WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.453
Volume 13, Issue 21, 244-264. Review Article ISSN 2277–7105

MADONMADA: A COMPREHENSIVE REVIEW

Ashwini S. G.[1]* and Vijayendra G. Bhat[2]

[1]Assistant Professor, Department of Kayachikitsa, Aroor Laxminarayan Rao Memorial Ayurvedic Medical College, Koppa, Chikmagalur, Karnataka-577126.

[2]Associate Professor, Department of Kayachikitsa and Manasa Roga for PG and PhD Studies, SDM College of Ayurveda, Kuthpady, Udupi-574118.

Article Received on
08 September 2024,
Revised on 29 Sept. 2024,
Accepted on 19 October 2024
DOI: 10.20959/wjpr202421-34349

***Corresponding Author**
Dr. Ashwini S. G.
Assistant Professor,
Department of Kayachikitsa,
Aroor Laxminarayan Rao
Memorial Ayurvedic
Medical College, Koppa,
Chikmagalur, Karnataka-
577126.

ABSTRACT

Introduction: *Madonmada* is a Neuropsychosocial disorder, corelated with Post Traumatic Stress Disorder (PTSD) due to its similarity w.r.t etiopathogenesis. In India, Prevalence of PTSD post Covid pandemic has increased to 28.2% in overall parameters. Hence this study aiming to review the disease *Madonmada* & comparing it with PTSD is the need of hour. **Methodology:** Detailed study of *Madonmada* and PTSD was done from *Ayurvedic* treatises, contemporary textbooks, research articles and findings were noted. **Results:** This In-depth review study on *Madonmada* and PTSD helps in gaining deeper understanding. **Discussion:** *Madonmada* & PTSD are characterized by impairment in mood and cognition there by alterations in behavioral patterns and onset of which occurs after exposure to traumatic event. *Madonmada* is mentioned as milder form of manifestation of *Unmada* i.e. psychosis. Evidences in contemporary science shows that chronic PTSD results in depression. Hence PTSD can be compared with *Madonmada*.

KEYWORDS: *Madonmada*, *Unmada*, Post Traumatic Stress Disorder (PTSD).

INTRODUCTION

Madonmada is a condition explained in *Bhela samhita*, where due to specific physical, psychic and other etiological factors, patient gets acquired with this diseased condition, where he exhibits certain signs and symptoms related to body and mind. *Madonmada*, even though is not mentioned as type of *Unmada*, it has been explained that *Madonmada* can also be

called as *Mada* and is milder form of *Unmada* and chronic state of *Madonmada* or severe form of *Madonmada* will result in or can be considered as *Unmada* disease.[1]

Due to similarity with respect to *Nidana*, *Lakshana* and *Samprapti*, *Madonmada* can be co-related with Post Traumatic Stress Disorder (PTSD).[2] According to the psychiatric classifications [The International Classification of Diseases of the World Health Organization (ICD-10)[3] and the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5)[4]], a Traumatic event is any event where exposure to: death, threatened death, actual or threatened serious injury, or actual or threatened sexual violence is observed, where individual experiences helplessness that is brought about either externally or internall.[5] Distress is a type of stress that leads to deterioration of the adaptive capabilities of any individual.[6] Stress can deteriorate body's normal functions and results in atrophy of brain mass, alterations in cognition and memory, alterations in homeostasis to life-threatening effects and death.[7]

In India, Prevalence of PTSD post Covid has increased from 0.2% before covid pandemic to that of 28.2% in overall parameters and worldwide parameters suggesting of 32.2 % prevalence. Hence this study aiming to review the concepts Madonmada disease is the need of hour.[8]

Method

A detailed study of *Madonmada* and PTSD was conducted using various *Ayurvedic* treatises, contemporary textbooks, and research articles. The findings were systematically noted.

Aim

The aim of this research is to comprehensively review and differentiate in detail the disease Madonmada from Post Traumatic Stress Disorder (PTSD).

Objectives of the study

1. To study the disease *Madonmada* in detail.
2. To study the disease PTSD in detail.
3. To state the differences and similarities between *Madonmada* and Post Traumatic Stress Disorder (PTSD) w.r.t its *nidana*, *Samprapti* and *lakshanas*.

METHODOLOGY

Madonmada

Etymology: *Madonmada* is made of two words i.e. *Mada* and *Unmada*. Hence etymology of these words and be understood separately and analysed together. According to *shabdha sagara* Sanskrit English Dictionary- word *unmada* is derived from root word *dah-da-dam* with *ghan pratyaya*, which means Mad, Furious, Extravagant, Intoxicated, Insanity.[9] *Mada* is derived from '*mad' dhatu* and '*ach' pratyaya*. According to *Rigveda*, "*Mada* is source of joy" *Mada* means Dream, foolishness, intoxication, pleasure. According to author Durgadasa, a person who is slow, sleeps a lot, dull, gets drunk and gradually deteriorate. This type of people can be termed as affected with *mada.*[10]

Nidana of *madonmada*

Madonmada, a disease condition, is mentioned only by *Acharya Bhela*, hence comparision of these *Madonmada nidanas* with general *unmada nidanas* by other treatises has been mentioned below.

Table 1: Madonmada nidana.

Nidanas	Ch.s.	Su.s	As.s	As.h	Ma.N	Bh.s.	Yr.s.	Ha.s.	Bp.s.	Cd.s.
Shoka	+	-	-	-	-	+	-	-	-	-
Krodha	+	-	-	-	-	+	-	-	-	-
Harsha	+	-	-	-	+	+	+	-	-	-
Dravya nasha/ dana hani	-	+	-	-	-	+	-	-	-	-
Chitta chanchala	-	-	-	+	-	+	-	-	-	-

While explaining about *nidanas* for *Madonmada*, Acharya Bhela have explained that *shoka* (excessive grief), *kopa* (anger), *harsha* (excessive job), *Dravya nasha* (loss of valuable things or possessions) results in disease *Madonmada*. These etiological factors cause disturbances in the cognitive functions due to mental trauma and results in manifestation of *mada.* Chronic and untreated state of *mada* will result in *Unmada.* Here both terms mada and *Madonmada* are synonymously or interchangeable used to denote the same condition.[1]

Poorvaroopa of *madonmada*

Madonmada is the milder stage of *Unmada* as explained by Acharya Bhela, hence even though we don't have specific references about *poorvaroopa* of *Madonmada*, the

poorvaroopa of *Unmada* can be considered and also it can be inferred that the signs observed may be milder to that of other types of *Unmada*.[1]

Table 2: Porrvaroopa of madonmada.

Poorvaroopa		**Ch.S.[11]**	**Su. S.[12]**	**As.S[14]**	**Yr.S.[13]**
***Shareerika* (physical symptoms)**					
Shira shoonyata		+	-	+	-
Chakshu vyakula		+	-	+	-
Karna swana		+	+	+	-
Uchwasa adhika		+	-	+	-
Asya sravana		+	-	+	-
Hridgraha		+	-	+	-
Asthana Ayasa / klama		+	-	+	+
Satata loma harsha		+	-	+	-
Frequent jwara		+	-	+	-
Udarda		+	-	+	-
Ardhita akruti		+	-	+	-
Gatra apakarshana		-	+	-	+
***Agni vikruti* (Digestive symptoms)**					
Ananna abhilasha		+	-	+	-
Arochaka		+	+	+	-
Avipaka		+	-	+	-
***Manasika* (Mental or Emotional symptoms)**					
Dhyana /chinta		+	-	+	-
Chanchala/asthira		+	-	+	-
Asthana udwega		+	+	+	+
Asthana sammoha		+	+	+	-
Unmatta chitta		+	+	+	-
Ati utsaha		-	+	-	+
Bhaya		-	-	-	+
Tama		-	-	-	+
Mruthyu utsaha		-	-	-	+
***Swapna dharshana / Brama* (Dream/ Hallucination)**					
Abhikshna swapna		+	-	+	-
Aprashasta roopa dharshana		+	+	+	-
Aprashasta swapna/ brama	*Chakra gata*	+	+	+	-
	vayu mathana	+	+	+	+
	Jala majjana	+	+	+	+

Roopa of *madonmada*

Madonmada is explained only by Acharya Bhela in Bhela samhita. As the initial references of *Unmada nidana* is missing, we don't find the reference about *samanya lakshanas* (general symptoms) in Bhela Samhita.[15]

While explaining about *Madonmada*, acharya Bhela have stated as he is explaining a special condition of *mada* in *unmada*. Here Bhela acharya seems to be highlighting this topic as extreme or something beyond ordinary experiences. The *lakshanas* are as follows;

Table 3: *Lakshanas* of madonmada.[1]

SL No	*Lakshanas*[1]	Meaning
1	*Pradhyayati*	Immersed in thoughts/ Ponder deep in persistent thoughts/ Flashbacks
2	*Praswipiti*	Falls into deep sleep often
3	*Rodati animittatah*	Cries without reason/ Weeps without cause/ Pervasive negative emotions/ Depressed mood
4	*Hasti akasmaat*	Laughs suddenly and unexpectedly/ Inappropriately without reason/ Disorganised behaviour
5	*Nidraalu*	Drowsy or having tendency to fall asleep easily
6	*Alpavaak*	Speaks little or few words/ Concise in speech/ social withdrawal
7	*Nityam utsuka*	Constantly excited/ perpetually enthusiastic/ Always eager/ hypervigilant
8	*Trasta Shareeri*	Frightened / Afraid / one with terrified body/ tiredness/ weakness
9	*Deenaahsha*	Having eyes filled with sorrow/ sad with destressed expression in eyes/ depressive/ pervasive negative emotions
10	*Krodhano*	One who possesses anger/ frequently experiences feeling of rage
11	*Nirapatrapah Purastaad avaloki*	One who is Innocent/ free from guilt/ blameless
		Looks ahead or in single gaze having innocent eyes/face
12	*Na Yathavrutta eva*	Not According to circumstances or as per conduct/ nature
13	*Parushatva Parusha roma*	Unkind/ unsympathetic/lack of gentleness/ lack of compassion behaviour/speech
		Having rough or coarse textured body/scalp hairs
14	*Avila chakshusha*	Clouded or observed eyes impairing vision/eyesight /teary eyes

***"Aniyamita rodati"*[1]:** person keeps crying continuously without reason. This state can be taken as *shoka* or grief. *Shoka* is a feeling which is observed during the loss of child or near ones etc. Hence, *Shoka* can be resultant of separation from beloved, loss of some belongings, failure of any task or as a result of any punishment. Sometimes grief does not correspond to strength of the cause. *Shoka*, on a long run is responsible for the vitiation of *vata dosha* and vice versa.

"Deena Aksha" (*depressed eyes), *"Aavila Chakshu" (*teary depressed eyes), *"Trasta Shareera" (fatigued body), "Nirapatrapa purastaad avaloki" (lost in thoughts and gaging

***somewhere), and "Alpa Vak" (less conversation with other)* symptoms[1]:** All of these symptoms suggest the involvement of *Tamoguna* with *kapha dosha pradurbhava* (predominance). This condition can be taken as having influence of *vishada* as *mano bhava*. Acharya Charaka have mentioned as *vishadha* is due to influence of *Bhaya. Vishada* is most commonly observed in *tamasika prakruti* persons. *Vishada* always results in *aggravation of diseases (Agrya).* Dalhana have explained *Vishadha* as one which arises due to fear of failures "*asidhi bhayad".* Here in case of *Madonmada,* individual due to fearfulness about facing the similar situations or facing failure or hearing bad news etc keeps thinking about the same without performing any actions to overcome that condition. Hence observed with social withdrawal and depressive eyes.

"Praswapiti", "Nidralu"[1]: Due to influence of tamo *guna* and *kapha* predominant state, individual suffering from *Madonmada* will have symptoms of avoidance of thoughts and memories, people, place etc. Hence the person will feel depressive and shows some regressive behaviours such as sleeping or lying down most of the time or stuporous due to depressive phase.

"*Pradhyayati" (intense thoughts), "na Yathavritta eva" (irrelevant) and "Akasmaat Hasati" (irrelevant laugh)*[1]: Harsha is one among the *mano bhavas*, can also be termed as *mano vikara* when it is abnormally exhibited. *Harsha* is explained as when a person feels happy finding faults in others. But in case of *Madonmada*, the individual will be immersed in the flashbacks or thoughts which might be the triggering factor irrelevant laughs.

"Krodha"[1]: *Krodha* being one among the *manovritti*, commonly observed in *pitta vikruti*. *Krodha* is termed as one of the triads which leads to *naraka* (Hell) according to *Bhagavadgeeta. Dalhana* has explained *krodha* as one which results in *"paraabhidroha"* i.e. to hurt others. Any individual is observed with *krodha,* when most desirable objects are not obtained, when opinion differs, damage to pride, when efforts doesn't benefit him. Here in case of *Madonmada,* person may exhibit *krodha* as a defensive mechanism against everyone due to influence of his previous bad experiences.

"*Parushyata" and "Parushya roma"*[1]: Due to vitiated *mano doshas*, vata dosha gets vitiated, resulting in *dhatu* kshaya, hence the undernourished state of body can be observed. Due to *samanya* and specific *nidanas* for *Madonmada, udana and vyana vayu, pachaka* and

brajaka pitta, avalabaka, bodaka and *tarpaka kapha* gets vitiated and results in *dhatu dushti* in a long run. Hence, *roma parushyata* can be observed.

Upadravas of *madonmada*

Acharya Bhela have explained *Madonmada* as initial stage of *Unmada* or which has milder symptoms. If *Madonmada* becomes chronic, then will result in grievous condition. Here nor in *Unmada* disease or in *Madonmada, upadravas* are not specified. But, in the context of *asadhya bhotonmada* certain *lakshanas* has been mentioned, which can be considered as *upadravas* or *arista lakshanas*.[16]

Upashaya and *Anupashaya* of *madonmada*

Acharya Bhela have explained *Mada* and *Madonmada* terms simultaneously for *Madonmada* and explained as it is the initial stage or milder form of *Unmada* disease. Hence all the *nidanas* for the *Madonmada* can be considered as *Anupashaya,* as they would further aggravate the *doshas* and may result in *Unmada* disease.

All the *chikitsa upakramas* which will be discussed further in detail, can be considered as *upashaya* which will result in the pacification and remission of disease.[1]

Samprapti of *madonmada*

According to Acharya Bhela, stating common pathogenesis of *Unmada, Manasika* and *shareerika doshas* vitiated due to specific *nidanas* dislodges from its place and *sthanasamshraya* occurs between *shiras* and *talu* which is *sthana* of *manas*. Here vitiation of *chitta* i.e. the deeper, subconscious layer of mind, containing stored experiences and impressions occur and along with this, vitiation of *manas* occurs which is the active, cognitive layer that processes sensory information and engages in thinking and decision making. Similarly in case of *Madonmada*, due to specific etiological factors influencing on *chitta,* A special condition called *Madonmad*a will be manifested.[1]

Chart 1: *Samprapti* of *madonmada.*[1]

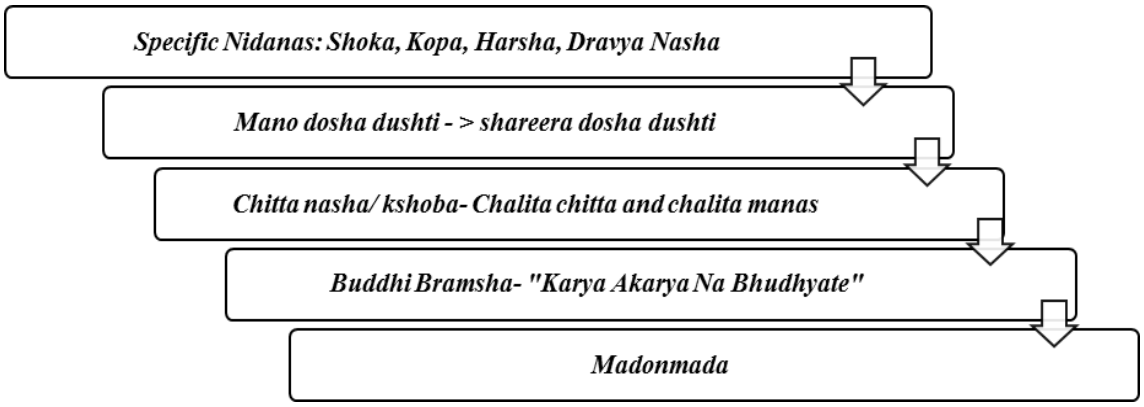

Table 4: *Samprapti ghatakas* of *madonmada.*[1]

Dosha	***Shareeraja***	***Vata, pitta, kapha***
	Manas	***Rajas, Tamas***
Dushya		*Rasa with asta manobhavas i.e. Manas (Mind) Buddhi (Intelligence), Sangnya-Gyana (Orientation), Smruthi (Memory), Bhakti (Devotion), Sheela (Habits and Temperament), Chesta (Psychomotor Activities), Achara (Conduct).*
Agni		*Jataragni, dhatvagni* and *bhootagni*
Agni stithi		*Vishama agni* or *vikruta agni*
Udbhava sthana		*Amashaya, pakwashaya, hridaya*
Srotas		*Manovaha (sangnyavaha)*
Sroto dushti prakara		*Sanga, vimarga gamana and atipravrutti*
Adhishthana		*Hrudaya (mastishkya)*
Sanchara sthana		*Manovaha srotas, sangnyavaha srotas*
Vyakta sthana		*Sarva shareera*
Rogamarga		*Madhyama*
Vyadhi swabhava		*Daruna, chirakari*
Sadhyasadhyata		*Krichrasadhya*

Sadhyasadhyata* of *madonmada

Direct References about prognosis of *Madonmada* is not available. Hence *sadhyaasadhyata* of *Unmada* can be considered for analysing.

- ***Sadhya unmada:*** *Ekadoshaja Unmada* is *Sadhya* i.e., *vataja, pittaja, kaphaja.*[16]
- ***Krichra sadhya unmada:*** *Manodukhaja* Unmada is *krichrasadhya.*[16]
- ***Asadhya unmada.*[16]**
  - *Sannipataja Unmada* is *Asadhya.*
  - Rogi with *mamsa* and *bala kshaya.*
  - One who keeps head or neck bent downwards or upwards.
  - One who sleeps for longer hours or always be sleepy or stuporous.

- One who is not fearful for all the types of *trasana* chikitsa being employed with *shastra* usage.
- One who wanders in streets, showing abnormal bodily actions, surrounded by children.[1]

Vighata unmada lakshana

- ***Acharya charaka[11]:*** After getting treated for *Unmada* or after Pacification of *Doshas* occurs, individual presents with following signs and symptoms which indicates remission. *Acharya Vagbhatta* in *Astanga sangraha*[14] also opines the same. The *lakshanas* are;
- ***Indriya Prasada-*** healthy state of *gyanendriyas* enhances their functionality and *karmendriya's* functions as well.
- ***Indriyartha prasada*:** Optimum state of senses results in proper perception of *vishayas* thereby exact or *yathartha gyana* (knowledge) will be obtained.
- ***Buddhi prasannata:*** When *manas* is healthy it sends the appropriate messages to *buddhi* which is needed for body and mind to stay healthy after properly analysing the received signals and initiating its action through production of knowledge.
- ***Atma prasannata:*** When the *Bhudhi* acts in the proper manner and healthy state of body and mind are preserved, soul or *atma* will be able to move ahead in initiating actions to fulfil its goal of *moksha Prapti*. Hence the ultimate healthy state of *atma* can be observed as well.
- ***Manas prasannata:*** As a circle of events, when *Indriya, Buddhi, Atma* are in healthy state, manas gets to analyse and choose what is good to maintain the same healthy state of all its associated components and hence *Prasannata* of *manas* is achieved.
- ***Prakruta dosha:*** *Mano doshas* and *Shareera doshas* are associated with their *panchaboutika* relationship. Hence any impairment in each of it vitiates other related entity. Here, healthy state of *mano doshas* and *Shareera doshas* complement each other in maintaining healthy state of body and mind.
- ***Prakruta dhatu*:** *Doshas* in its normalcy, functions as *Dhatus.* Hence normalcy of *dhatus* means, healthy and balanced state of *doshas* as well resulting in wellbeing.

  Hence when all these above signs and symptoms are observed in individuals suffering from *Unmada*, it means that the complete remission of disease has occurred.[11]

Post traumatic stress disorder

Post Traumatic Stress Disorder (PTSD) is a recurring, intrusive recollections of an overwhelming traumatic event; recollections last more than 1 month and begin within 6

months of event. Generally, events likely to evoke post-traumatic stress disorder are those that invoke feelings of fear, helplessness or horror. These events may be experienced directly (As serious injury or threat of death) or indirectly (e.g., witnessing others being injured or threatened or learning about event from close family members etc). Combat, sexual assault and natural or man-made disasters are common causes of PTSD.[7]

Post Traumatic stress disorder is classified according to DSM-V (diagnostic and statistical manual for mental disorders) under Axis I – 1.2.7 (Trauma and Stress related disorders).[4] According to ICD-10 classification by WHO under category of F40-F48 i.e. Neurotic, Stress related and somatoform disorders (reaction to severe stress and adjustment disorders- Post Traumatic Stress Disorder (F 43.1).[3] Most of psychology textbook references have mentioned post-traumatic stress disorder under other type of Stress and Anxiety related disorders.[5]

To understand the disease mechanism of posttraumatic stress disorder, the analysis of Feedback loops w.r.t neurological, Psychological, Social factors are done as below.

Table 5: PTSD feedback Loops and Neurological factors w.r.t Neuropsychosocial approach.[5]

	Feedback loops	**Neurological factors**
Post Traumatic Stress Disorder	Brain system	• Frontal lobes • Hippocampus • Amygdala • Locus coeruleus
	Neural communication	• Norepinephrine • Serotonin • Cortisol
	Genetics	• Inherited tendency to seek out situations that may have a higher likelihood of trauma.

In Post Traumatic Stress Disorder, Frontal Lobes, Hippocampus, Amygdala and Locus Coeruleus are involved in the pathogenesis with abnormal hormonal functions i.e. of Norepinephrine, Serotonin, Cortisol resulting in the altered psychological conditions and inherited tendencies also plays a vital role in pathogenesis.

Table 6: PTSD feedback loops and psychological factors w.r.t Neuropsychosocial approach.[5]

	Feedback loops	Psychological factors
Post Traumatic Stress Disorder	Mental processes and mental contents	• Dissociation during trauma • Beliefs that one is unable to control stressors. • Belief that the world is a dangerous place • Cognitive bias to exaggerate the probability and consequences of future negative events • Low IQ
	Affect	• Anxiety • Fear
	Behaviour	• Conditioned emotional response to stimuli associated with trauma • Negative reinforcement of avoidance • Substance abuse

In Post Traumatic Stress Disorder, abnormality in mental processes such as dissociation during trauma, negative beliefs, cognitive bias with superimposing low IQ resulting in increased level of anxiety and fear due to action of hormones because of which patients exhibits conditioned emotional response with negative reinforcement which may trigger the possibility of substance abuse in later stage.

Table 7: PTSD feedback loops and social factors w.r.t Neuropsychosocial approach.[5]

	Feedback loops	Social factors
Post Traumatic Stress Disorder	Stressful life events	• Socioeconomic stress • Lack of social support
	Family	• No known major contribution
	Gender/Culture	• Cultural influences on symptom expression.

Specific stressors contribute for the formation of Post Traumatic Stress Disorder like poor socioeconomic status, lack of social support in a long run or during and after the traumatic event with some cultural influences are the triggering factors for the pathogenesis.

Associated comorbidity

About 80% of those with PTSD will have another psychological disorder, most commonly mood disorder, substance abuse disorder, or other anxiety disorder.[17]

Onset of PTSD

Symptoms of PTSD usually begin within 3 months of traumatic event, although people may go months or years before symptoms appear. Approximately in 80% of people with acute stress disorder go on to develop PTSD.[5]

Course of disease

Duration of symptoms of PTSD varies. About half of those with PTSD recover within 3 months, whereas others continue to have persisted symptoms for more than a year after the traumatic event and some have symptoms which wax and wane throughout.[5]

Gender differences

Women who have been exposed to trauma develop PTSD more often than men do. About 8% of women and 4% of men will have PTSD at some point in their life.[5]

Cultural differences

People of PTSD may differ in particular symptoms they express, depending on the coping styles that are encouraged in given culture. People who are likely to live in high crime neighbourhoods develop PTSD when compared to people who are not living in such areas.[5]

Contributing factors

PTSD, like other mental health conditions, results from interacting social, psychological and biological factors. Anyone can experience PTSD after atraumatic event, but people who have previously experienced traumatic events are more susceptible.[17]

Family history of mental health conditions, younger age, lower levels of education can also increase the likelihood of developing PTSD after a potentially traumatic experience.[17]

Etiological factors for post traumatic stress disorder

i) Stress

According to DSM IV-TR, stress turns into traumatic stress when the person who has been exposed to traumatic event in which both of the following were present:

a. An individual experiencing or witnessing or who was confronted with event involving actual or threatened death or serious injury of self or others.
b. The person experiencing intense fear, helplessness or horror. In children this may be expressed as disorganised or agitated behaviour.[18]

ii) Challenges arising on the Assumptions on world

a. The belief in a fair and just world, where people get what they deserve and deserve what they get: when person with this belief experiences a traumatic event, the person's basic feelings about justice and fairness are called for question.
b. The belief that it is possible to trust others and be safe: when any traumatic event perpetrated by a known and previously liked or loved person, the victim often feels betrayed and abandoned, doubting about the judgement.
c. The belief that it is possible to be effective in the world: traumatic event challenges the people's beliefs in their ability to protect themselves and others and a sense of learned helplessness arises and individual becomes depressed. In event of less harm during traumatic event than others, guilt feeling may also arise.
d. The sense that life has purpose and meaning: when the spiritual, religious beliefs of individual are challenged, victim feel that their existence is pointless and meaningless.[5]

iii) Traumatic event

Definition of traumatic event according to DSM IV TR: A response of intense fear, helplessness or horror.[33]

Traumatic events can be categorised as below[5]:

- Large scale traumatic events with multiple victims
  - Disasters
    - Natural disasters, such as earthquakes or hurricanes
    - Human caused disasters, such as chemical spills or nuclear accidents.
  - War and large-scale conflict, including police against crowds.
  - Direct experience of injuring or killing others, or witnessing such events.
  - Mass violence against noncombatants, such as guerrilla-perpetrated atrocities and terrorist acts.
  - Large-scale transportation accidents, such as train derailments or airplane crashes.
- Unintended acts involving fewer people
  - Motor vehicle accidents
  - Exposure of emergency workers, such as firefighters and rescue workers to a traumatic event
  - Life threatening illness, such as severe heart attack and cancer.
- Intended personal violence
  - Rape and sexual assault (The perpetrator may or may not be known to victim)

- Physical assault (The perpetrator may or may not be known to victim)
- Violence, including sexual assault, perpetrated by a spouse or intimate partner
- Torture
- Physical stalking or cyber-stalking that causes the victim to feel threatened, intimidated, afraid or terrorized
- Child abuse[5]

iv) Other Factors influencing the formation of stress disorder following a traumatic event are[17]

- The kind of trauma- trauma involving violence or intended personal violence is more likely lead to stress disorder.
- The severity of traumatic event, its duration and proximity- individuals who were residing near to any occurrences of traumatic events e.g. natural calamities, those who have experienced multiple traumatic events.
- Previous experience with related events
- Appraisal of stressors.
- Genetic higher concordance rates seen in monozygotic twin than dizygotic twins.
- Coping style.[19]

Pathogenesis of post traumatic stress disorder

Post traumatic stress disorder results from the exposure to traumatic events followed by cascade of events resulting in changes which are observed w.r.t Neurological, Psychological and Social factors as mentioned below.

Chart No 2: pathogenesis of Post Traumatic Stress Disorder.

Aetiology →	**CHRONIC STRESS + TRAUMATIC EVENT (Direct or Indirect Exposure)** ↓ ↓ ↓		
FEEDBACK LOOPS →	**Pathology initiated due to impaired Neurological Factors** ↓	**Pathology initiated due to impaired Psychological Factors** ↓	**Pathology initiated due to impaired Social Factors** ↓
Predisposing factors →	• Inherited tendency • Abnormal structure and	• Low IQ • Altered assumptions about world with	• Low socioeconomic stress • Cultural influences ↓

<table>
<tr><td></td><td>function of hippocampus
⬇</td><td>cognitive bias
⬇</td><td></td></tr>
<tr><td rowspan="2">Repeated exposure results in
⟶</td><td rowspan="2">• Abnormally more activation of Amygdala
• Less activation of Broca’s area in left frontal lobe
• Locus coeruleus secrete norepinephrine
• Alleles of genes producing Serotonin
• Increased Cortisol Secretion
• Adrenaline secretion
⬇</td><td>• Anxiety
• Fear
• Dissociation during trauma
⬇</td><td rowspan="2">Low social support during and after exposure to traumatic event
⬇</td></tr>
<tr><td>• Conditioned emotional response to trauma
• Negative reinforcement of avoidance and substance abuse
• Exaggerated probability of future negative events
⬇</td></tr>
<tr><td rowspan="2">Results in
⟶</td><td colspan="3">Intrusion, Avoidance, Negative effects on Cognition and Mood, Negative effects on Arousal and Reactivity for more than 1 month.
⬇</td></tr>
<tr><td colspan="3">Post traumatic stress disorder[5]</td></tr>
</table>

Diagnosis of PTSD

Diagnosis of PTSD is clinical based on criteria in the diagnostic and statistical manual of mental disorders fifth edition (DSM-5).[4] Different questionnaires are available for ther purpose of diagnosis like, The Clinician-Administered PTSD Scale (CAPS), self-administered Short PTSD Rating Inventory (SPRINT) questionnaire, TSQ -trauma screening questionnaire, PTSD Symptom Scale – Interview for DSM-5 (PSS-I-5), THS-Trauma History Screening etc. The Clinician-Administered PTSD Scale (CAPS), is a structured interview for assessing PTSD diagnostic status and symptom severity. The research evidence indicates that the Clinician administered PTSD scale has excellent reliability. Criteria are as per CAPS SCALE FOR PTSD (MONTH)[20] is given below;

Table 8: CAPS- Clinician administered ptsd scale – DSM V TR.[20]

Criterion no		Criterion	Values	
A		**Exposure to actual threatened death, serious injury or sexual violence**	No=0	Yes=1
B	**Intrusion symptoms (need 1 for diagnosis)**			
1	**B1**	Intrusive memories	No=0	Yes=1

2	**B2**	Distressing dreams	No=0	Yes=1
3	**B3**	Dissociative reactions	No=0	Yes=1
4	**B4**	Cued psychological distress	No=0	Yes=1
5	**B5**	Cued psychological reactions		
B subtotals				
C	**Avoidance symptoms (need 1 for diagnosis)**			
6	**C1**	Avoidance of memories, thoughts, feelings	No=0	Yes=1
7	**C2**	Avoidance of external reminders	No=0	Yes=1
C subtotals				
D	**Cognition and mood symptoms (need 2 for diagnosis)**			
8	**D1**	Inability to recall important aspect of event	No=0	Yes=1
9	**D2**	Exaggerated negative beliefs or expectations	No=0	Yes=1
10	**D3**	Distorted cognitions leading to blame	No=0	Yes=1
11	**D4**	Persistent negative emotional state	No=0	Yes=1
12	**D5**	Diminished or lack of interest or participation in activities.	No=0	Yes=1
13	**D6**	Detachment or estrangement from others	No=0	Yes=1
14	**D7**	Persistent inability to experience positive emotions.	No=0	Yes=1
D subtotals				
E	**Arousal and reactivity symptoms (need 2 for diagnosis)**			
15	**E1**	Irritable behavior and angry outbursts	No=0	Yes=1
16	**E2**	Reckless or self-destructive behavior	No=0	Yes=1
17	**E3**	Hypervigilance	No=0	Yes=1
18	**E4**	Exaggerated startle response	No=0	Yes=1
19	**E5**	Problems with concentration	No=0	Yes=1
20	**E6**	Sleep disturbance	No=0	Yes=1
E subtotals				
Sum of subtotals (b+c+d+e)				
F	**Duration of disturbance**			
22		Duration of disturbance > 1 month?	No=0	Yes=1
G	**Distress or impairment (need 1 for diagnosis)**			
23		Subjective distress	No=0	Yes=1
24		Impairment in social functioning	No=0	Yes=1
25		Impairment in occupational functioning	No=0	Yes=1
G subtotals				
	Global ratings			
26		Global validity	No=0	Yes=1
27		Global severity	No=0	Yes=1
28		Global improvement	No=0	Yes=1
	Dissociative symptoms (need 1 subtype)			
29		1- depersonalization	No=0	Yes=1
30		2- derealization	No=0	Yes=1
Dissociative subtotals				
Ptsd diagnosis				
	Ptsd present- all criteria a-g met?		No	Yes
	With dissociative symptoms		No	Yes
21	With delayed onset (> 6 months)		No=0	Yes=1

Table 9 and 10: Scoring scale of CAPS for PTSD.

Severity comparison scale (in each subtype)
0= Absent
1= Mild/ Subthreshold
2= Moderate/Threshold
3= Severe/Markedly Elevated
4= Extreme/ Incapacitating

CAPS-5 symptom cluster severity scores (0-4) in each subtype	
Criterion B (1-5)	
Criterion C (6-7)	
Criterion D (8-14)	
Criterion E (15-20)	
Criterion F (Disturbance lasted for at least 1 month)	
Criterion G (Clinically /functionally significant impairment)	
With dissociation 29 and 30	
CAPS-5 total symptom severity score- (sum of 1-20 items)	

Complications of PTSD

PTSD if not resolves, can lead to development of different psychiatric comorbidity. Trauma is a known risk factor for development of major depressive disorder, borderline personality disorder, anxiety disorder, substance use disorder, psychotic disorders. Patients with PTSD are having high risk for suicide, more likely to experience occupational problems and have high rate of disability. PTSD patients with history of sexual trauma are having high rates of problems with intimate relationship.[21]

Prognosis of Post Traumatic Stress Disorder (PTSD)

- PTSD is associated with increased mortality risk[17]
- Patients with PTSD have shown symptoms after 1 year and 10 years after treatment.[17]
- Prognosis is much better for children with ASD when compared to that of PTSD but it is observed that both conditions benefit from early treatment.
- Risk factors include:
- Severity of trauma
- Associated physical injuries
- The underlying resiliency and temperament of children and family members
- Socioeconomic status
- Adversity during childhood
- Family dysfunction

- Minority status family psychiatric history
- Family and social support before and after trauma is observed to have moderated the final outcome.[7]

Analyzing Madonmada and Post Traumatic Stress Disorder (PTSD)

The etiological factors explained in context of *Madonmada* like *Shoka, Kopa, Harsha* and *vinasha* of *draya* are similar to that of traumatic events which serves as criteria 'A' i.e. etiology for PTSD.

The clinical features of Post Traumatic Stress Disorder (PTSD), like

- **Criteria 'B': Intrusive symptoms[20]**
- **BI**- Intrusive memories
- **B2**-Distressing dreams
- **B3-** Cued psychological distress
- **B4-** Cued psychological reactions

All the above symptoms or occurrences can be explained under the lakshana of *Madonmada* i.e. *Pradhyayati*- it is being immersed in thoughts, flashbacks or recurrent or persistent distressing thoughts.[1]

- **Criteria 'C': Avoidance symptoms[20]**
- **C1-** Avoidance of memories, thoughts, feelings
- **C2-** Avoidance of external reminders
  - These symptoms of avoidance can be explained under specific *Madonmada lakshanas* i.e. *Alpa Vak, Deenaaksha.*[1]

- **Criteria 'D': Cognition and Mood Symptoms[20]**
- **D1-** Inability to recall important aspect of event
- **D2-** Exaggerated negative beliefs or expectations
- **D3-** Distorted cognitions leading to blame
- **D4-** Persistent negative emotional state
- **D5-** Diminished interest or participation in activities
- **D6-** Detachment or estrangement from others
- **D7-** Persistent inability to experience positive emotions

These above symptoms of negative cognition and mood can be considered under *Madonmada* are '*Na Yathrtham Eva'*, '*Avilam Chakshu', 'Trasta Shareeri'*.[1]

- **Criteria 'E': Arousal and Reactivity symptoms[20]**

The below mentioned symptoms of PTSD can be corelated with *Madonmada* as follows;

- **E1-**Irritable behavior
- **E2-**Reckless or self-destructive behavior
  - *'Krodhano'* explains the above-mentioned conditions of irritable and reckless behavior.
- **E3-**Hypervigilance- it can be considered as '*Purastaad Avalokee'*.
- **E4-**Exagerated startle response- it can be explained under '*Nithyam Utsuka'*.
- **E5-** Problems with concentration- '*Akasmat Hasati'* (disorganized behavior), *'Pradhyayati'* (Immersed in recurrent thoughts).
- **E6-** Sleep disturbances- *'Praswapiti'* and '*Nidralu*' explains sleep disturbances.[1]

- **Criteria 'F': Duration of disturbance[20]**
- Duration of disturbance more than or equal to one month

- **Criteria 'G': Distressing or impairment[20]**
- Subjective validity
- Impairment in social functioning
- Impairment in occupational functioning

These symptoms can be considered under '*Trasta Shareeri'* (feeling of hopelessness, weakness), '*Na Yathrtham Eva', 'Akasmaat Hasati'* (depersonalization, disorganized behavior), '*Roma Parushatva'* (neglecting personal hygiene, dehydrated status, nutritional deficiency), '*Alpa Vaak'*(deprived social and occupational functioning).

Hence considering above similarity in onset and symptoms with progressive nature resulting in *Unmada* as explained by Acharya Bhela, we can consider the *Madonmada* as Post Traumatic Stress Disorder (PTSD).[1]

RESULT AND DISCUSSION

Madonmada is a psychoneurological condition explained by Acharya Bhela in Bhela samhita, which is synonymously used as *Mada*, and is the prodromal stage of *Unmada.*[1] PTSD is stress disorder manifested after experiencing or evidencing traumatic event and persisting

over a period of time (1 month).[7] PTSD will result in depression in severe cases or if timely treatment interventions are not availed. Hence these two diseases i.e. *Madonmada* and Post Traumatic Stress Disorder are having much similarities w.r.t etiopathogenesis, signs and symptoms and prognosis, hence can be considered as similar manifestations. Increasing prevalence of PTSD worldwide specially post pandemic have raised a need for understanding in depth about these disease conditions and its manifestations w.r.t pathophysiology and to come up with a standard protocol of treatment incorporating Ayurvedic principles of *manasika vikaras.*

ACKNOWLEDGEMENT

Nil conflict of interest.

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