

Report on Bachelor Thesis

Institute of Economic Studies, Faculty of Social Sciences, Charles University

Student:	Julie Kristýna Balážová
Advisor:	PhDr. Mgr. Jana Votápková, Ph.D
Title of the thesis:	Who is more prone to depression? Analysis of micro-level data of patients with cancer.

OVERALL ASSESSMENT:

Short summary

The thesis focuses on factors that influence the likelihood of developing depression among cancer patients. It also evaluates whether being diagnosed with COVID-19 significantly affects developing depression. The author uses data from the U.S. National Health Interview Survey from 2022. Two dependent variables are examined: the probability of taking medication for depression or anxiety, and severity of depression symptoms. Two models are used in the analyses: the logit model and multinomial logistic model. The effect of several independent variables is examined, namely sociodemographic characteristics, household composition, educational level, health status, life satisfaction and response to COVID-19. The author presents multiple models which are fit on five samples: the entire original sample, which is further divided into a subsample of non-cancer respondents and a subsample of cancer respondents. The subsample of cancer respondents is further divided into two small samples based on how long patients have been living with the diagnosis (less than 7 years and 7-15 years). The results show that COVID-19 increases the probability of having depression among people without cancer, but this effect is not found in the subsample of cancer patients. Furthermore, women are more prone to depression and higher age has negative (and quite small) effect on the occurrence of depression. Higher level of education has a positive effect on developing depression in general population but not among people being treated with cancer.

Contribution

The thesis contributes to current literature by examining the effect of several factors on the onset or severity of depression, with a special focus on cancer patients and COVID-19 pandemic. It aims to find out what factors decrease the probability of depression in people diagnosed with cancer. It uses the most up-to-date data on the sample of U.S. population from 2022. The novelty of this work stems in assessing the effect of COVID-19 pandemic on developing depression among cancer patients. The analyses confirm the hypothesis that the pandemic did not influence the onset, nor the severity of depression among cancer patients, while it increased the risk of developing depression and the severity of depression among general population and also the non-cancer sample. Going through cancer and surviving it significantly reduces the likelihood of depression, while intuitively, being diagnosed with cancer increases the chances of depression. The results also suggest that being female and living alone both increase the chance of having depression. Thus, clinical practice guidelines and developers of health apps should focus more on these risk groups, as they are prone to depression.

Methods

The aim of the thesis is clearly stated and explained. The tools used in the analysis are relevant to the objectives of the thesis, and adequate to the author's level of studies. The data come from the National Health Interview Survey, which is a large cross-sectional dataset based on a household interview survey whose main objective is to monitor the health of the United States population. The dataset is carefully presented, the dependent and independent variables are described and observations that had to be excluded due to atypical values are mentioned as well. Two econometric models are introduced: logit model which examines the effect of independent variables on the probability of taking medication for depression or anxiety (a binary variable), and multinomial logit model to examine the relationship between independent variables and severity of depression symptoms. Average marginal effect is derived, which serves for interpretation of results. The likelihood ratio test is used to determine which model fits the data better, and Hosmer-Lemeshow Test is used to test the goodness of fit of the models. The conditions necessary for the model estimation are verified and commented on. The analysis also includes several robustness checks where the whole sample is divided into four different subsamples: a subsample of non-cancer respondents, a subsample of

Report on Bachelor Thesis

Institute of Economic Studies, Faculty of Social Sciences, Charles University

Student:	Julie Kristýna Balážová
Advisor:	PhDr. Mgr. Jana Votápková, Ph.D
Title of the thesis:	Who is more prone to depression? Analysis of micro-level data of patients with cancer.

cancer respondents, and the subsample of cancer respondents is further divided into two small samples based on how long patients have been living with the diagnosis.

Literature

The author does a very good job summarizing available studies on the topic of types of cancer, risk factors that can contribute to the onset of cancer and the relationship between cancer and depression. The relevant studies are very well presented in the thesis and demonstrate the author's knowledge of recent literature, with clear referencing.

Manuscript form

The thesis is written in very good academic English with minimum typos. It is structured well, with clear referencing to tables, results and bibliography.

I only have a few minor comments:

- I would prefer having the comparison of results with other studies in the discussion rather than conclusion.
- The thesis contains a nice evaluation of the models in the Appendix. I would appreciate a few notes about this evaluation in the main body of the thesis.
- When citing an online resource, it is common to provide the date of access.
- I would welcome stressing the contribution of this analysis which I think did not receive enough attention in the thesis.
- In the results section, there is one a little bit confusing interpretation: "From the regression results we see can that the effect of symptcvd (coronavirus symptoms) is statistically insignificant at any reasonable level of significance. Thus, our assumption about the influence of COVID-19 on depression among cancer patients can be supported." This may make the reader think there is influence of COVID-19 on depression among cancer patients. I would rephrase the second part as: "Thus, our assumption about no influence of COVID-19 on depression among cancer patients can be supported."

Overall evaluation and suggested questions for the discussion during the defense

The thesis examines the determinants of depression among cancer patients and it analyses the effect of severity of COVID-19 symptoms on the onset/severity of depression among general population and cancer patients. It concludes that the depression among cancer patients is not influenced by the severity of COVID-19 symptoms, while the opposite effect is observed among general population.

In my view, the thesis fulfills the requirements for a bachelor thesis at IES, Faculty of Social Sciences, Charles University, I recommend it for the defense and suggest a grade A. The results of the Turnitin analysis do not indicate significant text similarity with other available sources.

The thesis is written in good English and it was a pleasure to read. For the defense, the author could discuss:

1. Please stress the contribution of the thesis.
2. Substance abuse is one of the factors that can contribute to developing depression. If there are data available on substance abuse in the NHIS, did you try to include it in the regression?
3. Similarly, having adverse childhood experience contributes to developing depression. Is there any variable focused on this problem in the NHIS? How do you expect these two variables would influence the results?
4. I assume that different types of cancer contribute to developing a depression/severity of depression more than others (for instance, pancreatic cancer is one of the most deadly forms of cancer globally with a very low chance of survival). Please discuss how accounting for the severity of cancer could influence the results.

Report on Bachelor Thesis

Institute of Economic Studies, Faculty of Social Sciences, Charles University

Student:	Julie Kristýna Balážová
Advisor:	PhDr. Mgr. Jana Votápková, Ph.D
Title of the thesis:	Who is more prone to depression? Analysis of micro-level data of patients with cancer.

SUMMARY OF POINTS AWARDED (for details, see below):

CATEGORY	POINTS
Contribution (max. 30 points)	25
Methods (max. 30 points)	30
Literature (max. 20 points)	20
Manuscript Form (max. 20 points)	20
TOTAL POINTS (max. 100 points)	95
GRADE (A – B – C – D – E – F)	A

NAME OF THE REFEREE: Mgr. Petra Landovská

DATE OF EVALUATION: May 14, 2024

Digitally signed (May 14, 2024):
Petra Landovská

Referee Signature

EXPLANATION OF CATEGORIES AND SCALE:

CONTRIBUTION: *The author presents original ideas on the topic demonstrating critical thinking and ability to draw conclusions based on the knowledge of relevant theory and empirics. There is a distinct value added of the thesis.*

METHODS: *The tools used are relevant to the research question being investigated, and adequate to the author's level of studies. The thesis topic is comprehensively analyzed.*

LITERATURE REVIEW: *The thesis demonstrates author's full understanding and command of recent literature. The author quotes relevant literature in a proper way.*

MANUSCRIPT FORM: *The thesis is well structured. The student uses appropriate language and style, including academic format for graphs and tables. The text effectively refers to graphs and tables and disposes with a complete bibliography.*

Overall grading:

TOTAL	GRADE
91 – 100	A
81 - 90	B
71 - 80	C
61 – 70	D
51 – 60	E
0 – 50	F