ARTIFICIAL INTELLIGENCE

ASSIGNMENT –I

TRAUMA AND STRESSOR RELATED DISORDER

COURSECODE- CSE308

DATE\_OF\_SUBMISSION-

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**ABOUT THE APPLICATION:**

Trauma and stressor related disorder are similar to anxiety disorders where in a person is exposed to any traumatic or distressing incident but unlike the anxiety disorder, here the victim does not experience any sort of anxiety or worry.

To overcome this psychiatric disorder, several applications where developed whose main motive was to diagnose and cure the disorder of which one such is BREATHE2RELAX.

Breathe2Relax developed by National Center for Telehealth and Technology is an intuitive mobile app that can be used by people facing trauma and stressor related disorder.

Once the application is installed, few random questions are asked as follows:

1. Select Background Music.

2. Select Scenery.

3. Set Inhale length (in sec).

4. Set Exhale length (in sec).

Inhale and Exhale is done for 16 cycles. The user can shorten or lengthen both inhale and exhale. They can even pause this process since initially it might not be easy for a person to carry out this process continuously for 16 cycles. Hence they can start with less number of cycles and then gradually increase the number of cycles when they become familiar with the application.

This application is available for free on Google Play Store.

Audience of this app can be Teens, adults, Veteran.

Rating given to this App this:

Ease of Use = 5

Effectiveness = 4 (Education, Self-Monitoring)

Personalize = 5

Interactive/Feedback = 4

Research Evidence = 4

**KNOWLEDGE AS DEFINITION:**

1. *Trauma and stressor related disorder relates to involving exposure to any event that is very stressful or traumatic.* 🡪 John .W. Barnhill, MD , New York Presbyterian Hospital.
2. *Trauma and stressor related disorder is experienced by people who have been exposed to distressing event and have developed symptoms like irritability which hinders the ability of his/her neural function.* 🡪Child Mind Institute.
3. *Trauma and stressor related disorder is a mental health condition that is caused because of any terrific, distressing event that might be either witnessed or experienced*. 🡪Mayo Clinic
4. *Trauma and stressor related disorder is a group of behavioral and emotional problems that may occur due to experiencing any stressful event.* 🡪Children’s Hospital Of Philadelphia
5. *Trauma and stressor related disorder connotes to any disorder that occurs due to circumstances that overwhelm the victim and that which often cause injury or death*. 🡪American Psychiatric Association ,2015

**KNOWLEDGE AS FACTS:**

**The symptoms of trauma and stressor related disorder are:**

1. Difficulty in maintaining meaningful social relations.
2. Experiencing occupational impairment.
3. Involuntary or distressing memories.
4. Distressing nightmares or dreams.
5. Always having the fear of experiencing some danger.
6. Getting frightened or startled very easily.
7. Excessive drinking or driving too fast.
8. Difficulty in concentrating on things.
9. Overwhelming guilt or shame.
10. High level of irritability.
11. Hopelessness about the future.
12. Feeling detached from family and friends.
13. Develop negative thoughts about family, friends, work and future.
14. Depression.
15. Severe emotional distress or physical reactions to something that reminds the person of the trauma.
16. Feeling of experiencing the trauma, as if it’s happening again lively.
17. Suicidal thoughts and behavior.
18. Somatic symptoms.

**KNOWLEDGE AS PROCEDURE:**

Trauma and stressor related disorder is a reaction to any traumatic event such an accident, natural disaster, any crime that has occurred.

1. Psychologist performs a physical exam to check if there are any medical problems that are causing the symptoms.
2. A psychological evaluation is conducted that includes a discussion of your signs and symptoms and the event or events that cause them.
3. Generally the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) which is published by American Psychiatric Association is referred when conducting a physical exam to diagnose the disorder.
4. Psychotherapy is the treatment which is followed for diagnosis and cure of the disorder. It is of several types.
   * 1. Cognitive Therapy - This therapy helps to identify the different ways of thinking that are keeping a person struck.
     2. Exposure Therapy- This helps to the person to face both presently occurring situations and the haunting memories (nightmares or flashbacks).
     3. Eye Movement Desensitization and Reprocessing (EMDR) – EMDR combines exposure therapy and a sequence of guided eye movements that help the person deal with the traumatic events.
5. The therapist can help the victim in developing stress management skills.

**SOURCES FOR COLLECTING DATASET TO TRAIN THE MACHINE:**

1. <https://www.msdmanuals.com/professional/psychiatric-disorders/anxiety-and-stressor-related-disorders/overview-of-trauma-and-stressor-related-disorders>
2. <https://www.mayoclinic.org/diseases-conditions/post-traumatic-stress-disorder/symptoms-causes/syc-20355967>
3. <https://www.chop.edu/conditions-diseases/trauma-and-stressor-related-disorders-children>
4. <https://www.gracepointwellness.org/109-post-traumatic-stress-disorder/article/55731-what-are-the-signs-and-symptoms-of-trauma-and-stressor-related-disorders>

**KNOWLEDGE BASE SYSTEM ARCHITECTURE:**

PSYCHOLOGIST

(KNOWLEDGE ENGINEER)

DOMAIN EXPERTS

PSYCHOLOGIST

DYNAMIC MODULE

KNOWLEDGE BASE (RULES AND FACTS)

INFERENCE ENGINE

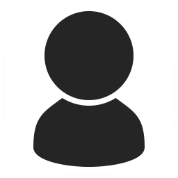
WORKING MEMORY

EXPLANATORY SYSTEM (WHAT, HOW, WHY)

QUERIES

PROVIDING RECOMMENDATIONS AND FEEDBACK

USER INTERFACE



USER

**MATHEMATICAL REPRESENTATION OF KNOWLEDGE:**

1. PREDICATE LOGIC: It involves the use of standard forms of logical syllogism. It contains a set of systematic methods for proving that certain formulae can or cannot be logically derived from other formulae.

As in this application,

FOR ANY X: IF somatic(X) 🡪TSD(X)

Which implies for any person X, if X possesses somatic symptom then X has stressor disorder.

1. PROPOSITION: It is termed as a declarative statement which is either true or false. The declarative sentences used are combined using Connectives (and, or, implies, isEquivalentTo, not).

As in this application,

OverwhelmingGuilt ∧ Depression ∧ SuicidalThoughts 🡪TSD

This implies person having over whelming guilt and depression and suicidal thoughts is suffering from trauma and stressor related disorder.

1. DATA CORRELATION and CAUSAL INFERENCE: It is a relation in which one set of data may correspond to another.

Causal inference implies that conclusions are drawn based on the causal connection among the conditions of occurrence of an effect.

IF SOMATIC(X) 🡪TSD(X)

It implies SOMATIC(X) is the cause (causal inference) and the whole representation specifies the correlation that exists.