

# **Metabolic Syndrome and Psychiatric Profile in a Sample of Egyptian Patients with Obstructive Sleep Apnea**

## **Thesis**

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in Psychiatry

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وَأَنْزَلَ اللَّهُ عَلَيْكَ  
الْكِتَابَ وَالْحِكْمَةَ  
وَعَلَّمَكَ مَا لَمْ تَكُنْ  
تَعْلَمُ وَكَانَ فَضْلُ  
اللَّهِ عَلَيْكَ عَظِيمًا  
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*Candidate*

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## List of Abbreviations

Abbr.	Full-term
<b>ACTH</b>	: Adrenocorticotrophic hormone
<b>AHI</b>	: Apnea-hypopnea index
<b>ASUIP</b>	: Ain Shams University Hospitals
<b>ATPIII</b>	: Adult Treatment Panel III report
<b>BMI</b>	: Body mass index
<b>CCK</b>	: Cholecystokinin
<b>CHD</b>	: Coronary heart disease
<b>CPAP</b>	: Continuous positive airway pressure
<b>CRH</b>	: Corticotropin Releasing Hormone
<b>CRP</b>	: C-reactive protein
<b>ED</b>	: Erectile dysfunction
<b>EMG</b>	: Electromyogram
<b>EOG</b>	: Electrooculogram
<b>FP1, FP2</b>	: Fronto-parietal scalp electrodes
<b>GC</b>	: Glucocorticoid
<b>GH</b>	: Growth hormone
<b>GLP</b>	: Glucagon-like peptide
<b>HAM-A</b>	: Hamilton Anxiety Rating Scale
<b>HBP</b>	: High blood pressure
<b>HDL</b>	: High density lipoprotein
<b>HPA</b>	: Hypothalamus-Pituitary Adrenal
<b>HRSD</b>	: Hamilton Rating Scale for Depression

**IR** : Insulin resistance

## **List of Abbreviations (Cont.)**

**Abbr.**

**Full-term**

**LDL** : Low density lipoprotein

**LH** : Lateral hypothalamus

**LOC** : Left outer canthus

**mPFC** : Medial prefrontal cortex

**Mets** : Metabolic syndrome

**OSA** : Obstructive sleep apnea

**OSA** : Obstructive sleep apnea syndrome

**PLMs** : Periodic leg movements

**PRL** : Plasma prolactin

**PSG** : Polysomnography

**PYY** : Peptide YY

**RAAS** : Renin-angiotensin-aldosterone system

**RDI** : Respiratory disturbance index

**REM** : Rapid eye movement

**ROC** : Right outer canthus

**SBD** : Sleep breathing disorder

**SCID I** : Structured Clinical Interview for DSM-IV

**SCN** : Suprachiasmatic nuclei

**SD** : Standard deviation

**SFSR** : Sleeping to Forget and Sleeping to Remember

**SREBP-1** : Sterol regulatory element-binding protein 1

**SWS** : Slow wave sleep

## **List of Abbreviations** *(Cont.)*

<b>Abbr.</b>	<b>Full-term</b>
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<b>TRH</b>	: Thyrotropin-Releasing Hormone
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<b>vmPFC</b>	: Ventromedial Prefrontal Cortex
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<b>WHO</b>	: World Health Organization
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<b>WMH</b>	: White matter hyperintensities
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## Introduction

Sleep is important in regulating metabolism; Metabolism involves two biochemical processes that occur in living organisms. The first is anabolism, which refers to the buildup of molecules. The second is catabolism, the breakdown of molecules. These two processes work to regulate the amount of energy the body uses to maintain itself. During non-REM sleep, metabolic rate and brain temperature is lowered to deal with damages that may have occurred during time of wakefulness(*Sharma et al., 2011*).

It is believed that during normal sleep the metabolic rate reduces by around 15% and reaches a minimum in the morning in a standard circadian pattern (*Goldberg et al., 1988*).

Glucose utilization in normal subjects is highest during wakeful state and lowest in NREM sleep and intermediate in REM sleep(*Van Cauter et al., 1997*).

Growth hormone and cortisol are two hormones that have an impact on glucose regulation. Growth hormone is typically elevated at onset of sleep with highest levels during slow wave sleep (SWS) while cortisol levels are greatly increased during the second half of the sleep, predominantly in REM sleep(*Turck et al., 1994*).