ACKNOWLEDGEMENTS:

Alan Pope, Ph.D., NASA/Langley Research Center (biomedical engineering)
Marsha Turner, B.A., Research assistant, EVMS
Richard Atkinson, M.D., Professor of Medicine, EVMS
Samuel Wittenberg, M.D., Associate Professor of Family Medicine, EVMS
Clifford Pianos, Psy.D., EVMS
Helga Remler, Psy.D., Peninsula Psychiatric Hospital
Ian E. Wickramasekera, II, B.S., NASA/Langley Research Center
Aaron Vinik, M.D., Ph.D., Professor of Medicine, EVMS
Catesby Ware, Ph.D., Professor of Psychiatry and Medicine
Department of Neurology, EMVS
Department of Family Medicine, EVMS

CHRONIC SOMATIC SYMPTOMS PRESENTED: (Wickramasekera, 1979, 1986, 1988)

e.g. Chronic muscular and vascular headache
Primary hypertension
Primary Raynaud's Disease
Irritable Bowel Disease
"Angina" (negative cath)
Chronic low back pain (negative physical findings, e.g. herniated disc)
Vasovagal syncopy (MRI scan)
ANV (unrelated to toxic chemotherapy)
Idiopathic flushing (negative for PHEO's)

SOMATIZATION

1. DSM-III-R categories in this area do not inform the prediction and control of symptoms (Wickramasekera, 1988). e.g. whales, fish, mammals
2. Others have also complained (Katon et al., 1991, A.J.P.; Quill, 1985). "Medicine's Blind Spot" (Quill, 1985, JAMA)
3. Approximately 50% of patients seen in primary care do not fit easily into existing categories of mental and physical disease in terms of response to therapy.

A MODEL OF THE RELATIONSHIP BETWEEN PATHOPHYSIOLOGY (STRUCTURAL OR FUNCTIONAL) AND PSYCHOPATHOLOGY (Wickramasekera 1979, 1988, 1993)

\[
\begin{array}{c|c|c}
\text{AMPLIFIERS} & \text{TRANSDUCERS} & \text{PSYCHOPATHOLOGY} \\
\hline
\text{eg. vascular headache} & \text{eg. vasovagal syncopy} & \text{High Risk Factors for "Threat Perception."} \\
\text{REMITTERS} & \text{UNKNOWN} & \text{Wickramasekera, 1973} \\
\text{acute medical conditions} & \text{eg. appendicitis} & \\
\end{array}
\]

Positive (+) or negative (-) pathophysiological or psychopathological findings.
### HIGH RISK MODEL (WICKRAMASEKERA, 1979)

Factors that **inhibit** relationship between stress (threat perception) and symptoms:

- **BUFFERS**
  1. High Social Support
  2. High Satisfaction With Social Support
  3. High Coping Skills

Factors that **promote** relationship between stress (threat perception) and symptoms:

- **PREDISPOSERS**
  1. High Or Low Hypnotic Ability
  2. High Catastrophizing
  3. High Neuroticism

---

#### Pearson Correlation Between High Risk Factors (Wickramasekera, 1979)

<table>
<thead>
<tr>
<th>Hypnotic Ability</th>
<th>Catastrophizing</th>
<th>Neuroticism</th>
<th>Life Changes</th>
<th>Hassles</th>
<th>Social Support #</th>
<th>Social Support sat.</th>
<th>Coping Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypnotic Ability</td>
<td>0.15</td>
<td>0.11</td>
<td>0.01</td>
<td>0.22</td>
<td>-0.01</td>
<td>-0.02</td>
<td>0.04</td>
</tr>
<tr>
<td>Catastrophizing</td>
<td></td>
<td>0.57</td>
<td>0.09</td>
<td>0.57</td>
<td>0.08</td>
<td>-0.30</td>
<td>-0.17</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>-0.06</td>
<td>0.52</td>
<td>0.08</td>
<td>0.52</td>
<td>-0.10</td>
<td>-0.46</td>
<td>-0.07</td>
</tr>
<tr>
<td>Life Changes</td>
<td>0.18</td>
<td>0.00</td>
<td>0.12</td>
<td>0.12</td>
<td>0.01</td>
<td>0.41</td>
<td>-0.00</td>
</tr>
<tr>
<td>Hassles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.03</td>
<td>-0.30</td>
<td>-0.38</td>
</tr>
<tr>
<td>Social Support #</td>
<td>-0.06</td>
<td>-0.03</td>
<td>-0.30</td>
<td>-0.38</td>
<td>0.54</td>
<td>0.32</td>
<td>0.00</td>
</tr>
<tr>
<td>Social Support sat.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.06</td>
<td>-0.00</td>
<td>-0.00</td>
</tr>
</tbody>
</table>

---

1. **HYPNOTIC ABILITY** is normally distributed.
2. 12% of general population is high (12-9) and 12% is low (0-4).
3. Hypnotic ability is stable across over 15 years (.82) and 25 years (.71).
4. Hypnotic ability and neuroticism are orthogonal (Palsson 1992; Remler 1990; Wickramasekera 1979).
5. **NEUROTICISM** is stable over time and across situations (13 years = .64) (Watson & Clark 1984).
6. Neuroticism is partly genetically based: MZA .61, MZT .54, DZA .29, DTZ .41

---

**Evidence for Unconscious Factors:**

1. Brain damage impairs short term verbal memory (amnesic syndrome or anterograde memory) due to Karsakoff's syndrome or temporal lobectomy (H.M.) patients (Schacter 1991)
2. Cognitive ERPs (Shevrin & Dickman 1980)
3. Surgical anesthesia (Kihlstrom & Schacter 1990)
5. Implicit memory and priming: retention without remembering (Roediger 1990)
6. Cognitive unconscious: Post hypnotic amnesia, source amnesia (Evans 1977) and implicit perception (Kihlstrom 1987)
On the Interaction of Two Orthogonal Risk Factors, 1) Hypnotic Ability and 2) Negative Affectivity (Threat Perception) for Psychophysiological Disregulation in Somatization

Ian Wickramasekera, Ph.D.
Behavioral Medicine Clinic and Psychophysiology Laboratory, Eastern Virginia Medical School (664-446-8981)

II Symposium on Suggestion and Suggestibility
Rome, ITALY 29 October 1994

High Risk Model of Threat Perception (H.R.M.T.P.)
The perception of "threat" activates the hypothalamic-pituitary-adrenal-axis and psychological security operations. The H.R.M.T.P. (Wickramasekera, 1979, 1986, 1988, 1993, 1994a,b,c) is a multidimensional model which proposes that the interaction between a set of 1. predisposing, 2. triggering and 3. buffering factors determines if "threat perception" will produce disregulation, driving psychological and/or somatic symptoms. These risk factors are 1. High or low hypnotic ability 2. Catastrophizing cognitions (Ellis, 1962) 3. High negative affectivity (N.A.) or Low N.A. (but high Marlowe-Crowne) or "repression" score (Weinberger, 1990) 4. Major life changes 5. Minor Hassles (Kanner et al., 1981) 6. Low number and satisfaction with support systems (House et al., 1988; Sarason et al., 1983) and (7) Low coping skills (Lazarus & Folkman, 1984; Moos, 1993).

Disregulation
"Out of Mind is not out of Body" (Wickramasekera, 1979, 1988, 1993). It is hypothesized that during threat perception at least 3 of these predisposing risk factors can induce an incongruency between implicit and explicit (Kihlstrom, 1987) perception, memory and mood. The predisposers, 1) high hypnotic ability, 2) low hypnotic ability and 3) repression are hypothesized to be risk factors for attenuating or blocking the perception of threat from consciousness, and driving psychophysiological disregulation (Wickramasekera, 1979, 1993). Hypnotic ability is one of the main risk factors for dysregulation. It can cognitively amplify both psychopathology and ANS reactivity. High hypnotic ability can cognitively attenuate the perception of threat till it is abolished from consciousness and transduced into information limited to the ANS driving somatization (eg hypnotic analgesia or amnesia).

Self-Regulation
Self-regulation consists of at least 4 operations 1) Identify and decrease the patients high risk factors, 2) Increase congruency in information processing between implicit and explicit perceptions in short and long term memory, 3) acquire self-soothing skills (self-hypnosis or biofeedback) to buffer the assimilation and digestion into consciousness of perceptions of threat, 4) Reverse the direction of activity of high hypnotic ability (Wickramasekera, 1979, 1988, 1993). Self-regulation is implemented initially, for low hypnotic ability patients through a set of procedures called the Trojan Horse Role Induction (Wickramasekera, 1988). Psychophysiological psychotherapy (Wickramasekera, 1979, 1993) is proposed as the therapy of choice for all somatizers irrespective of hypnotic ability or repression. It has the following 4 components 1) Psychotherapy with 2) concurrent autonomic monitoring to detect "threat perception" that is "out of mind but not out of body". The practice of 3) self-hypnosis or biofeedback "self soothing" skills to buffer the assimilation into consciousness of threat perception (Wickramasekera, 1979, 1988, 1993).
Predictions from the Model

During threat perception the following symptomatic patterns are predicted for the following risk factors. The coincidence of (1) low hypnotic ability and "repression" is predicted to generate predominantly somatic symptoms (e.g., primary hypertension, nonorganic chest pain etc.). The coincidence of (2) high hypnotic ability and represssion is predicted to generate a robust form of somatization (e.g., vasovagal syncope, irritable bowel etc., in which 90% of all symptoms are somatic [Wickramasekera, 1994c]). The coincidence of (3) high hypnotic ability and true low neuroticism (Low Marlowe-Crowne score) is predicted to generate few or no psychological or somatic symptoms of any kind. The coincidence of (4) high hypnotic ability and high neuroticism is predicted to generate symptoms that are approximately 90% psychological, and approximately 10% somatic (e.g., M.P.D., "Borderline", P.T.S.D., hysterical psychosis etc.). The above is particularly likely if support systems and coping skills are low and major life changes and or hassles are high. The coincidence of (5) high hypnotic ability and the "defensive high neuroticism" pattern is predicted to generate both psychological and somatic symptoms, but predominantly psychological symptoms (e.g., panic disorder, depression, anxiety disorder, phobias etc.).

It is predicted that low hypnotic ability and high repression will be the primary mechanism of somatization in the (6) primary care and medical/surgical sector. But in the (7) mental health sector, high hypnotic ability and high repression will be the primary mechanism of somatization and psychopathology.

Data

Several independently replicated empirical studies reviewed elsewhere (Wickramasekera, 1986, 1988, 1993, 1994a In Press) and the following empirical studies are consistent with the above concepts and predictions from the H.R.M.T.P.

References


ACKNOWLEDGEMENTS:
Alan Pope, Ph.D., National Aeronautics and Space Administration/Langley Research Center
(biomedical engineering)
Richard Atkinson, M.D., Professor of Medicine, Eastern Virginia Medical School
Aaron Vinik, M.D., Ph.D., Professor of Medicine, Eastern Virginia Medical School
Catesby Ware, Ph.D., Professor Psychiatry and Medicine
Department of Family Medicine, Eastern Virginia Medical School
Ian E. Wickramasekera, II, B.S., National Aeronautics and Space Administration/Langley
Research Center
Olafur Palisson, Psy.D., Department of Medicine, University of North Carolina at Chapel Hill
Helga Remler, Psy.D., Peninsula Psychiatric Hospital
Department of Neurology, Eastern Virginia Medical School

SOMATIZATION: CONCEPTS, DATA AND PREDICTIONS FROM

THE HIGH RISK MODEL OF THREAT PERCEPTION

Ian E. Wickramasekera, Ph.D.

Journal of Nervous and Mental Disease, 1994a, In Press

ABSTRACT

Eighty-three consecutive patients with chronic somatic complaints seen prior to therapy were tested on the eight factors of the High Risk Model of Threat Perception (HRMTP). 32% were high and 26% were low on hypnotic ability, which is more highs and lows than would be expected in a normal population. In the high and low hypnotic ability somatizers the distribution of somatic and psychological symptoms is significantly different from the moderate group. Counterintuitively hypnotic ability and major life change were orthogonal to all of the other risk factors. These findings are consistent with 8 of 9 predictions from the (HRMTP).

Factors that ATTENUATE stress (threat perception)

- 1. High Social Support
  2. High Satisfaction With Social Support
  3. High Coping Skills

TRIGGERS

Density of
1) Major Life Changes And/Or Psychological
   And/Or Somatic
2) Minor Hassles Symptoms

Factors that POTENTIATE stress (threat perception)

+ 1. High Or Low Hypnotic Ability
  2. High Catastrophizing
  3. High Neuroticism
  4. High Lie Score

Figure 1

HIGH RISK MODEL OF THREAT PERCEPTION (WICKRAMASEKERA, 1979)
ADJUSTED MEAN INCREASE IN SUBJECTIVE UNITS OF DISTRESS BY GROUP FROM BASELINE #2 THROUGH MATH TASK

POMERANTZ & WICKRAMASEKERA, 1986

WICKRAMASEKERA et al., 1986

Figure 2. Hypnotic Ability SCL Means and 95% Confidence Intervals

Repeated Measures Analysis of Variance

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within Cells</td>
<td>2103.51</td>
<td>448</td>
<td>4.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condition</td>
<td>1164.09</td>
<td>4</td>
<td>291.02</td>
<td>61.98</td>
<td>0.000</td>
</tr>
<tr>
<td>Gender by Condition</td>
<td>15.00</td>
<td>4</td>
<td>3.75</td>
<td>0.90</td>
<td>0.527</td>
</tr>
<tr>
<td>Hypnotic Ability by Condition</td>
<td>112.69</td>
<td>8</td>
<td>14.09</td>
<td>3.00</td>
<td>0.003</td>
</tr>
<tr>
<td>Gender by Hypnotic Ability by Condition</td>
<td>11.63</td>
<td>8</td>
<td>1.45</td>
<td>0.31</td>
<td>0.962</td>
</tr>
</tbody>
</table>
Psychophysiological and Clinical Implications of the Coincidence of High Hypnotic Ability and High Neuroticism During Threat Perception in Somatization Disorders

Ian Wickramasekera
Eastern Virginia Medical School

Received June 7, 1993; revised October 14, 1993; second revision January 29, 1994; accepted for publication January 30, 1994.

Amer J Clin Hypn 37:1, July 1994

OBESITY (BMI) and HYPNOTIC ABILITY

Wickramasekera et al., 1992

73% (39/53) OF OBSESE PATIENTS SHOW NO RETURN TO EDR BASELINE AFTER COGNITIVE THREAT (MENTAL ARITHMETIC STRESS).

31% OF OBSESE PATIENTS SHOW A PARADOXICAL TEMPERATURE (OF) RESPONSE AFTER COGNITIVE THREAT (MENTAL ARITHMETIC STRESS).

HYPOTHESES (WICKRAMASEKERA 1979, 1988, 1993)

1 HYPERSENSITIVITY OF SNS
2 DISREGULATION OF ANS
3 SELF-SOOTHING WITH SUBSTANCE ABUSE
4 OVER 70% OF SOMATIZATIONS ARE DRIVEN BY UNCONSCIOUS FACTORS (DRAGONS).
Figure 3
Percent psychological and somatic symptoms in each low, moderate and high hypnotic ability level.

Non-Organic Chest Pain
MARLOWE-CROWNE scores in Primary Care
(Saxon & Wickramasekera, 1994)

Absorption Scores in Morbidly Obese
(x=350lbs) Surgical Candidates
(Price & Wickramasekera, 1994)
Neuroticism (N.A.) in Morbidly Obese (x=350lbs) Surgical Candidates
(Price & Wickramasekera, 1994)

\[ P < .005 \]

Somatization
(Wickramasekera, 1994)

HYPNOTIC ABILITY (Harvard Scale)

Low 0-4  Moderate 5-9  High 10-12

\[ p < .001 \]

Sample Distribution of Hypnotic Susceptibility in Chronic Pain
Stanford C

Susceptibility Levels
(Remler et al., 1990)

\[ \% \text{ Patients} - \% \text{ Norms} \]

Low (0-4)  Medium (5-7)  High (8-10)  Very High (11-12)
EXPLICIT (CONSCIOUS) AND IMPLICIT (UNCONSCIOUS)
THREAT PERCEPTION IN
HYPNOTIC ABILITY LEVEL (12-0)

Amplifying Mode
(verb; report)
Acute hypnotic amplification of threat perception
e.g. anxiety, panic

Attenuating Mode
(verb; report)
Explicit threat perception blocked
e.g. hypnotic analgesia or amnesia

Attenuating Mode
(verb; report)
Repression of explicit perception of threat
e.g. alexithymia

ANS MEASURES
HR
EDR
BVP

High Hypnotic Ability

Low Hypnotic Ability

6

Implicit Threat Perception
Explicit Threat Perception

9

WICKRAMASEKERA 1992
PREDICTIONS FROM THE HIGH RISK MODEL OF
THREAT PERCEPTION
(OUTSIDE OF HYPNOSIS)

WICKRAMASEKERA (1979)

1. LOWS WILL SHOW REDUCED EXPLICIT THREAT
PERCEPTION. (VERBAL REPORT)

2. HIGHS WILL SHOW AMPLIFIED EXPLICIT THREAT
PERCEPTION. (VERBAL REPORT)

3. IMPLICIT THREAT MEASURES (e.g. EMG) WILL NOT
BE DISCREPANT IN HIGH'S AND LOWS.

4. IN MODERATES EXPLICIT AND IMPLICIT
MEASURES WILL NOT BE DISCREPANT.

HYPOTHESIZED MECHANISMS OF THREAT PERCEPTION

HIGHs
1. VULNERABILITY TO THE PERCEPTION OF "INCLUDARYNESS" IN VERBAL INFORMATION PROCESSING
AND OUT OF HYPNOSIS (BOWERS 1982; DIXON ET AL. 1991) AND "UNINTENTIONAL"
(ULEMAN & RANX 1988) CONDITIONING (DAS 1958; KING & MCDONALD 1978;
WICKRAMASEKERA 1976).

A. PERCEPTION OF "UNCONTROLLABLE" OR "UNPREDICTABLE" EVENTS CAN AMPLIFY THREAT

B. CHRONIC OR INTERMITTENT THREAT CAN TRIGGER H.P.A.A. AND ALTER ANS FUNCTIONS.


2. VULNERABLE TO REPRESSION OF THREAT: CAN BLOCK EXPLICIT BUT NOT IMPLICIT MEMORY. "OUT
OF MIND IS NOT OUT OF BODY" (WICKRAMASEKERA 1988, 1993).

"MEANING" IN EVENTS THAT ARE RANDOMLY DISTRIBUTED TO OTHERS.

4. "PERMEABLE MEMBRANES" (SURPLUS EMPATHY).

LOWs


2. AVOID PSYCHOLOGICAL OR PSYCHIATRIC STUDIES.

3. ATTENUATED FREQUENCY OR ENHANCED FREQUENCY OF THREAT PERCEPTION ("KNOWS WORDS BUT
MISSEES THE MUSIC" WICKRAMASEKERA 1988).

4. WILL PRESENT ONLY SOMATIC SYMPTOMS.

Definition

1. Psychophysiological Psychotherapy (Wickramasekera, 1979, 1988, 1993) is
psychotherapy done with concurrent ANS monitoring and adjunctive use of
hypnosis and biofeedback.

4 Components

1. Psychotherapy
2. Concurrent ANS monitoring - Detect "Threat Perception"

3. Hypnosis

4. Biofeedback

STANDARD PROTOCOL FOR PSYCHOPHYSIOLOGICAL PSYCHOTHERAPY (FLOW CHART)
(WICKRAMASEKERA 1979, 1980, 1993)

<table>
<thead>
<tr>
<th>Technician</th>
<th>1. Instrumentation</th>
<th>4 minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. B1 (eyes open)</td>
<td>3 minutes</td>
</tr>
<tr>
<td></td>
<td>3. B2 (eyes closed)</td>
<td>3 minutes</td>
</tr>
<tr>
<td>Therapist</td>
<td>4. R1 Hypno or Psychotherapy</td>
<td>25 minutes</td>
</tr>
<tr>
<td></td>
<td>5. R1 Hypnosis/ Biofeedback (self-soothe)</td>
<td>15 minutes</td>
</tr>
<tr>
<td></td>
<td>6. B2 inquiry</td>
<td>10 minutes</td>
</tr>
</tbody>
</table>

GOAL: INHIBIT COGNITIVE STEREOTYPY IN THREAT PERCEPTION AND PROMOTE COGNITIVE
CREATIVITY IN THREAT PERCEPTION.
### TABLE 4
Pearson Correlation Between High Risk Factors (Wickramasekera, 1979)

<table>
<thead>
<tr>
<th></th>
<th>HYPNOTIC ABILITY</th>
<th>PHIZING</th>
<th>NEUROTICISM</th>
<th>LIE</th>
<th>MAJOR LIFE CHANGES</th>
<th>HASSLES</th>
<th>SOCIAL SUPPORT #</th>
<th>SOCIAL SUPPORT SAT</th>
<th>COPING SKILLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYPNOTIC ABILITY</td>
<td>0.15</td>
<td>0.11</td>
<td>-0.06</td>
<td>0.01</td>
<td>0.22</td>
<td>-0.01</td>
<td>-0.02</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td>p = .17</td>
<td>p = .23</td>
<td>p = .54</td>
<td>p = .46</td>
<td>p = .09</td>
<td>p = .87</td>
<td>p = .86</td>
<td>p = .33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CATASTROPHIZING</td>
<td>0.57</td>
<td>-0.16</td>
<td>-0.06</td>
<td>0.09</td>
<td>0.67</td>
<td>-0.07</td>
<td>-0.67</td>
<td>-0.37</td>
<td></td>
</tr>
<tr>
<td>p = .00</td>
<td>p = .18</td>
<td>p = .00</td>
<td>p = .28</td>
<td>p = .67</td>
<td>p = .00</td>
<td>p = .00</td>
<td>p = .00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEUROTICISM</td>
<td>-0.25</td>
<td>-0.08</td>
<td>-0.52</td>
<td>-0.1</td>
<td>-0.01</td>
<td>-0.17</td>
<td>-0.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p = .05</td>
<td>p = .33</td>
<td>p = .35</td>
<td>p = .04</td>
<td>p = .04</td>
<td>p = .12</td>
<td>p = .13</td>
<td>p = .00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIE</td>
<td>0.04</td>
<td>-0.26</td>
<td>0.44</td>
<td>-0.03</td>
<td>0.02</td>
<td>0.54</td>
<td>0.32</td>
<td>0.44</td>
<td></td>
</tr>
<tr>
<td>p = .67</td>
<td>p = .06</td>
<td>p = .75</td>
<td>p = .00</td>
<td>p = .00</td>
<td>p = .00</td>
<td>p = .00</td>
<td>p = .00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAJOR LIFE</td>
<td>0.18</td>
<td>-0.02</td>
<td>-0.17</td>
<td>-0.03</td>
<td>0.38</td>
<td>0.32</td>
<td>0.32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHANGES</td>
<td>p = .12</td>
<td>p = .44</td>
<td>p = .08</td>
<td>p = .00</td>
<td>p = .00</td>
<td>p = .00</td>
<td>p = .00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HASSLES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOCIAL SUPPORT #</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>p = .00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOCIAL SUPPORT SAT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COPING SKILLS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---


![Pathophysiology and Psychopathology Model](image)

**Pathophysiology**
- **Amplifiers** (e.g., vascular headache)
- **Transducers** (e.g., viscerovagal syncope)

**Psychopathology**
- **Receivers** (High Risk Factors for "Threat Perception."
  Wickramasekera, 1979)
- **Unknowns**

Positive (+) or negative (-) pathophysiological or psychopathological findings.
Skin Conductance (umhos) Means and Standard Deviations
(E0 = Eye Open, EC = Eyes Closed, S = Stress)

<table>
<thead>
<tr>
<th></th>
<th>EO1</th>
<th>EC1</th>
<th>S</th>
<th>EO2</th>
<th>EC2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Hypnotic</td>
<td>4.518</td>
<td>4.203</td>
<td>6.944</td>
<td>6.191</td>
<td>5.315</td>
</tr>
<tr>
<td>Ability (n=26)</td>
<td>3.411</td>
<td>3.386</td>
<td>4.298</td>
<td>4.173</td>
<td>3.974</td>
</tr>
<tr>
<td>Moderate</td>
<td>5.299</td>
<td>5.288</td>
<td>8.815</td>
<td>7.66</td>
<td>6.999</td>
</tr>
<tr>
<td>Hypnotic</td>
<td>4.619</td>
<td>4.508</td>
<td>5.61</td>
<td>5.347</td>
<td>5.217</td>
</tr>
<tr>
<td>Ability (n=40)</td>
<td>6.219</td>
<td>5.628</td>
<td>11.003</td>
<td>10.137</td>
<td>8.354</td>
</tr>
<tr>
<td>High Hypnotic</td>
<td>5.0</td>
<td>4.48</td>
<td>7.655</td>
<td>7.68</td>
<td>7.012</td>
</tr>
<tr>
<td>Ability (n=52)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Repeated Measures Analysis of Variance

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within Cells</td>
<td>2103.51</td>
<td>448</td>
<td>4.70</td>
</tr>
<tr>
<td>Condition</td>
<td>1164.09</td>
<td>4</td>
<td>291.02</td>
</tr>
<tr>
<td>Gender by Condition</td>
<td>15.00</td>
<td>4</td>
<td>3.75</td>
</tr>
<tr>
<td>Hypnotic Ability by</td>
<td>112.69</td>
<td>8</td>
<td>14.09</td>
</tr>
<tr>
<td>Condition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender by</td>
<td>11.63</td>
<td>8</td>
<td>1.45</td>
</tr>
<tr>
<td>Hypnotic Ability by</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condition</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

HYPNOTIC ABILITY in CHRONIC PAIN PATIENT and NORMAL SAMPLES

Wickramasekera 1999

HYPNOTIC ABILITY AND INSOMNIA

(W20 defined) with pathophysiology (apnea, etc) excluded in control and insomnia group

Wickramasekera, Ware & Green 1992
Hypnotic Ability, Neuroticism & Autonomic Nervous System Reactivity

![Graph showing interaction between Hypnotic Ability and Neuroticism](image)

The interaction of Hypnotic Ability and Neuroticism with respect to:

- Low
- High

**Hypnotic Ability:**
- Low
- High

**Perception:**
- Threat
- Maximal

**Negative Affectivity:**
- Perception of Threat
- Not Affecting Affectivity

**Exposure to Neuroticism:**
- Low
- High (≥75%)

Wickramaaskea et al. 1986, 1988

INCONSIOUS BELIEFS HAVE BIOLICAL CONSEQUENCES

*Out of mind is not out of body* (Wickramaaskea 1979, 1989, 1993)

EyeScleral Scale (Wickramaaskea 1980)
REPORTED MEAN PAIN EXPERIENCES ACROSS TWO GROUPS: HIGH HYPNOTIC SUSCEPTIBILITY/HIGH NEUROTICISM (H-H) VERSUS LOW-TO-MODERATE HYPNOTIC SUSCEPTIBILITY/LOW NEUROTICISM (LM-L)

PAIN MEASURES

<table>
<thead>
<tr>
<th>GROUPS</th>
<th>T-TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>H-H</td>
<td>N=13</td>
</tr>
<tr>
<td>LM-L</td>
<td>N=9</td>
</tr>
</tbody>
</table>

PAIN LEVEL

- 1.54 (SD .52)
- 2.25 (SD .89)

T = 2.34, p < .03

Note: Scores of all pain measures were rated in such a way that higher scores reflected less pain experiences.
ADJUSTED MEAN INCREASE IN SUBJECTIVE UNITS OF DISTRESS BY GROUP FROM BASELINE #2 THROUGH MATH TASK

73% (39/53) OF OBESE PATIENTS SHOW NO RETURN TO ED Baseline AFTER COGNITIVE THREAT (MENTAL ARITHMETIC STRESS).

31% OF OBESE PATIENTS SHOW A PARADOXICAL TEMPERATURE (°F) RESPONSE AFTER COGNITIVE THREAT (MENTAL ARITHMETIC STRESS).

HYPOTHESES (WICKRAMASEKERA 1979, 1988, 1993)

1. HYPERSENSITIVITY OF SNS
2. DISREGULATION OF ANS
3. SELF-SOOTHING WITH SUBSTANCE ABUSE
4. OVER 70% OF SOMATIZATIONS ARE DRIVEN BY UNCONSCIOUS FACTORS (DRAGONS)
PREDICTIONS FROM THE HIGH RISK MODEL OF THREAT PERCEPTION (OUTSIDE OF HYPNOSIS)

WICKRAMASEKERA (1979)

1. LOWS WILL SHOW REDUCED EXPLICIT THREAT PERCEPTION. (VERBAL REPORT)

2. HIGHS WILL SHOW AMPLIFIED EXPLICIT THREAT PERCEPTION. (VERBAL REPORT)

3. IMPLICIT THREAT MEASURES (e.g. EMG) WILL NOT BE DISCREPANT IN HIGHS AND LOWS.

4. IN MODERATES EXPLICIT AND IMPLICIT MEASURES WILL NOT BE DISCREPANT.

HYPOTHESES MECHANISMS OF THREAT PERCEPTION

HIGHs
B. CHRONIC OR INTUITIVE THREAT CAN TRIGGER H.P.A.A. AND ALTER ANS FUNCTIONS.
2. VULNERABLE TO REPRESSION OF THREAT: CAN BLOCK EXPLICIT BUT NOT IMPLICIT MEMORY. "OUT OF MIND IS NOT OUT OF BODY" (Wickramasekera 1988, 1993).
3. "SURPLUS PATTERN RECOGNITION" (Wickramasekera 1979, 1986, 1993): TENDENCY TO SEE "MEANING" IN EVENTS THAT ARE RANDOMLY DISTRIBUTED TO OTHERS. VULNERABILITY IN AND OUT OF HYPNOSIS TO:
- ILLUSIONS (Counsil & Loge 1988; Wallace et al. 1974)
- MEMORY DISTORTIONS (Dywan & Bowers 1983; Laurence & Perry 1983)
- MOOD ALTERATIONS, PARTICULARLY NEGATIVE AFFECTIVITY (Velten 1988; Crowson et al. 1991; Pettinati et al. 1980).
4. "PERMEABLE MEMBRANES" (SURPLUS EMPATHY).

LOWs
1. AVOID PSYCHOLOGICAL OR PSYCHIATRIC STUDIES.
2. TAKE HEALTH PROBLEMS TO MEDICAL SECTOR (DELAYED?).
4. WILL PRESENT ONLY SOMATIC SYMPTOMS.
REFERENCES


ADJUSTED MEAN INCREASE IN SUBJECTIVE UNITS OF DISTRESS BY GROUP FROM BASELINE #2 THROUGH MATH TASK

OBESITY (BMI) and HYPNOTIC ABILITY
WICKRAMASEKERA, ATKINSON, WITTENBERG & TURNER 1992

\[ \text{BMI} = \frac{\text{wt. in kg.}}{(\text{ht. in meters})^2} \]

73% (39/53) OF OBESE PATIENTS SHOW NO RETURN TO EDR BASELINE AFTER COGNITIVE THREAT (MENTAL ARITHMETIC STRESS).

31% OF OBESE PATIENTS SHOW A PARADOXICAL TEMPERATURE (°F) RESPONSE AFTER COGNITIVE THREAT (MENTAL ARITHMETIC STRESS).

HYPOTHESES (WICKRAMASEKERA 1979, 1988, 1993)

1. HYPERSENSITIVITY OF SNS
2. DISREGULATION OF ANS
3. SELF-SOOTHING WITH SUBSTANCE ABUSE
4. OVER 70% OF SOMATIZATIONS ARE DRIVEN BY UNCONSCIOUS FACTORS (DRAGONS)
Sample Distribution of Hypnotic Susceptibility

Hypnotic Ability in DSM-III Categories and Controls


**HYPNOTIZABILITY AND RECOVERY FROM CARDIAC SURGERY**


"Midrange" stabilized more quickly in the intensive care unit (ICU) than those who scored "High" or "Low" (p = .05).