic review by Hartley et al. (2024), which analyzed both qualitative and quantitative studies on women‘s experiences with premenstrual disorders (PMDs), including PMS and PMDD. The review highlighted recurring experiences of feeling misunderstood and receiving inadequate support from healthcare professionals, prompting many women to seek help through online peer communities. The authors concluded that both formal support from healthcare systems and informal social networks are essential for managing the physical and psychological challenges of PMDs. They recommended greater awareness and improved support services in clinical settings to address these complex needs (Hartley et al., 2024).

Bhardwaj (2023) investigated the connections between PMS, psychological distress, and perceived social support among young adult women. The study included 82 participants aged 18–26 years and utilized standardized assessments for all variables. Results showed a significant positive correlation between PMS and psychological distress ($r = 0.495$, $p < .01$), confirming that higher PMS symptomatology is associated with greater psychological strain. However, no significant correlation was observed between perceived social support and either PMS or psychological distress. This suggests that although PMS is linked to emotional difficulties, perceived social support may not directly moderate this association in this

population. The study calls for greater awareness and enhanced support systems to better address the psychological aspects of menstrual health (Bhardwaj, 2023).

Cognitive Difficulties and Academic Performance

Malik (2019) explored the influence of cognitive difficulties on the academic achievement of higher secondary students in the Jammu district of J&K, focusing on contextual factors such as school locality and institutional type (government versus private). The study utilized a descriptive research design and gathered data from 300 students selected through simple random sampling from eight higher secondary schools. Cognitive difficulties were identified as a significant factor affecting academic performance, impacting students through various mechanisms. Analysis using ANOVA revealed that cognitive challenges had a statistically significant effect on academic outcomes, emphasizing the importance of incorporating educational strategies and policy interventions that directly address cognitive barriers within the secondary education system.

The role of cognitive ability in academic achievement has been further supported by studies examining various cognitive components, including memory, representation, information processing, logical reasoning, and cognitive flexibility. A study conducted among 572 secondary school students revealed that cognitive abilities were positively associated with academic performance. This relationship was found to be partially mediated by self-discipline, suggesting that students with higher cognitive capacities tend to perform better academically when self-regulatory behaviors are present. Furthermore, the mediating role of self-discipline was moderated by planning skills, indicating that higher levels of planning enhanced the indirect effect of cognitive ability on academic success (Liu et al., 2022a). These findings underscored the interactive nature of cognitive and behavioral skills in shaping academic outcomes.

Liu et al. (2022b) further examined the moderating influence of self-monitoring on the link between cognitive ability and academic performance. Utilizing structural equation

modeling, the researchers demonstrated that cognitive ability had a direct positive impact on academic achievement, which was significantly amplified by self-monitoring capabilities. The effect was particularly evident in subjects such as mathematics and English. Students who exhibited stronger self-monitoring skills demonstrated a more pronounced positive relationship between cognitive ability and academic success. These results pointed to the critical role of metacognitive awareness in enhancing the benefits of cognitive skills in academic contexts.

Additionally, research by Shi and Qu (2021) highlighted the mediating role of personality traits and psychological health in the relationship between cognitive ability and academic performance. Their findings revealed that cognitive ability not only directly influenced academic achievement but also did so indirectly through its impact on personality characteristics and mental well-being. Approximately 40% of the total effect of cognitive ability on academic performance was accounted for by these psychological mediators. This suggested that cognitive strengths contribute to academic success both independently and through their interplay with personal and psychological factors, thereby illustrating the complex and multifaceted nature of academic performance determinants.

Rationale of the Study

The present study explores the role of social support in the relationship between cognitive difficulties and academic performance among female young adults with premenstrual symptoms an area significantly under-investigated, particularly within the Pakistani context.

Premenstrual symptoms (PMS), including both PMS and the more severe premenstrual dysphoric disorder (PMDD), often manifest as cognitive and emotional disturbances such as concentration difficulties, memory lapses, and mood fluctuations. These symptoms are known to interfere with academic tasks, yet research in Pakistan has primarily focused on prevalence and general emotional distress rather than on the specific cognitive

mechanisms that impair academic performance. Studies show that up to 76% of female students in Pakistan report academic disruption due to PMS, including poor classroom participation, reduced focus during assessments, and overall disengagement from learning activities (Aslam et al., 2022; Jaffar et al., 2021).

Although international literature supports a link between PMS and cognitive impairment, and highlights social support as a mitigating factor in stress and academic strain, few studies in Pakistan have explored this relationship in depth. Existing local work has largely ignored the role of social resources such as emotional support from family, peers, and institutions in buffering the academic effects of PMS-related cognitive difficulties (Iqbal et al., 2019; Rashid & Umbreen, 2021). Even fewer have examined how different types and sources of support might influence this dynamic (Fatima & Qadir, 2018; Khan & Aftab, 2020).

This reveals a significant research gap there is no comprehensive framework in Pakistan investigating how cognitive symptoms of PMS impact academic performance, or how **so**cial support moderates this effect among female university students. The current study addresses this by integrating these psychological and social dimensions into a culturally informed design. By doing so, the study offers a nuanced understanding of how PMS-related cognitive challenges interfere with academic functioning and how culturally grounded support systems might serve a protective role. Given the social taboos and stigma around menstruation in Pakistan, the findings are expected to aid educators, counsellors, and health professionals in developing more targeted interventions. These insights can inform policy-making, mental health services, and institutional planning, ultimately improving academic engagement, psychological well-being, and quality of life for female students.

Objectives

The objective of the study included

1. To examine the relationship between Cognitive Difficulties, Social Support, and Academic Performance among female young adults with premenstrual symptoms.
2. To examine the effect of Cognitive Difficulties on Academic Performance among female young adults with premenstrual symptoms.
3. To assess the moderating effect of Social Support on the relationship between Cognitive Difficulties and Academic Performance among female young adults with Premenstrual symptoms.
4. To determine whether age, educational, and regularity of cycle predict the severity of menstrual symptoms among female young adults with Premenstrual Symptoms.

Hypotheses

1. Cognitive Difficulties are negatively associated with Academic Performance among female young adults with premenstrual symptoms.
2. Social Support is negatively correlated with Cognitive Difficulties among female young adults with premenstrual symptoms.
3. Social support is positively associated with academic performance among female young adults with premenstrual symptoms.
4. Cognitive Difficulties predict low Academic Performance among female young adults with premenstrual symptoms.
5. Social Support negatively moderates the relationship between Cognitive Difficulties and Academic Performance among female young adults with premenstrual symptoms.
6. Female young adults with irregular menstrual cycles report higher levels of cognitive difficulties than those with regular cycles.

Conceptual Framework

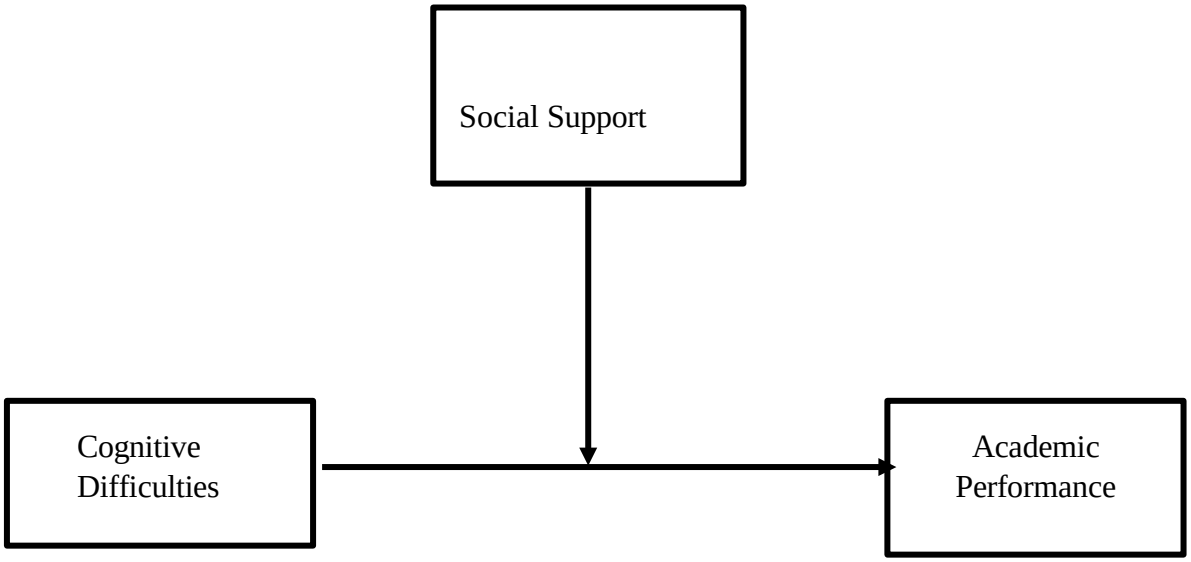

Figure 1: *conceptual framework*

Chapter 2

Method

Research Design

The study used a quantitative cross-sectional correlational design to examine the relationship between cognitive difficulties, academic performance, and social support among female young adults with premenstrual symptoms. Data were collected through standardized questionnaires, which allowed for the assessment of how social support moderated the relationship between cognitive difficulties and academic performance.

Sample

The participants were comprised of university students (N = 300), consisting of unmarried female students under the age of 25, studying in BS (Hons.) and MS/M. Phil programs, who were taken from different universities in Islamabad. A purposive sampling technique was used in the study. The population of the study included university students. Participants were selected using the Premenstrual Symptoms Screening Tool (PSST). Only those students who scored moderate to high on the scale were included in the study.

Inclusion Criteria

Participants were unmarried females, aged between 18 and 25 years, who could understand the language. Females who scored greater than 22 on the Premenstrual Symptoms Screening Tool (Steiner et al., 2003) were included.

Exclusion Criteria

Participants with any other psychological illness, such as dementia, epilepsy, or brain injury, were excluded. Females undergoing hormonal treatment and those using cognitive enhancing medication at the time of data collection were also excluded.

Operational Definitions

Premenstrual Symptoms

Premenstrual syndrome (PMS) was defined as physical, psychological, and behavioural symptoms that occurred two weeks before a woman‘s monthly period (Kathleen

et al., 2010). The Premenstrual Symptoms Screening Tool (PSST) (Steiner et al., 2003) was used to assess the severity and timing of these symptoms, as well as their impact on work, social life, and relationships.

Cognitive Difficulties

Cognitive difficulties are referred to as everyday lapses in perception, memory, or motor function, such as forgetting tasks, becoming distracted, or making unintended errors, often linked to absent-mindedness (Broadbent et al., 1982). The Cognitive Assessment Questionnaire was used to measure cognitive difficulties. Higher scores indicated more frequent cognitive lapses in perception, memory, and motor function. Individuals with high scores experienced frequent forgetfulness, distraction, and unintended errors, indicating significant everyday challenges in attention and cognitive control. Conversely, lower scores reflected fewer cognitive failures.

Perceived Social Support

Perceived social support referred to the social and psychological support an individual received or perceived as available from family, friends, and their community (Zimet et al., 1988). It was measured using the Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet et al., 1988). Higher scores indicated greater support from family, friends, and significant others, while lower scores indicated less perceived support.

Academic Performance

The success of students in educational environments, as determined by grades, test scores, GPA, and other academic markers, is sometimes referred to as academic performance (McGregory, 2015). It was measured using the Academic Performance Scale (McGregory, 2015). Higher scores indicated high academic performance, and lower scores indicated lower performance.

Instruments

Demographic sheet

The demographic sheet comprises age, no. of siblings, birth order, marital status, GPA, medical problem, psychiatric problem, regular medication, age of menarche, duration of cycle, and regulation of menstruation.

Premenstrual Symptoms Screening Tool (PSST)

.The Premenstrual Symptoms Screening Tool (PSST) developed by Steiner et al. (2003) is designed to translate DSM-IV criteria for premenstrual disorders into a standardized rating scale based on symptom severity. It comprises 14 symptom items rated on a 4-point scale (0 = not at all to 3 = severe) and 5 items assessing functional impairment during the premenstrual phase. The tool demonstrated excellent internal consistency, with Cronbach‘s alpha values of 0.96 for symptom items and 0.93 for functional impairment items.Premenstrual symptoms were scored using both quantitative and qualitative procedures. In the quantitative scoring method, each item of the scale was rated on a Likert response format (e.g., 0 = none to 3 or 4 = severe), and the item scores were summed to yield a total symptom score. Higher cumulative scores represented a greater severity of premenstrual symptomatology. Based on prior psychometric literature, a cut-off score of ≥ 22 on the total score was taken as an indicator of clinically meaningful symptom severity. Participants scoring below this threshold were classified as non-clinical or minimal PMS, whereas those scoring 22 or above were classified as demonstrating mild to moderate PMS and were included in the present analysis.

In the qualitative scoring method, the classification of PMS was further supported by clinical criteria derived from DSM-based descriptions and instrument manuals. This method requires the identification of cyclical symptom recurrence in the late luteal phase, their remission after menses, and functional impairment in at least one domain (e.g., academic, social, or interpersonal). Symptom clustering and functional impact were judged according to

the scale's interpretive guidelines rather than numeric total alone.

Academic Performance Scale

The Academic Performance Scale (APS), developed by McGregory (2015), is a self- report instrument designed to evaluate students‘ academic performance across multiple domains, including attention in class, timely completion of assignments, participation in academic activities, and overall learning effectiveness. The scale consists of eight items, each rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), allowing respondents to indicate the extent to which statements reflect their academic behaviors and outcomes. The APS demonstrated strong psychometric properties, with internal consistency of 0.89 and test-retest reliability of 0.85, indicating that it reliably measures academic performance over time. Scoring is conducted by summing the responses across all eight items, resulting in a total score ranging from 8 to 40, with higher scores reflecting better academic performance. If up to two items were missing, prorated scores were computed using the mean of the available items multiplied by eight, provided that at least six items were completed; cases with fewer than six valid responses were excluded from APS-based analyses. In line with validation guidelines, a score of 32 or above was used to classify respondents as having high academic performance, scores between 20 and 31 were interpreted as average academic performance, and scores below 20 were classified as poor academic performance

A cutoff score of 32 is commonly used to differentiate students with high academic performance from those with average or low performance, determined based on validation studies that categorized scores approximately one standard deviation above the mean as indicative of strong academic functioning (McGregory, 2015).

Multidimensional Scale of Perceived Social Support (MSPSS)

The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988) consists of 12 items rated on a 7-point Likert scale (1 = very strongly disagree to 7 = very

strongly agree), producing a total perceived support score ranging from 12 to 84, with higher scores indicating stronger perceived support. The scale contains three four-item sub-scales: Family Support (Items 3, 4, 8, 11), Friends Support (Items 6, 7, 9, 12), and Significant Other Support (Items 1, 2, 5, 10), each yielding a sub-scale score ranging from 4 to 28, computed by summing their respective items. Interpretation of perceived support is based on the mean score of either the full scale or each sub-scale, where mean values between 1.0–2.9 indicate low perceived support, 3.0–5.0 indicate moderate perceived support, and 5.1–7.0 indicate high perceived support. In the present research, both the total MSPSS score and the three sub-scales (Family, Friends, and Significant Other) were computed and interpreted .

Cognitive Assessment Questionnaire (CAQ)

The Cognitive Failures Questionnaire (CFQ), developed by Broadbent et al. (1982), is a self-report instrument designed to assess the frequency of everyday cognitive lapses, including absent-mindedness, perceptual errors, memory lapses, and motor function mistakes. The questionnaire contains 25 items; each reflecting common cognitive errors experienced in daily life, and total scores range from 0 to 100, with higher scores indicating more frequent cognitive failures. descriptive interpretation commonly categorizes scores of 0–30 as low cognitive failures, 31–60 as moderate cognitive failures, and scores above 60 as indicating high cognitive failures.Subsequent research by Rast et al. (2008) identified three underlying subscales: Forgetfulness, Distractibility, and False Triggering, which capture distinct aspects of cognitive functioning. The CFQ has demonstrated strong psychometric properties, with Cronbach‘s alpha ranging from 0.93 to 0.94, indicating excellent internal consistency. Its utility lies in quantifying individual differences in everyday cognitive performance and linking these lapses to broader outcomes such as academic achievement, psychological stress, and functional impairment.

Ethical Considerations

Ethical approval was obtained from the Ethical Review Board of the Department of

Psychology at IIUI. Confidentiality of all participants was maintained by securely storing data and ensuring that no personal information was disclosed. Participation in the study was entirely voluntary, and no harm was caused to any participant. The researcher remained honest and transparent throughout the process of data collection and reporting.

Procedure

After obtaining approval from the concerned authorities, female students from the National University of Sciences and Technology (NUST) and the International Islamic University Islamabad (IIUI) were approached. A brief introduction of the study was provided to the participants, followed by the distribution of informed consent forms. Only those students who met the inclusion criteria and scored moderate to high on the Premenstrual Symptoms Screening Tool were selected for data collection. Data were collected through printed questionnaires. The data were then entered into *SPSS*, where statistical analyses such as correlation, linear regression, and moderation analysis were conducted to test the study hypotheses.t t-test was also used to see the difference on the basis of demographic variables.

Chapter 3

Results

Table 1

Frequencies and Percentages of Demographic Variables of Study (*N* = 300)

Variable	*Category*	*F*	*%*
Age	18-21	128	42.7
	22-25	172	57.3
Family system	Joint	97	32.3
	Nuclear	203	67.7
Educational level	BS	249	83.0
	MS	51	17.0
CGPA	2.5-3.00	25	8.3
	3.1-3.5	143	47.7
	3.6-4.00	132	44
Regularity of menstruation	Regular	255	85
	Irregular	45	15
Age of menarche	11-13	94	31.3
	14-16	106	68.6
Duration of cycle	1-3	245	81.7
	4-7	55	18.3

Table 1 shows the frequency and percentage of demographic variables of the study, which are age, family system, educational level, CGPA, regularity of menstruation, age of menarche, and duration of periods. A total of 42.7% of the participants were aged between

18–21 years, while 57.3% were between 22–25 years. Regarding the family system, 32.3% of participants belonged to joint families, and 67.7% belonged to nuclear families. In terms of education, 83% were BS students and 17% were MS students. For academic performance, 8.3% had a CGPA between 2.5–3.00, 47.7% had between 3.1–3.5, and 44% had between 3.6–4.00. In terms of menstrual regularity, 85% of participants reported regular menstruation, while 15% reported irregular cycles. The age of menarche was between 11–13 years for 31.3% of participants, and between 14–16 years for 68.6%. Regarding the duration of periods, 81.7% had periods lasting 1–3 days, and 18.3% had periods lasting 4–7 days.

Table 2

Psychometric Properties of the Study Major Variables/Scales (N=300)

Scales	*K*	*α*	*M (SD)*	Range		Skewness	Kurtosis
				Potential	Actual		
PSST	19	.85	40.34 (6.41)	0-57	22-54	-.27	.07
CAQ	25	.91	44.92(19.37)	0-100	7-99	-.06	-.75
MSPSS	12	.93	41.32(16.81)	12-84	12-77	.71	-.59
APS	8	.90	20.38(7.81)	8-40	8-39	.87	-.26

Note: PSST= Premenstrual syndrome screening tool, CAQ= Cognitive assessment questionnaire, MSPSS=Multidimensional scale of perceived social support, APS= Academic performance scale

Table 2 shows the psychometric properties of the Premenstrual syndrome screening tool, cognitive assessment questionnaire, Multidimensional scale of perceived social support, and Academic performance questionnaire. Cronbach‘s α reliability for the Premenstrual syndrome screening tool was .85, Cronbach‘s α reliability for the Cognitive assessment questionnaire was .91, Cronbach‘s α reliability for the multidimensional scale of perceived social support was .93, and for the Academic performance scale was .90 .Values of skewness and kurtosis also lie within the range of +_ 1.

Table 3

Correlation of Cognitive Difficulties, social support, and academic performance of female young adults with premenstrual symptoms (N=300)

Variables	1	2	3	4
Premenstrual symptoms	-	-.29**	.24**	.26**
Cognitive difficulties		-	-.49**	.55**
Academic performance			-	.83**
Social support.				-

The results show that the screening tool (PSST) is negatively correlated with cognitive difficulties (CAQ) **(**r = -0.29, p < .01**),** indicating that females with higher screening scores tended to report fewer cognitive issues. PSST is also positively correlated with academic performance (APS) **(**r = 0.24, p < .01**)** and social support (MSPSS**) (**r = 0.26, p< .01**),** showing that those who scored better on the screening measure also tended to perform well academically and perceived higher social support. Cognitive difficulties (CAQ) show a strong negative correlation with academic performance **(**r = -0.49, p < .01**)** and an even stronger negative correlation with social support (r = -0.55, p < .01**),** suggesting that increased cognitive difficulties are linked with poorer academic outcomes and reduced social support. Finally, a very strong positive correlation is observed between social support (MSPSS) and academic performance (APS) **(**r = 0.83, p < .01**),** showing that students with greater social support tend to achieve higher academic success. All correlations are statistically significant at the 0.01 level, supporting the hypothesized relationships among the variables.

Table 4

Simple Linear Regression showing cognitive difficulties as a Predictor of academic performance in female young adults with Premenstrual symptoms (N=300)

	B	*SEB*	*β*	*t*	*p*
Constant	29.40	0.99		29.67	.000
Cognitive Difficulties	-0.20	0.02	-0.49	-9.90	.000

Note. R= 0.498, R^2= 0.249

The regression analysis shows that cognitive difficulties (CAQ) significantly predict academic performance (APS), with a β = -0.49, t = -9.90, and p < .001.while R^2 = 0.24, showing that 24.9% of the variance in academic performance is explained by cognitive difficulties.

Table 5

Moderating role of social support between the relationship of cognitive difficulties and academic performance among female young adults (N=300)

					95%CI		
Predictor	*B*	*SEB*	*t*	*p*	*LL*	*UL*	*F*
Constant	19.50	.27	71.53	.000	18.96	20.04	
Cognitive Difficulties	-.03	.01	-2.29	.026	-.06	-.00	
Social Support	.30	.02	15.30	.000	.26	.34	
CD*SS	-.02	.00	-6.30	.000	.004	.008	39.81

Note; ***p < .01,*p < .05; CD,* Cognitive Difficulties; SS, Social Support

Main Effect of the Predictor **.**The findings revealed that cognitive difficulties had a significant negative impact on academic performance, t (296) = –2.29, p = .02, 95% This indicates that females experiencing greater cognitive difficulties tend to demonstrate lower academic performance. The association was statistically significant, suggesting that cognitive challenges can hinder students‘ ability to perform effectively in academic settings.

Main Effect of the Moderator, *The* findings revealed a statistically significant positive main effect of social support on academic performance, β = 0.306, t(296) = 15.31, p< .001, 95% Ba CI (0.267, 0.34). This indicates that as social support increases, academic performance also improves.

Interaction, *The* interaction between cognitive difficulties and social support was statistically significant, β = -0.004, t(296) = -6.31, p < .001, 95% .This negative interaction indicates that the relationship between cognitive difficulties and academic performance depends on the level of social support. Specifically, the negative impact of cognitive difficulties on academic performance becomes weaker as social support increases. In other words, high levels of social support buffer the negative effects of cognitive

difficulties on students‘ academic outcomes. The significant interaction suggests a moderation effect, where social support acts as a protective factor, reducing the detrimental influence of cognitive difficulties.

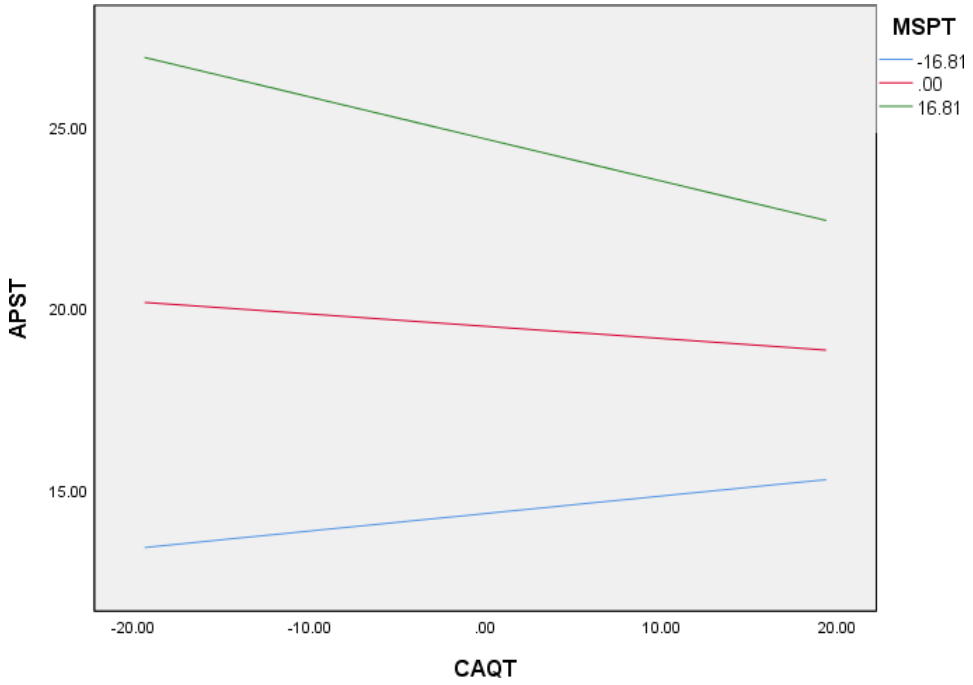

Figure 2: Mod graph showing the moderating effect of social support between cognitive difficulties and academic performance

Table 6

Comparison between age groups of female young adults on cognitive difficulties, social support, and academic performance with premenstrual symptoms (N= 300).

	18-21 *(n=128)*	22-25 *(n=172)*			*95% CI*	
Variables	*M(SD)*	*M(SD)*	*t(298)*	*P*	*LL*	*UL*
Cognitive Difficulties	45.68(17.71)	44.34(20.54)	.59	.546	-3.11	5.79
Academic Performance	20.12(8.10)	20.58(7.60)	-.51	.607	-2.26	1.32
Social Support	41.04(17.17)	41.52(16.58)	-.24	.803	-4.35	3.37

*Note: **p< .05; LL=Lower Limit; UL=Upper Limit*

The table shows the results of independent samples t-tests. It indicated non-significant differences between female young adults aged 18–21 and 22–25 on cognitive difficulties, academic performance, or perceived social support, suggesting that age did not significant influence on these variables.

Table 7

Comparison between educational groups of young adults on cognitive difficulties, social support, and academic performance (N = 300).

	BS *(n=249)*	MS *(n=51)*			*95% CI*	
Variables	*M(SD)*	*M(SD)*	*t(298)*	*P*	*LL*	*UL*
Cognitive Difficulties	45.06(19.37)	44.19(19.49)	.29	.772	-4.99	6.74
Academic Performance	20.23(7.87)	21.12(7.53)	-.73	.453	-3.24	1.48
Social Support	41.23(16.83)	41.74(16.85)	-.19	.844	-5.60	4.58

N*ote: **p< .05; LL=Lower Limit; UL=Upper Limit*

The table presents the results of independent samples t-tests conducted to assess differences in cognitive difficulties, academic performance, and perceived social support among female young adults with premenstrual symptoms enrolled in BS and MS programs. The findings indicated non-significant differences between the two educational groups across any of the measured variables.

Table 8

Comparison between menstrual regulation among young adults on cognitive difficulties, social support, and academic performance (N= 300)

	Regular *(n=255)*	Irregular *(n=45)*			*95% CI*		
Variables	*M(SD)*	*M(SD)*	*t(298)*	*p*	*LL*	*UL*	*Cohen's d*
Cognitive Difficulties	43.85(18.48)	50.95(23.08)	-2.28	.023	-13.22	-.98	0.33
Academic Performance	20.30(7.73)	20.84(8.34)	-.42	.671	-3.02	1.95	0.06
Social Support	41.50(16.56)	40.29(18.32)	.15	.656	-4.14	6.57	0.07

*Note: **p< .05; LL=Lower Limit; UL=Upper Limit*

This table indicates the results of an independent samples t-test that was conducted to compare cognitive abilities, academic performance, and perceived social support between the two groups. The results showed a significant difference in cognitive difficulties, with females having irregular cycles reporting higher difficulties than those with regular cycles. However, non significant differences were found for academic performance or social support, indicating that these factors were not affected by cycle regularity.

Chapter 4

Discussion

The present study aimed to explore the relationship between cognitive difficulties and academic performance among young adult females experiencing premenstrual symptoms, with social support investigated as a moderating factor. Premenstrual symptoms (PMS), which include a wide range of physical, psychological, and cognitive experiences, can negatively affect various areas of daily functioning, including academic tasks. The study‘s primary objective was to assess whether cognitive difficulties associated with PMS impair academic performance and to determine whether social support can buffer this relationship. Cognitive difficulties were treated as the independent variable, academic performance as the dependent variable, and social support as the moderator.

To address these objectives, Pearson correlation, regression, moderation analysis (using the PROCESS macro), and independent t-tests were conducted. The discussion that follows interprets the results in light of each hypothesis, while integrating relevant literature and theoretical perspectives.

The first hypothesis of the study suggested that cognitive difficulties would be negatively associated with academic performance among young adults with premenstrual symptoms. As shown in Table 3, a significant negative relationship was found between cognitive difficulties and academic performance. This supports the assumption that students who experience increased cognitive difficulties, such as memory lapses, poor concentration, or decision-making problems, may struggle more with academic tasks. These cognitive issues are commonly reported during the premenstrual phase and can interfere with focus, task planning, and performance under pressure.

This outcome is consistent with prior findings. For instance, Yen et al. (2012) demonstrated that cognitive disruptions like diminished working memory were more pronounced in the luteal phase of the menstrual cycle, affecting academic functioning.

Shehadeh and Hamdan (2018) also reported that cognitive and psychological symptoms during PMS reduce study retention and motivation. Furthermore, Freeman et al. (2001) highlighted how hormonal fluctuations linked to PMS may result in attention deficits that hinder academic performance. This hypothesis aligns with the executive dysfunction model, which explains how disruptions in attention and working memory can limit academic efficiency, especially during periods of emotional or physiological stress.

The second hypothesis of the study assumed that social support would be negatively correlated with cognitive difficulties among young adults with premenstrual symptoms. Table 3 also demonstrated a significant negative association between perceived social support and cognitive difficulties, supporting this hypothesis. This indicates that individuals who perceive stronger emotional or practical support from their surroundings are likely to report fewer cognitive issues during the premenstrual period.

This finding is aligned with the stress-buffering model proposed by Cohen and Wills (1985), which explains that the presence of social support reduces the negative impact of stressors by providing coping resources. Supporting this, Dollete and Phillips (2004) found that adolescents with higher perceived support experienced lower levels of psychological strain and cognitive overload. Similarly, Bukhari and Afzal (2018) reported that university students with stronger emotional support networks managed stress more effectively and showed fewer concentration problems. Moreover, Sarason et al. (1990) emphasized that the perception of being understood and cared for enhances one‘s cognitive functioning by reducing anxiety and mental fatigue.

The third hypothesis stated that social support is positively associated with academic performance among female young adults experiencing premenstrual symptoms. The results supported this hypothesis, indicating a strong positive correlation between social support and academic performance ($r = .83$, $p < .001$; see Table 3). This finding suggests that students who perceive greater support from family, peers, and significant others are more likely to

achieve better academic outcomes. This association can be understood through the stress-buffering hypothesis and social support theory (Lakey & Cohen, 2000), which emphasize that social support reduces stress, enhances emotional regulation, and facilitates adaptive coping strategies. These mechanisms enable students to maintain focus, motivation, and persistence in academic tasks, even when dealing with PMS-related cognitive and emotional challenges.

Previous research reinforces this association. Demir and Leyendecker (2022) demonstrated that perceived social support significantly contributes to academic success by lowering stress-related distractions. Similarly, El-Sayed et al. (2021) reported that students receiving emotional and informational support from family and peers exhibit higher academic engagement and reduced academic difficulties. Zhang et al. (2023) further highlighted that social support promotes resilience and self-regulation, both of which are critical for sustained academic performance under stress. In addition, Akhtar et al. (2023) found that social support plays a vital role in enhancing academic engagement, which strengthens students‘ ability to perform well academically. Likewise, Zhao et al. (2022) observed that students with strong support networks demonstrate greater academic self-efficacy and commitment toward their studies. Xu et al. (2021) also confirmed that social support significantly influences students‘ educational experiences by improving their overall learning outcomes. Collectively, these findings underscore that social support is an essential protective factor, helping students cope with PMS-related challenges and promoting positive academic trajectories.

The forth hypothesis of the study proposed that cognitive difficulties would significantly predict low academic performance among young adults with premenstrual symptoms. Regression results in Table 4 confirmed that cognitive difficulties are a significant predictor of academic performance. Students with greater reported cognitive challenges performed less effectively in their academic responsibilities. This highlights how the symptoms associated with PMS can extend beyond emotional discomfort and affect academic outcomes in measurable ways.

This result corresponds with previous findings by Cobanoglu et al. (2021), who found that cognitive disruptions such as forgetfulness and lack of focus directly impacted students‘ academic responsibilities. Broadbent et al. (1982) also established that routine cognitive failures correlate with lower academic productivity. Additionally, Ryu and Kim (2020) showed that PMS-related cognitive symptoms significantly affect academic goal-setting and task completion, particularly among female university students. These results support the idea that consistent cognitive interruptions, especially when left unaddressed, can limit academic potential.

The fifth hypothesis of the study focused on the moderating role of social support in the relationship between cognitive difficulties and academic performance. The moderation results presented in Table 5 supported this hypothesis. However, the nature of the moderation was complex. The interaction effect indicated that the impact of cognitive difficulties on academic performance became more negative at higher levels of social support.

At first glance, this appears contradictory, as social support is typically expected to ease the effects of cognitive distress. However, this can be explained through the optimal matching theory (Cutrona & Russell, 1990), which suggests that support must match the individual‘s needs to be effective. If the support received is mismatched, too controlling, excessive, or emotionally overwhelming, it may inadvertently increase cognitive strain and performance pressure. Reevy and Frydenberg (2011) noted that when support is misaligned with an individual's needs, it can result in additional stress rather than relief. Another explanation can be drawn from the concept of perceived versus received support: when students feel overly dependent on external help, it may lower their self-efficacy and increase anxiety during academic tasks.

An unexpected outcome from Table 3 was the positive correlation between premenstrual symptoms and both academic performance and social support. Despite the traditionally negative associations between premenstrual symptoms and academic outcomes,

the present study observed a positive correlation between PSST scores and academic performance, which, although unexpected, can be understood through a number of interconnected psychological, behavioral, and contextual factors. One plausible explanation lies in the development of adaptive coping strategies among students who regularly experience PMS symptoms. These students may proactively manage their study schedules by engaging in planning, improving time management, and adopting cognitive restructuring techniques to minimize the anticipated impact of their symptoms. This kind of compensatory behavior has been observed in populations managing chronic or cyclical health conditions, often leading to improved task organization and productivity (Kender et al., 2019). Additionally**,** heightened self-awareness about their menstrual cycles may encourage students to monitor their emotional and cognitive fluctuations more closely, which could foster greater self-regulation and academic discipline. In such cases, PMS-related challenges do not necessarily hinder academic tasks but motivate students to engage more consistently in academic responsibilities, resulting in better outcomes.

Moreover, the moderating role of social support likely contributed to this positive association. In contexts where students have access to emotional, informational, and instrumental support from peers, family, or educational institutions, the perceived burden of PMS symptoms may be alleviated, thereby maintaining or even enhancing their functional performance. This explanation aligns with the buffering model of social support (Cohen & Wills, 1985), which posits that perceived support can mitigate the adverse effects of stress on performance and psychological well-being. Furthermore, cultural and environmental factors may play a significant role. In academically competitive and conservative societies, female students may internalize societal expectations to perform well despite physiological discomfort. This pressure can foster a performance-oriented mindset**,** where students may overcompensate to avoid stigma or perceptions of weakness, thereby producing better academic outcomes than expected. Lastly, it is important to consider the possibility that these

students‘ perceived academic competence and self-efficacy may be heightened due to successfully managing their symptoms, which in turn bolsters actual academic performance. According to Bandura‘s (1997) theory of self-efficacy, individuals who believe in their capability to perform despite adversity are more likely to achieve higher outcomes. Taken together, these insights provide a multidimensional justification for the positive link observed between premenstrual symptoms and academic performance, highlighting the significance of resilience, social buffering, and adaptive behaviors in mediating this complex relationship.

The last hypothesis that female young adults having irregular cycle having more cognitive difficulties than females with regular cycle is consistent with the results of t-test. The results revealed that young adults with irregular menstrual cycles reported significantly higher cognitive difficulties compared to those with regular cycles. This finding is consistent with prior research demonstrating that irregular menstrual cycles are associated with poorer performance in domains such as attention, memory, and executive functioning (Gurvich et al., 2018; Soria-Contreras et al., 2025). One possible explanation for this pattern lies in the hormonal fluctuations that accompany irregular cycles. Disruptions in estrogen and progesterone levels have been shown to influence brain regions responsible for learning, working memory, and concentration, thereby impairing cognitive performance.These findings also aligns with evidence indicating that women with irregular menstrual cycles are more prone to academic challenges. Demeke et al. (2023) found that students experiencing menstrual irregularities scored significantly lower in academic performance compared to their peers with regular cycles. This supports the notion that cognitive inefficiencies caused by irregular cycles may have a spillover effect on educational outcomes, limiting students‘ ability to maintain focus, process information efficiently, and perform optimally in academic settings.

Moreover, menstrual irregularity is often associated with heightened psychological distress, such as anxiety, mood swings, and depressive symptoms (Soria-Contreras et al.,

2025). These factors may compound cognitive difficulties, as emotional disturbances can interfere with attention and working memory. The interplay between irregular menstrual patterns, psychological well-being, and cognitive functioning suggests that menstrual health is a significant determinant of young women‘s academic and psychological adjustment.

Interestingly, the current study did not find significant differences in academic performance or perceived social support between the two groups. This may indicate that while irregular cycles exert a direct effect on cognitive functioning, other contextual factors, such as study habits, institutional resources, and peer networks, may buffer the potential negative impact on broader academic or social outcomes. Future research should therefore examine moderating variables, such as coping strategies and health literacy, to better understand the mechanisms underlying this relationship.

With respect to age and educational level, the differences observed in mean scores were not statistically significant ($p > .05$ for all variables), indicating that these demographic factors did not have a measurable effect on cognitive difficulties, academic performance, or perceived social support in this sample. Although postgraduate and older students appeared to report slightly better outcomes, the lack of statistical significance suggests that PMS-related academic and cognitive challenges may be experienced consistently across these groups.

The current study found no significant differences in cognitive difficulties, academic performance, or perceived social support across age and educational levels, indicating that these demographic factors did not have a measurable impact on the variables studied. This may be because all participants were young adult females within the reproductive age range, where PMS-related symptoms such as cognitive impairments tend to remain relatively stable regardless of small age variations (Grady & Rubinow, 2021; Rapkin & Winer, 2009). Furthermore, PMS symptoms are largely hormonal and biological in nature rather than determined by educational attainment, which explains why differences between undergraduate and postgraduate students were not significant (Yonkers et al., 2020).

Although students at higher education levels might develop better coping strategies, these benefits could be overshadowed by the physiological effects of PMS. Another possible reason is that both undergraduate and postgraduate students in the sample were exposed to similar academic pressures, such as examinations and deadlines, which interact with PMS-related challenges in comparable ways (El-Hachem et al., 2014). Additionally, cultural norms in a collectivistic society like Pakistan promote similar coping patterns and reliance on family and peer support across different demographic groups, thereby reducing variability in how PMS symptoms influence academic and cognitive outcomes. Prior research also suggests that cultural homogeneity and shared social structures may buffer stress responses similarly across age and education levels, which aligns with the findings of this study (Demir & Leyendecker, 2022; Triandis, 2001).

Limitations and suggestions

- The study used self-report measures, which may have introduced minor response bias; future research could include objective assessments for greater accuracy.
- The sample included only female university students, which may limit generalizability; future studies should involve participants from different age groups and institutions.
- The cross-sectional design restricts causal interpretation; longitudinal studies are recommended to better understand temporal relationships.
- The study focused primarily on cognitive aspects of PMS; future research could also examine emotional and behavioral dimensions for a more comprehensive view.
- Biological verification of menstrual cycle regularity was not included; future studies could incorporate hormonal or medical assessments for more precision.
- Cultural factors were not considered; future research should explore culturally specific coping strategies and their role in academic outcomes.

Implications of the Study

The findings of this study have important implications for educational institutions,

student support services, and mental health professionals working with young adult females. The significant negative impact of cognitive difficulties on academic performance highlights the need to acknowledge premenstrual cognitive symptoms such as forgetfulness, poor concentration, and decision-making difficulties as genuine academic challenges. Universities should consider integrating menstrual health education and cognitive coping strategies into their student support programs to enhance academic functioning during the premenstrual phase.

The moderating role of social support underscores its potential to buffer the effects of cognitive difficulties. However, the unexpected finding that higher social support sometimes intensified academic strain suggests that the quality and appropriateness of support matter. Institutions should focus on training faculty, counselors, and peer mentors to provide need-sensitive and non-intrusive support that enhances autonomy rather than increasing dependency or pressure.

Furthermore, the positive association between PMS and academic performance suggests that some students may adopt adaptive strategies, such as early planning and self-monitoring, which enhance academic outcomes. This emphasizes the importance of fostering self-regulation, resilience, and time-management skills among students, particularly those managing recurring physical or psychological symptoms.

Lastly, the lack of significant differences across age and educational levels indicates that PMS-related academic and cognitive challenges may affect a broad spectrum of female students. Therefore, interventions should be universally accessible rather than limited to specific academic levels or age groups.

Conclusion

The present study examined the relationship between cognitive difficulties and academic performance among young adult females experiencing premenstrual symptoms, with social support explored as a moderating factor. The findings provided empirical support

for the assumption that cognitive symptoms associated with the premenstrual phase, such as memory lapses, reduced concentration, and impaired decision-making, can negatively impact students‘ academic functioning. These results reinforce the understanding that premenstrual cognitive disruptions are not only emotionally distressing but can also interfere with essential academic responsibilities, such as studying, completing assignments, and performing in examinations.

The study further established a significant negative relationship between cognitive difficulties and perceived social support, suggesting that students who report higher levels of emotional or instrumental support are less likely to experience severe cognitive impairments during the premenstrual phase. This aligns with the stress-buffering hypothesis, which proposes that supportive environments help individuals better manage stress-related symptoms, including cognitive overload. Regression analysis confirmed that cognitive difficulties significantly predict lower academic performance, highlighting the need for educational institutions to acknowledge and address the academic impact of PMS-related cognitive issues. Importantly, the moderation analysis revealed that social support played a complex role; although typically considered protective, higher levels of support unexpectedly amplified the negative effect of cognitive difficulties on academic performance. This nuanced finding suggests that the effectiveness of support depends not merely on its presence but also on how well it aligns with individual needs, as proposed by the optimal matching theory.An unexpected yet insightful outcome was the positive correlation between premenstrual symptoms and both academic performance and perceived social support. This counterintuitive result may be attributed to adaptive coping mechanisms, such as time management, self-monitoring, and increased self-efficacy, which enable some students to proactively mitigate the anticipated impact of PMS on their academic lives. These findings point to the role of resilience and personal agency in academic success, even under cyclical physiological stress.

The absence of statistically significant differences across age and academic levels indicates that PMS-related cognitive and academic challenges are widely experienced, regardless of educational stage or maturity. This emphasizes the need for universally accessible support interventions that are not restricted to specific subgroups.

Overall, the study offers a meaningful contribution to the understanding of how cognitive aspects of PMS influence academic functioning and highlights the multifaceted role of social support. By drawing attention to an underexplored area of women‘s academic health, the findings underscore the need for further research and the development of informed, sensitive, and individualized support strategies within educational settings.

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Annexures

Annexure- A

Consent Form

This research is being conducted by MS Scholar Ayesha Chughtai from the Department of Psychology, International Islamic University; Islamabad under the supervision of Dr Mussarat Jabeen khan .I am conducting this research as part of my degree requirement. This research aims to investigate the role of social support in the relationship between cognitive difficulties and Academic Performance among Female Young Adults with Premenstrual Symptoms.

You have been provided a questionnaire which requires you to respond according to the instructions provided for each question. The information collected will only be used for research purpose and will be kept confidential. Finding any question disturbing, you may withdraw from your participation at any time. Your participation in this study will be entirely voluntary and highly valued!

Annexure- B

Demographic Sheet

Family System: i) Nuclear ii) Joint

Education level: i) BS ii) MS

Marital status: i) Single ii) Married

Age: _____

University:_____

Last obtained CGPA:_____

Department and faculty:_____

Family income (monthly):_____

Number of Siblings:_____

Birth order:_____

Regularity of menstruation i) regular ii) irregular

Age o menarche _____

Duration of bleeding _____

Regular medication ----------

Do you suffer from any psychological problem (dementia,epilipsy,brain injury)

i) yes ii) no

Do you suffer from any physical problem i) yes ii) no

Annexure- C

Premenstrual Syndrome Screening Tool

(please mark an "X" in the appropriate box)

Do you experience some or any of the following premenstrual symptoms which *start before* your period and *stop* within a few days of bleeding?

Symptom	Not at all	Mild	Moderate	Severe
1. Anger/irritability				
2. Anxiety/tension				
3. Tearful/Increased sensitivity to rejection				
4. Depressed mood/hopelessness				
5. Decreased interest in work activities				
6. Decreased interest in home activities				
7. Decreased interest in social activities				
8. Difficulty concentrating				
9. Fatigue/lack of energy				
10. Overeating/food cravings				
11. Insomnia				
12. Hypersomnia (needing more sleep)				
13. Feeling overwhelmed or out of control				
14. Physical symptoms: breast tenderness, headaches, joint/muscle pain, bloating, weight gain				

Have your symptoms, as listed above, interfered with:

	Not at all	Mild	Moderate	Severe
A. Your work efficiency or productivity				
B. Your relationships with coworkers				
C. Your relationships with your family				
D. Your social life activities				
E. Your home responsibilities				

Annexure- D

Cognitive Assessment Questionnaire The following questions are about minor mistakes, which everyone makes from time to time, but some of which happen more often than others. We want to know how often these things have happened to you .Please circles the appropriate number….

Very often=4, quite often=3, occasionally =2, very rarely= 1, never=0

SR NO	STATEMENTS	VO	QO	O	VR	N
1	Do you read something and find You haven‘t been thinking about it and must read it again	4	3	2	1	0
2	Do you find you forget why you went from one part of the house to the other?	4	3	2	1	0
3	Do you fail to notice sign posts On the road?	4	3	2	1	0
4	Do you find you confuse right and left when giving directions?	4	3	2	1	0
5	Do you bump into people?	4	3	2	1	0
6	Do you find you forget whether you‘ve turned off a light or a fire or locked the door?	4	3	2	1	0
7	Do you fail to listen to people‘s names when you are meeting them?	4	3	2	1	0
8	Do you say something and realize afterwards that it might be taken as insulting?	4	3	2	1	0
9	Do you fail to hear people speaking to you when you are Doing something else?	4	3	2	1	0
10	Do you lose your temperand regret it?	4	3	2	1	0
11	Do you leave important letters unanswered for days?	4	3	2	1	0
12	Do you find you forget which Way to turn on a road you know well but rarely use?	4	3	2	1	0
13	Do you fail to see what you want in a supermarket (although it‘s there)?	4	3	2	1	0
14	Do you find yourself suddenly Wondering whether you‘ve used A word correctly?	4	3	2	1	0

15	Do you have trouble making up Your mind?	4	3	2	1	0
16	Do you find you forget appointments?	4	3	2	1	0
17	Do you forget where you put something like a newspaper or a book?	4	3	2	1	0
18	Do you find you accidentally throw away the thing you want and keep what you meant to throw away–as in the example of throwing away the matchbox and putting the used match in Your pocket?	4	3	2	1	0
19	Do you day dream when you ought to be Listening to Something?	4	3	2	1	0
20	Do you find you forget people‘s Names?	4	3	2	1	0
21	Do you start doing one thing at home and get distracted into doing something else (Unintentionally)?	4	3	2	1	0
22	Do you find you can‘t quite remember something although It‘s on the tip of your tongue?	4	3	2	1	0
23	Do you find you forget what you Came to the shops to buy?	4	3	2	1	0
24	Do you drop things?	4	3	2	1	0
25	Do you find you can‘t think of anything to say?	4	3	2	1	0

Annexure- E

Mspss

Instructions: We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement1‖VeryStronglyDisagree(VSD) ,—2:stronglydisagree (SD),—3‖mildlydisagree(MD) ,—4‖ Neutral (N)5‖ mildly agree, 6=Strongly agree,7=very strongly agree

Sr no	**Statement**	**VSD**	**SD**	**MD**	**N**	**MA**	**SA**	**VSA**
1.	There is a special person who is around when I am in need.	1	2	3	4	5	6	7
2.	There is a special person with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
3.	My family really tries to help me.	1	2	3	4	5	6	7
4.	I get the emotional help and support I need from my family.	1	2		4	5	6	7
5.	I have a special person who is a real source of comfort to me.	1	2	3	4	5	6	7
6.	My friends really try to help me.	1	2	3	4	5	6	7
7.	I can count on my friends when things go wrong.	1	2	3	4	5	6	7
8.	I can talk about my problems with my family.	1	2	3	4	5	6	7
9.	I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
10.	There is a special person in my life that cares about my feelings.	1	2	3	4	5	6	7
11.	My family is willing to help me make decisions.	1	2	3	4	5	6	7
12.	I can talk about my problems with my friends.	1	2	3	4	5	6	7

Annexure- F

APS

Instructions: Please answer each question using the 5-point scale to answer each question so that it accurately reflects what you do or have done as a student. Be as honest as possible because the information can be utilized to discover areas of strength.

SA-stronglyagree=5,A–agree=4,N–neutral=3,D–disagree=2,SD-strongly disagree=1

Questions	**SA**	**A**	**N**	**D**	**SD**
1. I made myself ready in all my subjects.	5	4	3	2	1
2. I pay attention and listen during every discussion.	5	4	3	2	1
3. I want to get good grades in every subject.	5	4	3	2	1
4. I actively participate in every discussion.	5	4	3	2	1
5. I start papers and projects as soon as they are assigned.	5	4	3	2	1
6. I enjoy homework and activities because they help me Improve my skills in every subject.	5	4	3	2	1
7. I exert more effort when I do difficult assignments.	5	4	3	2	1
8. Solving problems is a useful hobby for me.	5	4	3	2	1