Course Description

PSYM17–CH–105: Health Psychophysiology and Psychoneuroimmunology

Aim of the course

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To learn about bio-medical, psychophysiological and psychoneuroimmunological backgrounds, and about psychophysiological pathological features of psychosomatic and somatization disorders and diseases, within the frame of the bio-psycho-social theory.

Acquired competencies

Knowledge

The student:

- Knows regulation of the visceral organs, including structure and operation and of input and output and central regulation of the visceral organs, respectively.
- Should be familiar with the psychophysiological aspects of emotions and motivations and with the modern interpretation of the homeostasis.
- Has systems-based knowledge about the relationship of health and disease.
  - Is familiar with psychophysiology and complex organization of pain, knows about main therapeutic methods treating pain.
  - Knows structure and function of the immune system, and the possible relationships within the immune-neuroendocrine network.
  - Becomes familiar with results of the psychoneuroimmunological research, especially regarding stress, life-style, and psychiatric dysfunctions.
- Gets an overview about the immunological consequences of different psycho-social interventions.

Attitude

The student’s:

- Attitude is based on the systems theory.
- Preferences are organized around the bio-psycho-social theory.
- Interest is wide and multifunctional, being open to analyzing and understanding psycho-somatic and somato-psychic processes.

Abilities

The student becomes able:

- To orient in the relevant literature with proper criticism.
- To understand and handle psychophysiological and psychoneuroimmunological publications.
- To co-operate with the physicist staff in diagnosing and treating psychosomatic patients, and represents an interactive approach.

Content of the course

Major topics

I. Psychophysiology block
   a. Structure and operation of the visceral system.
b. Visceral input, sensation and perception.
c. Central nervous aspects and outputs of the visceral regulation.
d. Mechanisms of drives, emotions and motivations.
e. Homeostasis and variostasis.
f. Psycho-social mechanisms in the background of visceral functions.
g. Disorders and maladaptive accommodation of the visceral functions.

II. Aging and pain block
a. Process and theories of aging.
b. Psychophysiology of aging.
c. Definitions, organization and models of pain.
d. Nociception and pain types.
e. Measuring and alleviating pain.
f. Psychological management of pain.

III. Stress-plasticity block
b. Possibilities and consequences of long-term modification of the stress-axes (programming stress-axes) regarding mental and somatic health.
c. Individual differences and the role of individual-environment interactions in stress reactivity.
d. Advantages and disadvantages of plasticity; changes of central nervous mechanisms in the background of somatic and somatization disorders (time-dependent sensitization, olfactory-limbic model, sickness model, neurogenic inflammation model); epigenetic results.

IV. Psychoneuroimmunological block
a. Structure, operation of the immune system and measurement methods.
b. Relationships of the immune functions to the neuro-endocrine system.
c. Effect of stress on the immune system.
d. Relationship of life-style (nutrition sleep, drug-use, physical activity) to the immune functions.
e. Immune features in psychiatric disorders.
f. Effects on the immune functions of psycho-social interventions.

Learning activities, learning methods
Frontal lectures with an emphasis on proper demonstrations and on interactive thinking by presenting short tasks.
### Evaluation of outcomes

**Learning requirements, mode of evaluation, criteria of evaluation:**

**requirements**

- Being familiar with the topics of the lectures.
- Knowing the compulsory literature.

**mode of evaluation:**

**Type of the final mark:** written and oral exam (marks 1 to 5)

- Written exam of the Psychophysiology and Pain blocks (40%)
- Written exam of the Stress-plasticity and Immune system blocks (30%)
- Oral exam: Interpretation of a psychoneuroimmunological publication and its association to the material of the whole course. (30%)

**Aspects of the evaluation:**

- Extent of the basic knowledge.
- Ability to apply the knowledge in evaluating and interpreting scientific publications.

### Reading list

**Compulsory reading list**


Recommended reading list