

## **Toward an integrative model of maladaptive Spontaneous Task-Unrelated Thoughts (STUT). Processual and functional approach.**

Spontaneous Task-Unrelated Thoughts (STUT) are an extensive category of mind-wandering including daydreaming, thought divagation and rumination, i.e. repetitive negative thinking. STUT can be defined as an engagement in mentation, that occurs unintentionally, and which is unrelated to one's current activity and surroundings. This type of thinking might be considered as a normal, everyday life, mental activity, it happens to all of us every day and sometimes several times by day. However, some studies suggest, that under certain circumstances it might be related to negative affect, lower life satisfaction and represents a risk factor for psychological disorders such as depressive disorders., i.e. one of the leading causes of disabilities among psychiatric disorders worldwide according to WHO. An important question remains: why for some people MW might be maladaptive taking a form of negative repetitive thinking and lead to increased risk of psychological disorders like depression and anxiety, while for others it is a normal activity not leading to negative consequences? In order to efficiently prevent negative outcomes of STUT, it is first necessary to verify what process or processes are responsible form this transition between normal everyday activity that happens to everyone and maladaptive STUT increasing the risk of psychological disorders.

Current research suggests that those factors might be linked to (1) our way of thinking about task unrelated issues (whether this thinking is concrete, self-referent, future or past-oriented), (2) to our self-control and attentional resources (whether we are able to stop STUT once we realize that they are interfering with our ongoing activity), but also to (3) our trait disposition to use STUT or repetitive negative thinking and (4) to the function that STUT might serve (for example planning or anticipating the future or escaping from too difficult or too boring task). However, all those factors identified in the literature were never previously taken into account in one model, and most of the studies are focused only on one of those factors. The aim of the current research project is to create and empirically test an Integrative Model of Spontaneous Task Unrelated Thoughts including both processual (way of thinking executive and attentional resources) and functional factors of STUT maintenance. Creating an integrative model should be helpful in determining what precise factors are responsible for the fact that maladaptive STUT will impair our emotional regulation.

In the present project three types of studies are scheduled. The aim of the first study, a meta-analysis, is to identify, in already published studies, what processual factors are responsible for the negative impact of maladaptive STUT on emotional regulation in participants' daily functioning. In study 2 we plan to test, in ecological settings the impact of those identified processual factors (STUT characteristics, executive and attentional functioning) on the momentary use of STUT. A key element is the ecological character of the study – STUT will be evaluated during participants' everyday activity. They will be provided with an application for their personal smartphones, that for 7 days, several times by day, will be sending a short series of questions. They will be also equipped with a sensor (similar to the heart rate monitoring belt) measuring heart rate variability enabling to asses physiological proxy of STUT occurrence. The attentional and executive functions will be measured with eye-tracking, a device that registers eye-movement. In the third study, we will focus on the function of STUT. The functional factors of STUT maintenance are directly linked to its adaptive vs. maladaptive outcomes and to the frequency of STUT occurrence. One of the main challenges in this study is the fact that the function of STUT (e.g. avoidance) is usually not conscious and thus, we can not use only self-reported questions to assess it, but also an experimental procedure is needed. In order to be as close as possible to the ecological settings of everyday activity, but to keep however the possibility of controlling experimental settings in the laboratory, we will use the virtual reality (VR) in Study 3. We will induce STUT in participants when they will be preparing for a stressful activity (public speaking in VR), we will measure whether STUT plays a planning or avoidance function. In this study, we will use, physiological (heart rate variability, eye-tracking), behavioral and self-report measures of STUT.

The studies planned in the present project and the creation of Integrative model of STUT including processual and functional factors of maintenance will provide, in the long term perspective, a solid theoretical basis for the further fundamental research on STUT, but will also contribute to improving the efficiency of prevention and treatment of maladaptive STUT – one of the risk factors for psychological disorders.