

COVID-19 lockdown impact on lifestyle habits of Italian adults

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Abstract. In March 2020, when the Government imposed nation-wide lockdown measures to contrast the COVID-19 outbreak, the life of Italians suddenly changed. In order to evaluate the impact of lockdown on lifestyle habits and behavioral risk factors of the general adult population in Italy, we set up the *Lost in Italy* (LOckdown and lifeSTyles IN ITALY) project. Within this project, the online panel of Doxa was used to conduct a web-based cross-sectional study during the first phase of the lockdown, on a large representative sample of adults aged 18-74 years (N=6003). The self-administered questionnaire included information on lifestyle habits and perceived physical and mental health, through the use of validated scales. As we are working within the *Lost in Italy* project, we got two additional grants to further research on the medium-term impact of lockdown, a topic of great interest and with anticipated large socio-economic and public health implications. In details: we obtained by the AXA Research Fund support to evaluate the impact of COVID-19 lockdown on physical, mental, and social wellbeing of elderly and fragile populations in the Lombardy region, the area most heavily hit by the pandemic in the country. Moreover, as a fruitful integration, we obtained support by the Directorate General for Welfare of the region to assess health services delivery and access to healthcare in the same study population, combining an analysis of administrative databases with an economic analysis. We are confident that the solid background of our partners, the multi-disciplinary competencies they bring, together with appropriate funding and access to rich data sources will allow us to fulfill our research objectives. (www.actabiomedica.it)

Key words: COVID-19; lockdown; lifestyles; Italy; cross-sectional study

Italy has been within the European countries with the earliest and heaviest coronavirus disease 2019 (COVID-19) burden (1). To contrast the COVID-19

outbreak, since 9 March 2020 Italians have been under lockdown, with most workplaces and public places, including schools, shops, bars, and restaurants, closed,

and nation-wide stay-at-home order imposed by the Government through 17 May (2). The life of millions of Italians has suddenly changed (3) and lifestyle habits have been substantially modified, with possible short-term consequences on health. The restrictions likely resulted in reduced physical activity, modified dietary habits, smoking and alcohol consumption, as well as altered family relationships and working routine, with ultimate impact on quality of life and psychological well-being (5). In addition, long-term and unequally distributed socio-economic effects of COVID-19 response are anticipated. Evaluating population-level health impact of the current public health emergency is a complex task with distal determinants, laying within health systems, welfare, and economy, and proximal determinants still far from being quantified and explored.

We established a multi-disciplinary consortium with the aim of evaluating the short and medium-term impact of lockdown measures on lifestyle habits and behavioral risk factors of the adult general population in Italy. The consortium comprises representatives of the Italian National Institute of Health, the National and Regional Health Service, research institutes and the academia with expertise in the field of economics, social sciences, epidemiology, public health, and clinical medicine (i.e., internal medicine and mental health). The consortium set up the *Lost in Italy* (LOCKdown and lifeSTyles IN ITALY) project. Within this project, a cross-sectional investigation has been conducted during the first phase of the lockdown (i.e., from 27 April to 3 May 2020) on a large representative sample of Italian adults aged 18-74 years. Six-thousand-three subjects were recruited through the online panel of Doxa - the Italian branch of the Worldwide Independent Network/Gallup International Association - and filled in an online self-administered questionnaire. Information has been collected on demographic and socio-economic characteristics, selected lifestyle habits, including tobacco smoking, use of e-cigarettes and heated tobacco products (HTP), alcohol consumption, addictions and gambling, social relationships, and perceived physical, and mental health. The survey tool was developed through experts' consensus, combining and integrating, when available, previously used tools and validated scales. The questionnaire pre-

post design allowed us to explore how characteristics of interest had been modified by lockdown measures. The protocol of the study was approved by the ethics committee (EC) of the coordinating center (EC of Istituto Besta, file number: 71-73, April 2020). After data collection completion, we have now defined a list of priority research questions which will be answered in the weeks and months to come. The research outputs will offer insight on the impact of the COVID-19 lockdown in Italy on selected behavioral risk factors, their determinants, and their distribution in different socio-economic strata.

Preliminary results - presented by the National Institute of Health on World No Tobacco Day 2020 - showed decreased smoking prevalence (from 23.3% to 21.9%) but increased number of cigarettes per day among smokers (from 10.9 to 12.7 cigarettes per day), resulting in an overall percent increase by 9.1% during the lockdown in Italy. An increase has been also observed in the prevalence of e-cigarette (from 8.1% to 9.1%) and HTP users (from 4.0% to 4.5%) (6). As soon as evidence from the *Lost in Italy* study accumulates, we will have elements to build a comprehensive and detailed picture of societal, household, and individual-level changes introduced by lockdown measures in Italy.

Building on the outputs from the *Lost in Italy* study, we plan to further investigate the medium-term impact of COVID-19 public health emergency and response on elderly and fragile populations, which represents a sub-group of the general population at higher risk of: i) developing more severe and deadly COVID-19, ii) being negatively impacted by decreased demand and supply of non-COVID-19 healthcare services in time of crisis, and - last but not least - iii) suffering disproportionate socioeconomic consequences of confinement and social distancing measures. In this context, part of our consortium submitted a successful grant proposal to the AXA Research Fund and will work during the next 18 months to conduct an impact evaluation of COVID-19 on physical, mental, and social wellbeing of this high-risk population in the Lombardy region, the area most heavily hit by the pandemic in the country (7). The protocol includes the conduction of a cross-sectional study on a representative sample of the elderly population (≥ 65 years) in Lombardy. We also obtained by the Directorate General for Welfare of the

Lombardy Region the financial support for a companion project aimed at evaluating health services delivery and access to healthcare in this high-risk population, combining an analysis of administrative databases with an economic analysis in Lombardy region.

We have an ambitious research plan and a considerable amount of work ahead of us; still we are confident that the solid background of our partners, the multi-disciplinary competencies they bring, together with appropriate funding and access to rich data sources will allow us to fulfill our research objectives. We will be able to timely provide solid evidence on the effects of COVID-19 containment measures on behavioral risk factors, physical and mental health in Italy and in Lombardy, so as to identify subjects at higher risk, inform the planning and implementation of targeted mitigation interventions, as well as strengthen preparedness for future public health crisis.

Conflict of interest: Each author declares that he or she has no commercial associations (e.g. consultancies, stock ownership, equity interest, patent/licensing arrangement etc.) that might pose a conflict of interest in connection with the submitted article

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