# A System Dynamics Approach Model For Quitting Smoking Behaviour and An Analysis in Turkey

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## Abstract

It is very important to understand the factors affecting tendency of smoking for healthcare and public policies. Smoking is a major risk factor for health. Smoking cigarettes kills more than alcohol, car accidents, HIV, guns and illegal drugs combined according to the American Cancer Society. In order to manage public policies for the success of smoking cessation, it is essential to understand how this behaviour can be affected and what the important factors are. Tobacco smoking habit is defined as a psychiatric disorder including cognitive, behavioural and physiological symptoms by American Psychiatric Association. Since it is defined as a behavioural disorder we need to make clear understanding of what stages exist and how can they be handled in this behavioural change. This study is done in order to demonstrate the quitting smoking behaviour with stages using System Dynamics (SD) methodology. The Theory of Planned Behaviour (TOPD) and The Stages of Change model (SoC) explains how human behaviour is guided. Different factors which affect quitting smoking behaviour are extracted from these theories. The proposed system dynamics model provides important findings about quitting smoking behaviour model. And these findings can guide the policymakers to improve the behavioural change in smoking addiction.

**Keywords**
Smoking
Behaviour change
System dynamics
Smoking dynamics
Smoking cessation

## Biographies

**Ugur Hosyilmaz** was born in İzmir in 1986. He graduated from the Department of Industrial Engineering of the Turkish Air Force Academy in 2009. After graduation he worked as a provost marshal officer in NATO Air Command in İzmir. He still works as a security officer in the Turkish Air Force. He is continuing his master's degree in Engineering Management at Arel University in Istanbul

**Volkan Cakir** was born in Balikesir in 1970. Following his graduation from Turkish Air Force Academy Istanbul with B.Sc. in electronics engineering with the rank of lieutenant in 1992, he worked as logistics officer for 20 years. He is retired with the rank of lieutenant colonel in 2012. During this period, he obtained his M.Sc. in industrial

engineering from Middle East Technical University, Ankara in 2001 and Ph.D. in engineering management at the Old Dominion University, Norfolk, Virginia in 2011. Between 2001-2011, he served as a Lecturer in the Turkish Air Force Academy. Following his retirement in 2012, he started working as assistant professor at the Department of Industrial Engineering in Istanbul Arel University. His main research areas are simulation, statistical quality control, system dynamics, operations management and risk analysis. He is currently the head of the same department and vice director of the Institute of Sciences.