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ANSAR Examination: Neurological Examination Methods to Ascertain Subconscious and Unconscious Reactions of Mind/Brain for any Specific Stimulus or Situation

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Abstract: This research paper introduces the ANSAR examination system, acronymed for examination of Autonomous Nervous System Activity Response. ANSAR examination comprises neurological examination techniques to ascertain the subconscious & unconscious reactions of mind/brain by observing the visible(Activity) reactions(Response) of the Autonomous Nervous System as explained in the paper.

I. INTRODUCTION & IMPORTANCE

It is imperative for doctors, especially psychologists & psychiatrists, to be aware of such methods to identify how the subconscious and unconscious parts of a patient's mind/brain are reacting to any specific stimulus or situation. Medical literature present all across the globe lack such knowledge. Such subconscious and unconscious reactions can be literally read by observing the visible involuntary neurological changes/reactions occurring in the body, namely through the well-known sympathetic & parasympathetic responses of the autonomous nervous system. Thus, this research paper introduces a few methods discovered by the author, presented as a toolkit of neurological examination methods for doctors, especially psychologists & psychiatrists, to ascertain the reactions of subconscious & unconscious parts of mind/brain in response to any specific stimulus or situation by analyzing changes in the state of autonomous nervous system using various mentioned methods. 'Stimulus' hereby refers to not only physical stimulus or sensory stimulus but also refers to psychological stimulus such as words, memories, thoughts, and so on. 'Situation' refers to any specific environment or its different modifications thereof.

This toolkit is of high importance for all clinicians as patients often lie - the conscious communication by patient is often mutilated by a wide number of cognitive biases, making it untrustworthy for ascertaining the truth. In contrast, the autonomous nervous system in body communicates visibly the reactions of subconscious & unconscious parts of mind/brain, which are seldom in conscious control, making it suitable to analyze those visible reactions of the autonomous nervous system to ascertain the true reactions of mind/brain, untainted by conscious ego or cognitive biases.

II. CORE THEORY

As the name suggests, ANSAR (Autonomous Nervous System Activity Response) examination ascertains the reactions of subconscious & unconscious parts of mind/brain in response to any specific stimulus or situation by analyzing the visible involuntary neurological changes/reactions occurring in the body - manifesting through the autonomous nervous system.

To understand better, let me give you a macro view of the neuro-psychological functioning of autonomous nervous system :

1) Autonomous Nervous System (ANS) is controlled subconsciously & unconsciously by the brain, naming the hypothalamus region to be specific.
2) The hypothalamus triggers sympathetic response in ANS whenever the brain/mind perceives elements of danger or threat in overall environment
3) The hypothalamus triggers parasympathetic response in ANS whenever the brain/mind perceives elements of familiarity or safety overall environment.
4) These perceptions by hypothalamus can either by real (sensory perceptions) or virtual (memory remembrance or imagination) as defined in 'stimulus' above.

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Therefore, while examining the Activity Response of the Autonomous Nervous System (i.e. ANSAR), we can perceive either of the following possibilities in reaction to any given stimulus or situation :

1) When any neurological marker of Sympathetic response in ANS is visible, the patient is perceiving a threat or danger.
2) When any neurological marker of Parasympathetic response in ANS is visible, the patient is perceiving safety or familiarity.
3) No change at all in the activity Response of ANS - **indifference** in perception.

An important thing to note is that in ANSAR examination, similar to all other neurological examinations, we analyze only deviations, i.e. only reactions/changes in ANS in response to specific stimulus or situation are to be observed.

Apathy has to be taken into consideration - that the stimulus or situation, i.e. the environment either in part or whole, does not always produce a response or reaction, there are times when the attention of observer is focused on internal thought processes like imagination or daydreaming and thus misses to perceive from senses the stimulus or situation at all.

Having said that, for all practical & clinical purposes, ANSAR examination works best.

III. CLASSIFICATION SYSTEM IN ANSAR EXAMINATION

The innervations of the ANS are spread widely throughout the body, thus the Activity Response of ANS can be examined by observing many aspects of neuromuscular exhibitions. These different neuromuscular exhibitions of ANS can be interpreted in different aspects, enabling the clinician to ascertain a variety of contexts in which the sympathetic or parasympathetic response is occuring. Many such methods of ANSAR examinations are given in this toolkit. Sympathetic response ascertained through one method might imply a different meaning than sympathetic response ascertained through another method, and same for parasympathetic response - in other words, different methods of ANSAR examination give different meanings to sympathetic & parasympathetic responses.

Speaking strictly as a neuroscientist in purely technical terms, different subconscious & unconscious parts and processes of mind/brain triggers the ANS in different ways through the hypothalamus.

Common across all the methods of ANSAR examination given hereafter, here are the 5 broad classifications of the

Activity Response of ANS, as follows:

1) Significantly Sympathetic Response (denoted using **S++**)
2) Mildly Sympathetic Response (denoted using **S+**)
3) Neutral/no response (denoted using **N**) (refer to 'apathy' and 'indifference' as mentioned earlier in bold text)
4) Mildly Parasympathetic Response (denoted using **P+**)
5) Significantly Parasympathetic Response (denoted using **P++**)

As explained above, reiterating for clarity, these different responses will be interpreted in different ways in different methods, for example, S++ response obtained using a particular method will have a different interpretation than the S++ response obtained using any other method, P++ response obtained using a particular method will have a different interpretation than the P++ response obtained using any other method, and so on. These differences in interpretations are explained for each method of ANSAR examination as follows.

A. How to Differentiate Between mild & Significant Responses

There are multiple methods of examining the Activity Response of the ANS. When through any single method of examination, a response is obtained, that such sympathetic or parasympathetic response obtained through a single method of examination will be considered as a mild response (S+ or P+).

Whenever any specific sympathetic or parasympathetic response is confirmed simultaneously by more than one method of ANSAR examination, such specific response shall be considered as a significant response (S++ or P++).

The only exception is the method of Body Language examination (ANSAR-BL), in which all responses are to be considered significant only (S++ or P++).

IV. INTERPRETATION OF RESPONSES

A. Sympathetic Response

Ideally known as the Fight or Flight or Freeze response - produced during times of stress and dealing with uncertainty, either real or imagination. Fight implies anger, Flight implies fear, and Freeze implies trauma caused either by anger or fear. It is also triggered by sexual arousal.

B. Parasympathetic Response

Ideally known as the Rest, Recover & Digest response - produced during times of relaxation and dealing with familiar objects, either real or imagination. Parasympathetic state is the normal relaxed state - deviations caused by anger, fear, trauma or sexual arousal triggers the sympathetic response.

V. METHODS OF ANSAR EXAMINATIONS

A. Pupil Dilation (ANSAR-PD)

The pupil of both eyes dilate and constrict in real-time when sympathetic and parasympathetic responses occur respectively. These responses usually occur for durations of a few seconds. While examining the dilation or constriction of pupils, other causes of pupil dilation/constriction have to be carefully ruled out, such as changes in intensity of light, changes in object of focus, excessive drug and alcohol use, fear, alterations in ambience, eye injury, brain damage, etc. which can be done easily in clinical setting.

Thus, while ascertaining the Activity Response of the Autonomic Nervous System by examining Pupil Dilation (ANSAR-PD), when all other known factors which cause pupil dilation/constriction are ruled out, we can safely interpret the dilation of pupils as a real-time marker of Sympathetic response, and the constriction of pupils as a real-time marker of Parasympathetic response.

B. Voice Modulation (ANSAR-VM)

Even though Voice Modulation can be done consciously at will, still the demarcations between Sympathetic & Parasympathetic responses can be perceived. By voice modulation we refer to the changes in pitch, tone & volume of the sound produced by mouth + vocal cords. Although the pitch, tone & volume of voice can be changed consciously at-will, our brain naturally lacks the capacity to consciously control these factors on word-to-word Response while speaking unplanned coherently - in short, voice modulation is essentially a subconscious or unconscious process when observing on word-to-word Response. We observe that people change their voice's pitch, tone & volume multiple times within sentences, each indicative of sympathetic or parasympathetic responses to the elements within those sentences, such as different words or different meanings conveyed through a set of words.

During sympathetic response, in real-time, voice becomes more formal in tone, more sharp (high-pitch / tensed) in pitch & high in volume. During parasympathetic response, in real-time, voice becomes more informal in tone, more deep (low-pitch / relaxed) in pitch & low in volume.

C. Body Language (ANSAR-BL)

The extreme of sympathetic or parasympathetic response produces observable body gestures, synonymous with body language. All the individual gestures in body language are divided broadly into these two categories by the mainstream

Open body language : gestures produced when feeling safe - extreme of parasympathetic activity response of ANS.

Closed body language : gestures produced when dealing with uncertainty, such as fear, confusion, and so on - extreme of sympathetic activity response of ANS.

Changes in body language/gestures do happen in real-time but only as an extreme of response. A simple way to differentiate between open & closed body language is to understand the neuropsychological fact that when a body's sympathetic nervous system is active, the body shrinks itself in space such a way to protect/hide the vital organs of the body. It is the very same reason people cross their arms when uncomfortable to unconsciously protect their heart, people touch/cover mouth & throat areas while lyings or speaking risky words, and so on. To understand the sympathetic shrinking, just imagine how we shrink in cold to keep all vital organs warm.

As mentioned earlier, the parasympathetic response is the normal relaxed state, where the person will drop-hang-relax their body exposing all vital parts of the body. To understand the parasympathetic response better, understand that the body uses extreme parasympathetic response to induce sleep - by drop-hang-relax all muscles.

D. Respiratory & Pulse Rate (ANSAR-RPR)

A sudden rise in pulse rate and respiratory rate simultaneously, after ruling out any possible physiological stress, can be considered to be a sympathetic response, whereas a sudden drop in pulse rate and respiratory rate simultaneously, after ruling out any possible physiological relaxation, can be considered to be a parasympathetic response.

More methods of ANSAR examination are being researched upon by the author which will be published subsequently in further research papers.

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VI. DISCUSSION

It is well known in modern scientific literature about the functioning of autonomous nervous system, but amidst the advanced complicated structured knowledge, we should not forget that it is really the hypothalamus in brain which controls the autonomous nervous system - it is the hypothalamus which will decide whether a sympathetic or parasympathetic response should be instructed down the neurons any reaction to any specific stimulus or situation. How does the hypothalamus decide? Through a well known circuit in the brain known as 'Amygdala' to be specific, or the complete limbic system of the triune brain classification to be accurate.

By 'stimulus' we refer to any specific input of data from any sensory organ and by 'situation' we refer to the complete set of sensory input by all sensory organs combined. When any stimulus or situation after being received from the sensory organ(s) goes to the brain in the form of electrochemical data, different circuits and brain work together to ascertain the meaning and to react accordingly - this overall reaction is carried out by the physical body by the brain through the autonomous nervous system by either responding sympathetically or parasympathetically, depending upon that stimulus or situation.

What makes the reactions of different individuals unique is the social conditioning of the brain/mind - the memories and experiences since our birth, shapes the circuits in our brain, and as each human has had different experiences in life and different set of memories, each human has a very unique brain that processes information uniquely resulting in different reactions to different stimulus and situations. Having said that, The functioning of the autonomous nervous system remains identical across the species - meaning all humans use the same autonomous nervous system and exhibit similar reactions consciously and unconsciously in various categories of reactions to various stimulus and situations, depending on their subjective unique brain/mind programming.

ANSAR examination system is an effort by the author to provide the community with adequate methods and knowledge to interpret these signals by the autonomous nervous system for the purpose of ascertaining the subconscious and unconscious reaction of a person for any specific stimulus or situation.

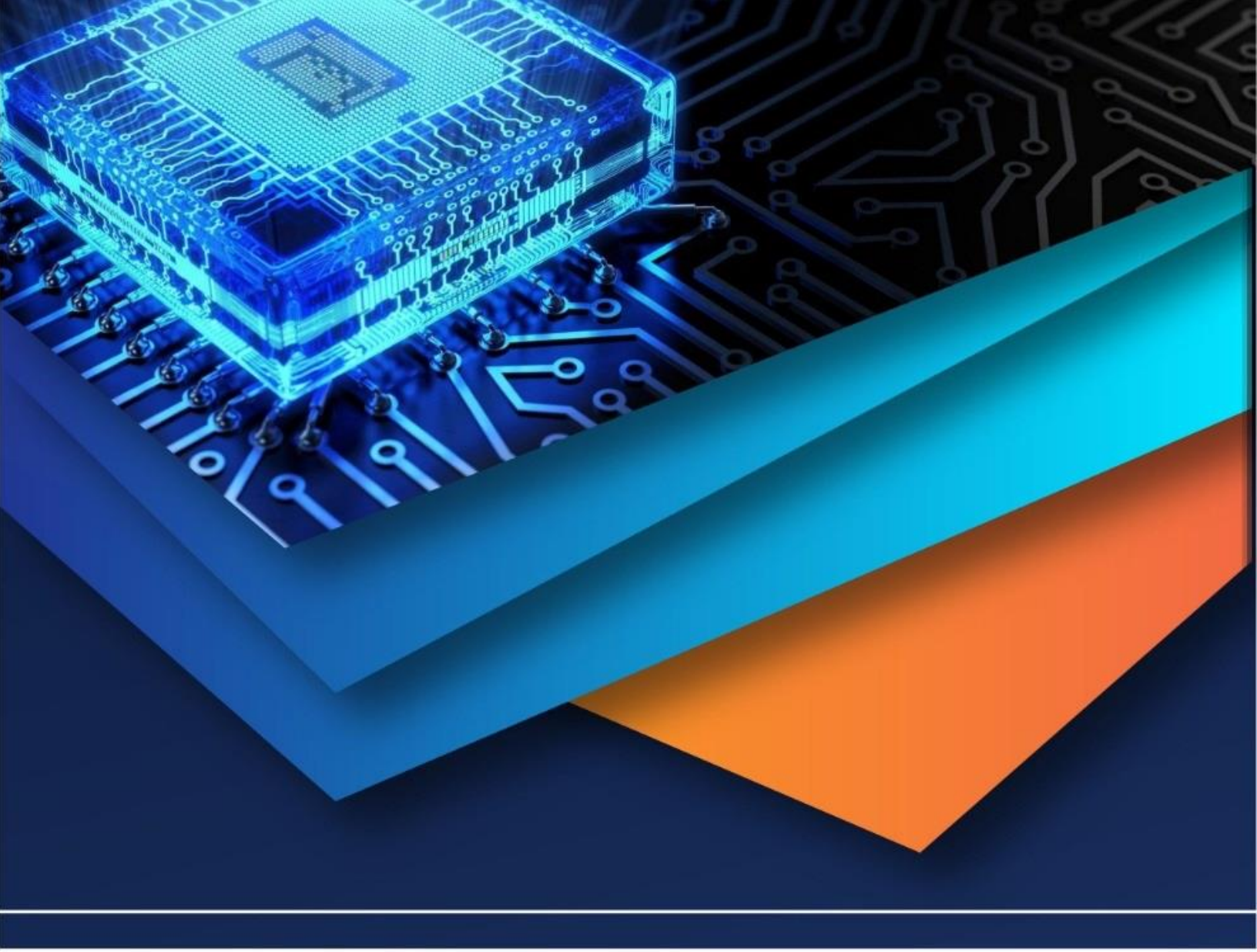
As mentioned in beginning, these examination methods are specifically useful for psychologists and psychiatrists - just to hint about how greatly these methods of examinations can be used to recognise which specific words or which parts or specific elements of sentences, that a person is speaking or listening to, are making that person feel specific emotions associated with sympathetic response or otherwise, no matter if they are contradicting it consciously by spoken language, as many clinical patients do. This would drastically help a lot of therapists to understand the subconscious & unconscious structure of their patient's mind.

These ANSAR examination techniques can also be used by the military for interrogations, lie detections, and so on.

Lie detection can be done very easily and very effectively using ANSAR examination methods - speaking a lie will definitely trigger an observable sympathetic response, no matter how mild.

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