

Rīga Stradiņš University

Faculty of Medicine

2nd level higher professional study programme "Medicine"

**Correlation between depression and homesickness in international  
medical students at Riga Stradins University**

SCIENTIFIC THESIS

Author:

Matthias Kohmann

Student ID No. 016088



/Signature/

15th November 2018

Supervisor:

Arturs Miksons, MD

RSU Department of  
Psychosomatic Medicine and  
Psychotherapy

---

/signature/

\_\_\_\_\_ 2018

Riga, 2018

## **Abstract**

**Key words:** Homesickness, Depression, International students, mental health

**Introduction:** Homesickness and Depression are both mental health disorders that have a huge influence on international medical students in Riga. In addition to the normal stress that comes from the medical studies, international students also must get acclimated to a foreign country and culture. It has been proven before that poor mental health in students leads to less successful studies

**Aim:** The aim of the study is to find a correlation between suffering from depression and suffering from homesickness in international students at Riga Stradins University. It further tries to explore if there are certain factors, like semester, age and living conditions, influencing the prevalence of both.

**Hypothesis:** Students who suffer from depression have a higher risk to also suffer from homesickness

**Method:** A 41-question survey including both the Homesickness questionnaire and the PHQ-8 as well as questions about basic information (age, semester, country of origin, accommodation in Riga) was created. The survey was made available online through Google Forms and the link to it was distributed among international students at Riga Stradins University. The survey was taken on a voluntary basis. Each answer on the Homesickness questionnaire and the PHQ-8 has an assigned point value and with the help of two scoring keys the severity of homesickness and depression was determined. Afterwards the results were analyzed statistically.

**Results:** 114 participants. Around 30% suffer from moderate to severe depression and around 27% suffer from Homesickness. There was a strong, statistically significant correlation between PHQ-8 score and HSQ score ( $p=0.527$   $P=.000$ ). There is a negative correlation between number of semester and score in the PHQ-8 ( $p=-.424$   $P=.000$ .) and score in the HSQ respectively ( $p=-.360$   $P=.000$ .).

**Conclusion:** The results clearly show a strong correlation between scoring high in the PHQ-8 and the HSQ, meaning that if you suffer from depression you are more likely to suffer from homesickness and vice versa. The study also showed that nearly all the factors examined (except for age) have an influence on the students' mental health.

## **Abstrakts**

**Atslēgas vārdi:** Depresija, Ilgas pēc mājām, Internacionāli studenti, mentāla veselība

**Ievads:** Ilgas pēc mājām un depresija ir mentālas veselības saslimšanas, kas ietekmē internacionālos studentus Rīgā. Kombinācijā ar ikdienas stresu, kas rodas no medicīnas studijām, internacionālajiem studentiem ir arī jāaprod ar jauno valsti un tās kultūru. Ir pierādīts, ka vāja mentāla veselība noved pie zemākiem rezultātiem studijās.

**Mērķis:** Pētījuma mērķis ir atrast korelāciju starp internacionāliem Rīgas Stradiņa universitātes studentiem, kas cieš no depresijas un ilgām pēc mājām. Kā arī pētījuma ietvaros mēģina atrast faktoros kā semestris, vecums, dzīvošanas apstākļi, kas spētu ietekmēt abu stāvokļu prevelenci.

**Hipotēze:** Studentiem, kas cieš no depresijas, ir lielāks risks ciest no ilgām pēc mājām.

**Metodes:** 41 jautājumu gara aptauja tika izveidota, kurā bija iekļauta gan PHQ-8, gan arī vispārējas informācijas jautājumi (vecums, semestris, oriģinālvalsts izcelsme, dzīvošanas apstākļi Rīgā). Aptauja bija pieejama caur Googles aptauju platformu un aptaujas links tika izplatīts starp internacionālajiem studentiem Rīgas Stradiņa universitātē. Aptauja tika izpildīta pēc brīvprātības principa. Katrai aptaujas atbildei, bija izsniegta punktiska vērtība un ar divu punktu novērtējumu skalu palīdzību tika noteikts depresijas vai ilgu pēc mājām smagums. Dati tika vēlāk statistiski analizēti.

**Resultāti:** Kopā aptaujā piedalījās 114 dalībnieki. Ap 30% cieta ar vidēju līdz pat smagai depresijai un ap 27% studentiem bija ilgas pēc mājām. Tika novērota statistiski nozīmīga korelācija starp PHQ-8 un HSQ skalām ( $p=0.527$   $P=.000$ ). Kā arī tika novērota negatīva korelācija starp studentējošā semestri un punktu skaitam PHQ-8 skalā 8 ( $p=-.424$   $P=.000$ .) un punktu skaitam HSQ skalā ( $p=-.360$   $P=.000$ .).

**Secinājumi:** Resultāti uzskatāmi parāda korelāciju starp augstu punktu ieguvumu PHQ-8 un HSQ skalā – ja studentam bija depresija, tad studentam bija lielāka iespēja just ilgas pēc mājām un vice versa. Pētījums arī rāda, ka gandrīz visi pētījumā iekļautie faktori (izņemot vecums) ietekmē studenta mentālo veselību.

## Table of content

<b>1. Introduction</b> .....	5
<b>2.Literature Review</b> .....	6
2.1Classification and Diagnosis .....	6
2.2 Prevalence .....	8
2.3 Health Impact .....	9
<b>3. Method</b> .....	10
<b>4. Statistical Analysis</b> .....	11
4.1 Descriptive.....	11
4.2 Correlations .....	14
<b>5. Conclusion</b> .....	19
<b>6. Bibliography</b> .....	20

## **1. Introduction**

International Medical students have it arguably harder than regular students. In addition to already studying what is thought to be one of the harder courses there are, they also have to deal with all the stress that comes with moving to a foreign country and culture. Many move here directly from their parents' home and live independently for the first time. And those students are more susceptible to mental health problems, which are on the rise throughout our society anyways. The fear of disappointment and leaving someone's entire support network behind can be devastating if you have to deal with the additional stress of the medical studies and the potential of failure. Even though this is well known, the number of international students has been rising continually over the last few years, from around 2 Million in 2000 to around 5 million in 2016 (OECD, 2018) and is predicted to become even more in the next years. Previous studies have found prevalence of homesickness and depression in international students in Romania (Popescu & Buzoianu, 2017) and in Malaysia (Saravanan, Alias, & Mohamad, 2017). This study aims to find a correlation between homesickness and depression in international medical students in Riga and how it changes throughout the semesters.

## **2.Literature Review**

### **2.1Classification and Diagnosis**

Prevalence of depression in medical students has been thoroughly studied and documented ((Baldassin et al., 2013; Dyrbye et al., 2010; Fawzy & Hamed, 2017; Goebert et al., 2009; Kroska, Calarge, O’Hara, Deumic, & Dindo, 2017; Rotenstein et al., 2016). For the definition and diagnosis of Depressive disorders there are currently two schools of thought: The ICD-10 and the DSM-V.

The ICD-10 uses the Code “F32” for a depressive episode and describes it as follows: “In typical mild, moderate or severe depressive episodes, the patient suffers from lowering of mood, reduction of energy and decrease in activity. Capacity for enjoyment, interest and concentration is reduced, and marked tiredness after even minimum effort is common. Sleep is usually disturbed and appetite diminished. Selfesteem and self-confidence are almost always reduced and, even in the mild form, some ideas of guilt or worthlessness are often present. The lowered mood varies little from day to day, is unresponsive to circumstances and may be accompanied by so-called ‘somatic’ symptoms, such as loss of interest and pleasurable feelings, waking in the morning several hours before the usual time, depression worst in the morning, marked psychomotor retardation, agitation, loss of appetite, weight loss, and loss of libido. Depending upon the number and severity of the symptoms, a depressive episode may be specified as mild, moderate or severe.”(World Health Organization, 2016)

DSM-V gives Depression the code 296 and uses these diagnostic criteria:

A. Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure.

Note: Do not include symptoms that are clearly attributable to another medical condition.

1. Depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad, empty, hopeless) or observation made by others (e.g., appears tearful). (Note: In children and adolescents, can be irritable mood.)
2. Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation.)

3. Significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month) or decrease or increase in appetite nearly every day. (Note: In children, consider failure to make expected weight gain.)

4. Insomnia or hypersomnia nearly every day.

5. Psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down).

6. Fatigue or loss of energy nearly every day.

7. Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick).

8. Diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others).

9. Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.

B. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

C. The episode is not attributable to the physiological effects of a substance or to another medical condition. Note: Criteria A-C represent a major depressive episode. Note: Responses to a significant loss (e.g., bereavement, financial ruin, losses from a natural disaster, a serious medical illness or disability) may include the feelings of intense sadness, rumination about the loss, insomnia, poor appetite, and weight loss noted in Criterion A, which may resemble a depressive episode. Although such symptoms may be understandable or considered appropriate to the loss, the presence of a major depressive episode in addition to the normal response to a significant loss should also be carefully considered. This decision inevitably requires the exercise of clinical judgment based on the individual's history and the cultural norms for the expression of distress in the context of loss.

D. The occurrence of the major depressive episode is not better explained by schizoaffective disorder, schizophrenia, schizophreniform disorder, delusional disorder, or other specified and unspecified schizophrenia spectrum and other psychotic disorders. (Reynolds & Kamphaus, 2013)

Even though homesickness is experienced by most people at least once during their lifetime and it's prevalence in students has been described before (Beck, Taylor, & Robbins, 2003; Eurelings-Bontekoe, Vingerhoets, & Fontijn, 1994; Khademi & Aghdam, 2013; Longo & Kim-Spoon, 2013; Poyrazli & Lopez, 2007; Rose, 1947; Shal, sharbaf, Abdekhodae, Masoleh, & Salehi, 2011; Terry, Leary, & Mehta, 2013; Thurber & Walton, 2012; Tognoli, 2003), a clear definition and diagnostic criteria in the scientific world does not exist. Some say homesickness "can be defined as a depression-like reaction to leaving a familiar environment, accompanied by ruminations about and a strong preoccupation with the former environment as well as a strong longing to return to the previous environment." (Eurelings-Bontekoe et al., 1994)

Others use the definition "a negative emotional state characterized by recurrent thoughts of home, missing friends, the desire to go back to the familiar environment and often co-occurring physical complaints." (Nijhof & Engels, 2007) in their study.

The closest the ICD-10 and the DSM-V come to a scientific definition of homesickness is with "Adjustment disorder" (Code 309 in DSM-V and Code F 43.2 in ICD-10) (McMorran et al., 2013; Reynolds & Kamphaus, 2013; World Health Organization, 2016)

## 2.2 Prevalence

Prevalence of Depression in students is considerably higher than in the general population. American studies found that among adolescents aged 18-25 10,9% suffered a Major Depressive Episode in 2016, while in the age group 26-49 that number is 7,9% (Ahrnsbrak et al., 2016). Studies showed that 34.9% of college freshmen suffered mental health problems in the US (Bruffaerts et al., 2018) while the general percentage of students suffering from depression was found to be 30,6% (Ibrahim, Kelly, Adams, & Glazebrook, 2013) and specific for medical students the number is 27,2% (Rotenstein et al., 2016)

Research suggests that the prevalence of homesickness in international students is about 30% (Rajapaksa & Dundes, 2002; Saravanan et al., 2017), although these numbers heavily depend on the definition of homesickness and the population of interest used in the study (English, Davis, Wei, & Gross, 2017).

### 2.3 Health Impact

The impact Depression has on health is thoroughly studied. Not only is there a higher rate of suicide in persons suffering from Depression (Wulsin, 2000) but also the mortality rate is increased in other medical conditions if the patient is also suffering from depression (Musselman, Evans, & Nemeroff, 1998; Penninx et al., 1998), even if other negative factors like smoking, alcohol and physical health are controlled (Schulz et al., 2000). People suffering from depression are less likely to follow lifestyle or diet recommendations and are less likely to follow their prescribed pharmacological treatment or attend doctor appointments (DiMatteo, Lepper, & Croghan, 2000; Wing, Phelan, & Tate, 2002). Current depressive symptoms are associated with smoking (Breslau, Kilbey, & Andreski, 1993) and those suffering from depression are less likely to cease smoking (Anda et al., 1990). Childhood depression is associated with obesity in adult life (Pine, Goldstein, Wolk, & Weissman, 2001) and depression is associated with obesity in women but not in men (Istvan, Zavela, & Weidner, 1992). Both binge-eating disorder (Marcus, Moulton, & Greeno, 1995) and night-eating syndrome (Gluck, Geliebter, & Satov, 2001) have been associated with increased rates of MDD, as has physical inactivity (Paluska & Schwenk, 2000).

People that suffer from homesickness are more likely to suffer from depression (Flett, Endler, & Besser, 2009), anxiety (Verschuur, Eurelings-Bontekoe, & Spinhoven, 2004) and loneliness (Stroebe, van Vliet, Hewstone, & Willis, 2002). Homesickness can both worsen already existing mood disorders (S Fisher & Hood, 1987; Tartakovsky, 2007) or cause new somatic diseases like gastrointestinal upset, insomnia, appetite changes and others (Shirley Fisher, Murray, & Frazer, 1985; Johnson & Sandhu, 2007; Van Tilburg, Vingerhoets, & Van Heck, 1996). Students suffering from homesickness have more trouble in school, since they are more likely to skip classes (Johnson & Sandhu, 2007; Porritt & Taylor, 1981), have trouble concentrating (Burt, 1993; S Fisher & Hood, 1987; Shirley Fisher et al., 1985), suffer from memory lapses (Shirley Fisher & Hood, 1988; Shirley Fisher et al., 1985) and social isolation (Watt & Badger, 2009). Because of that, students suffering from homesickness are three times more likely to drop out of school (Burt, 1993)

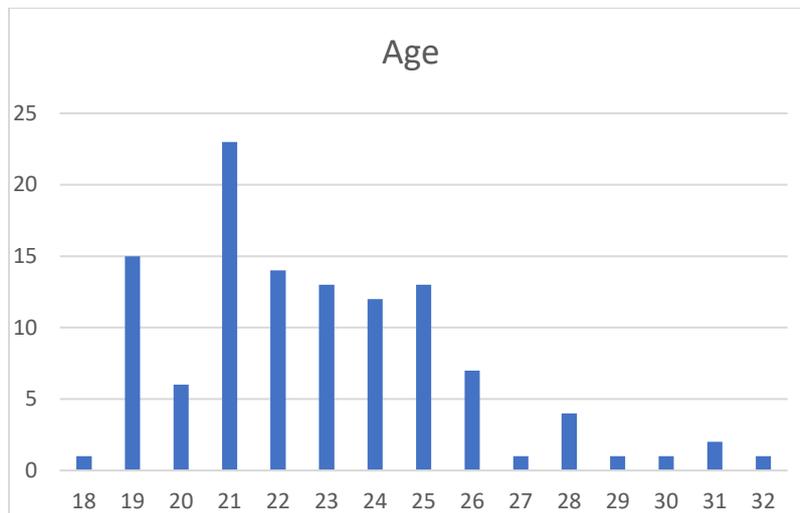
### **3. Method**

A 41-question long survey was created. The survey included questions from both the Patient Health Questionnaire 8 (PHQ-8), developed by the Colombia University in 1999 and based on diagnostic criteria of depression from DSM-IV, and the Homesickness Questionnaire (HSQ) developed by John Archer in 1998 (Archer, Ireland, Amos, Broad, & Currid, 1998), as well as Questions about general information (Age, semester, country of Origin, living conditions). The survey was otherwise anonymous. The survey was put online via Google Forms and was open for a month from 19<sup>th</sup> of June 2018 to 19<sup>th</sup> of July 2018. The link to the survey was then distributed through social media to the International students of Riga Stradins University enrolled in the course “Medicine”. The only restriction given was that the participants had to study Medicine at Riga Stradins University, had to live in a country other than Latvia before starting their studies and had to be willing to participate. The responses were collected in an Excel file and a point value was given to the answers of both the PHQ-8 and the HSQ, in accordance to the answer keys for both Questionnaires. The relevant data was then transferred to SPSS Statistics software and analyzed there.

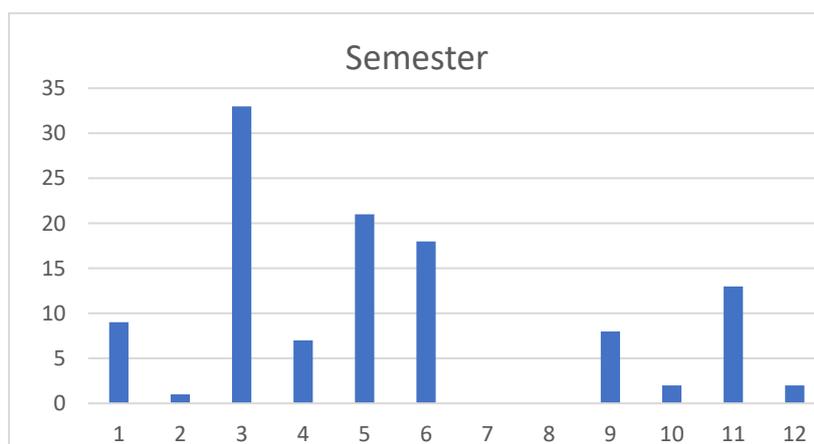
## **4. Statistical Analysis**

### **4.1 Descriptive**

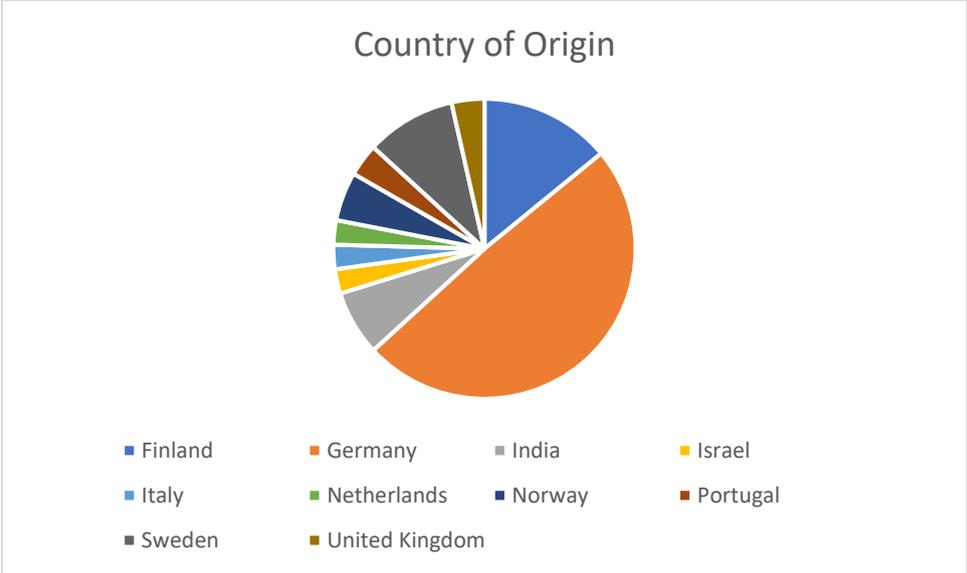
114 students completed the survey. The age of the participants ranged from 18-32 in which the age 21 was present the most with 20.2% (n=23). In general, the age range between 20-25 years was represented the most with participants from this range making up 78.1% (n=90).



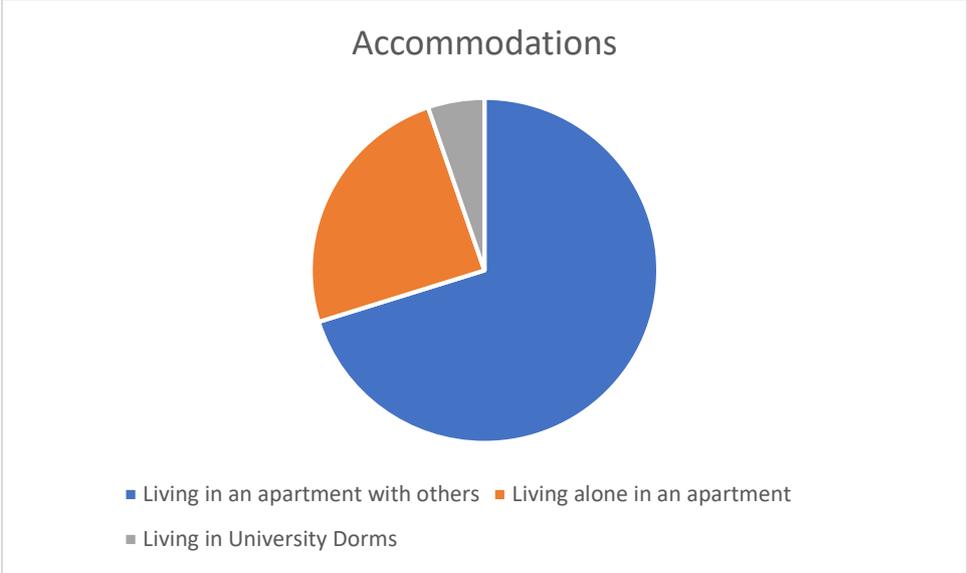
Students from the semesters 1,2,3,4,5,6,9,11,12 participated in the study. The 3<sup>rd</sup> semester with 28.9% (n=33) of participants, the 5<sup>th</sup> semester with 18.4% (n=21) of participants, the 6<sup>th</sup> semester with 15.8% (n=18) of participants and the 11<sup>th</sup> semester with 11.4% (n=13) of participants responded the best to the survey.



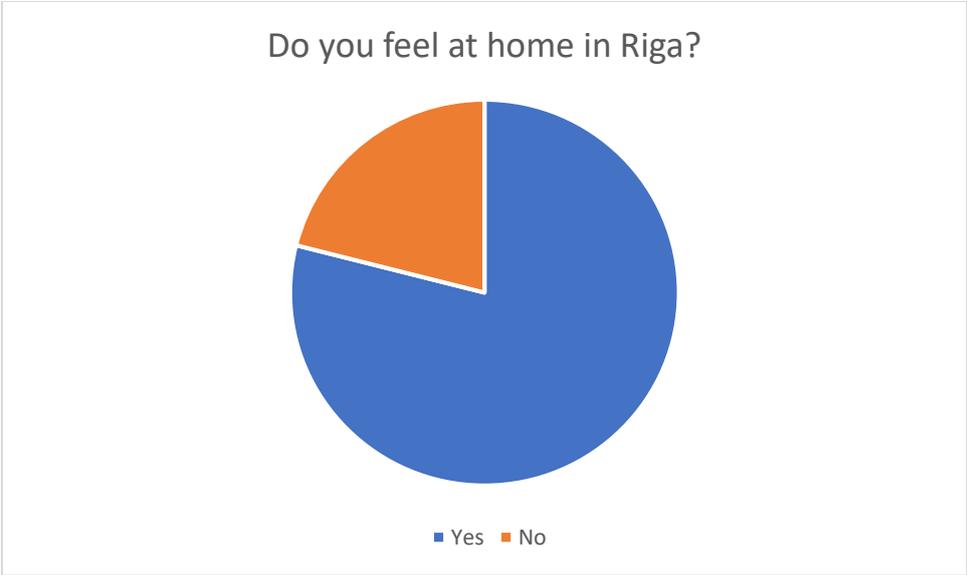
Most of the participants came from Germany (n= 56; 49.1%) followed by Finland (n=16; 14%), Sweden (n=11; 9.6%), India (n=8; 7%), Norway (n=6; 5.3%), Portugal and United Kingdom (both each n=4; 3.5%) and last place is shared by Israel, Italy and the Netherlands (each n=3; 2.6%).



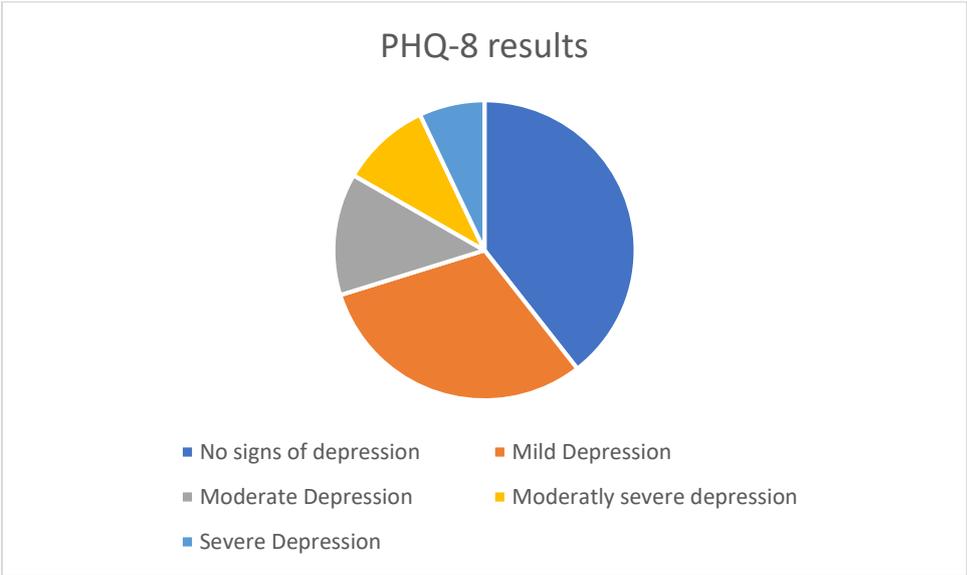
Asked about their living conditions 70.2% stated they are living in an apartment with others (n=80). 24.6% are living alone in an apartment (n=28) and 5.3% are living in the university dorms (n=6).



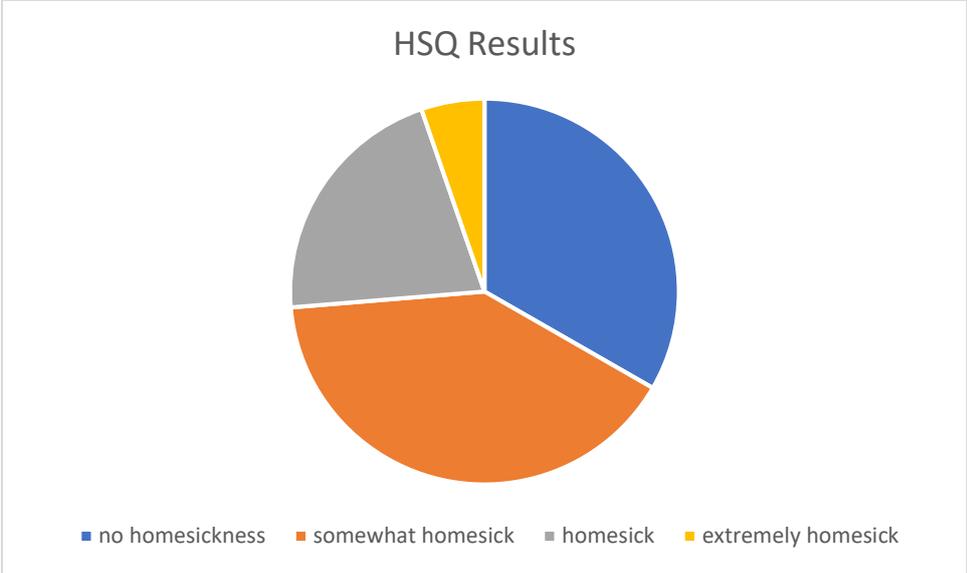
The participants were also asked if, in their own mind, they feel at home in Latvia. 78.9%(n=90) answered this question with “yes”, while 21.1% (n=24) said they don’t feel at home in Latvia.



Regarding the results of the questionnaires, they are as followed: In the Patient Health Questionnaire 8 we have: 39.5% no signs of depression (n=45), 30.7% mild depression (n=35), 13.2% moderate depression (n=15), 9.6% moderately severe depression (n=11) and 7% severe depression (n=8).



The results for the Homesickness Questionnaire are: 33.3% no homesickness (n=38), 40.4% somewhat homesick (n=46), 21.1% homesick (n=24), 5.3% extremely homesick (n=6).



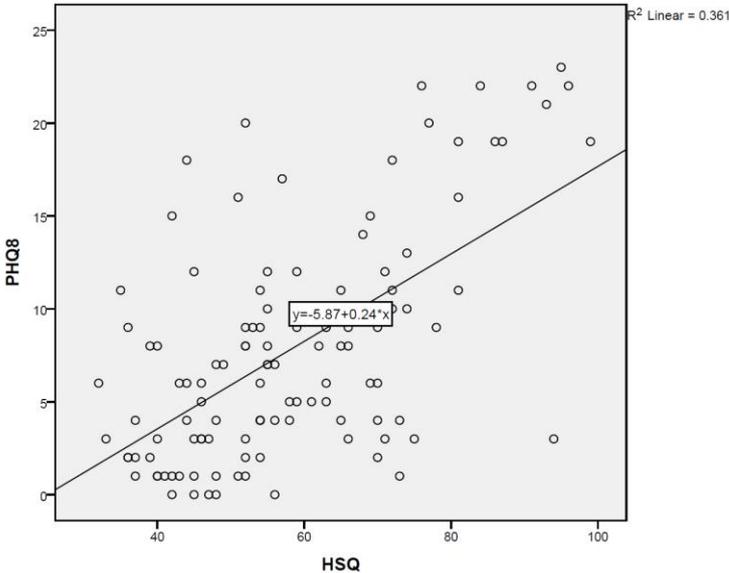
**4.2 Correlations**

Using SPSS to analyze the data, we can see that according to Spearman’s correlation coefficient, we can see that there is a strong positive correlation, that is statistically significant, between the results of the PHQ-8 and the HSQ (p=0.527 P=.000)

**Correlations**

		HSQ	PHQ8
Spearman's rho	HSQ	1.000	.527**
	Correlation Coefficient		
	Sig. (2-tailed)	.	.000
	N	114	114
PHQ8	Correlation Coefficient	.527**	1.000
	Sig. (2-tailed)	.000	.
	N	114	114

\*\* . Correlation is significant at the 0.01 level (2-tailed).

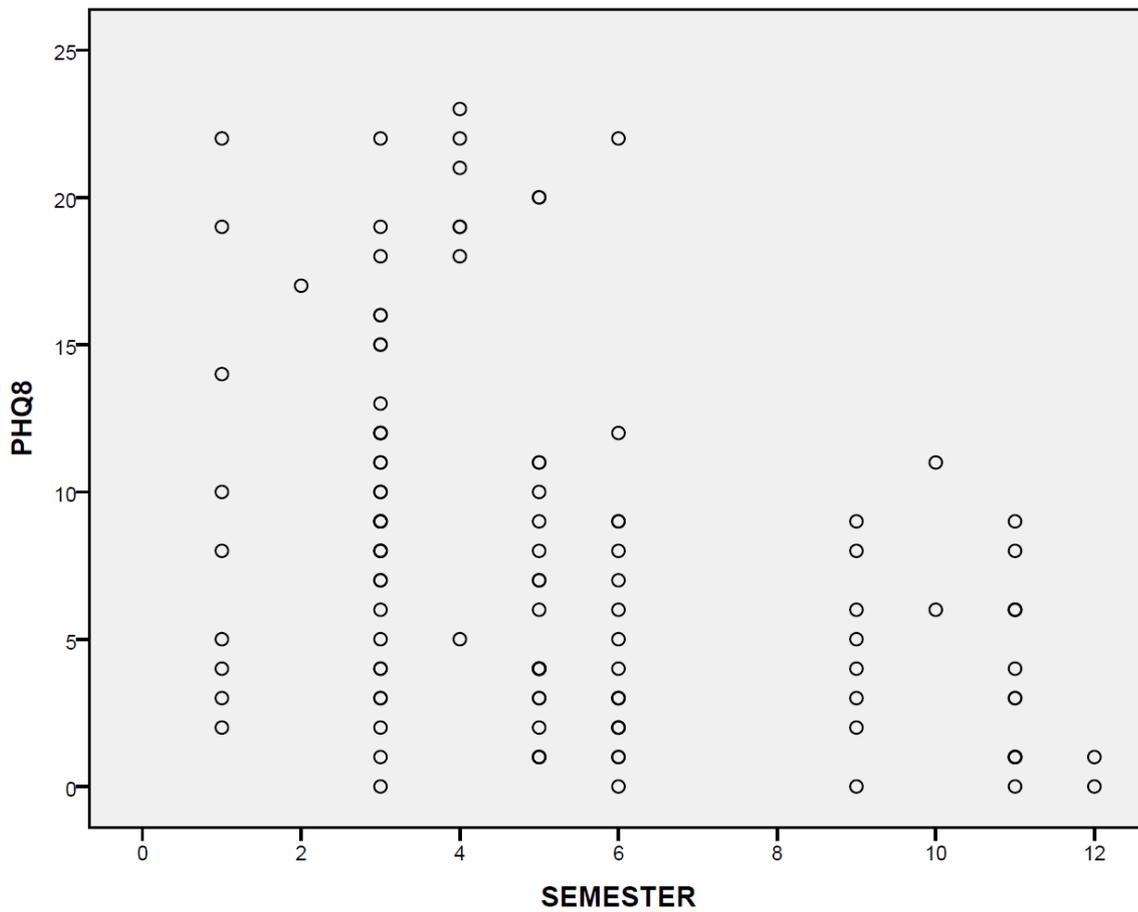


There was also a statistically significant negative correlation between the semester the participant was in and his score on the PHQ-8 ( $p = -.424$   $P = .000$ .)

**Correlations**

			PHQ8	SEMESTER
Spearman's rho	PHQ8	Correlation Coefficient	1.000	-.424**
		Sig. (2-tailed)	.	.000
		N	114	114
	SEMESTER	Correlation Coefficient	-.424**	1.000
		Sig. (2-tailed)	.000	.
		N	114	114

\*\* . Correlation is significant at the 0.01 level (2-tailed).



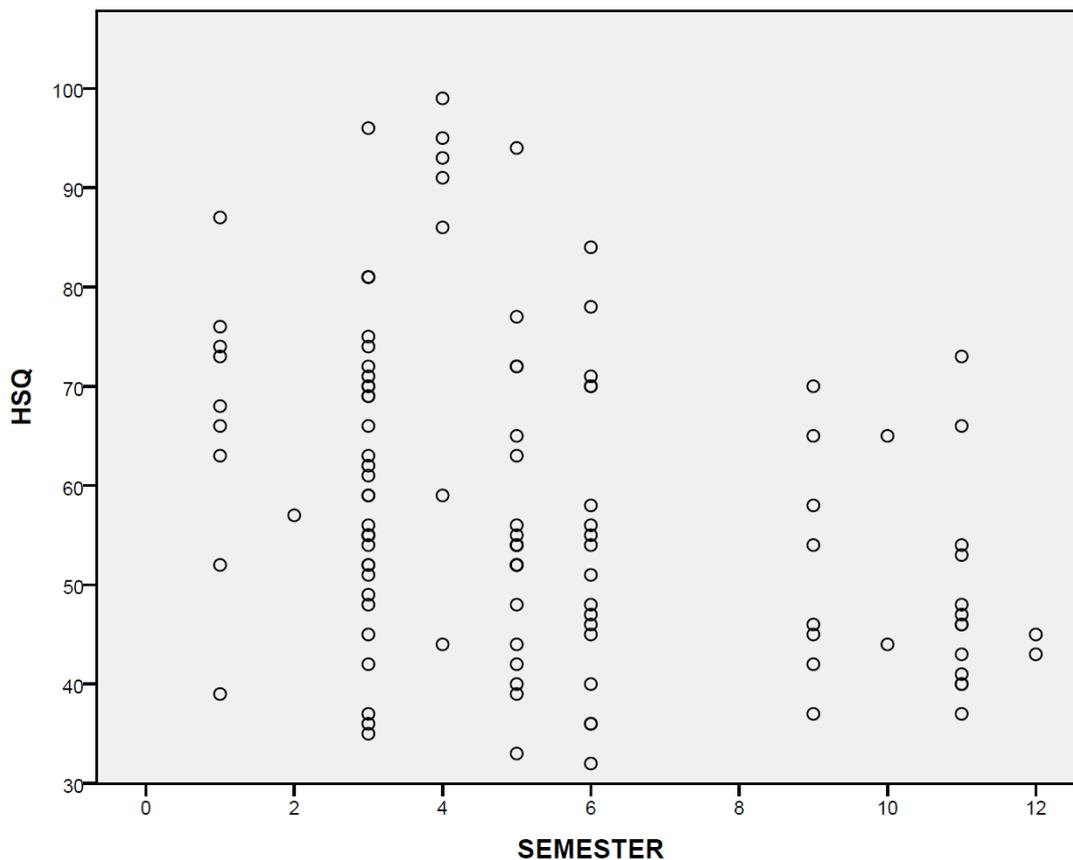
And, not surprisingly, since correlation between PHQ-8 and HSQ and correlation between PHQ-8 and semester is already established, there is a statistically significant negative correlation between the semester the participant is in and their results in the HSQ ( $p = -.360$ ,  $P = .000$ .)

Correlations

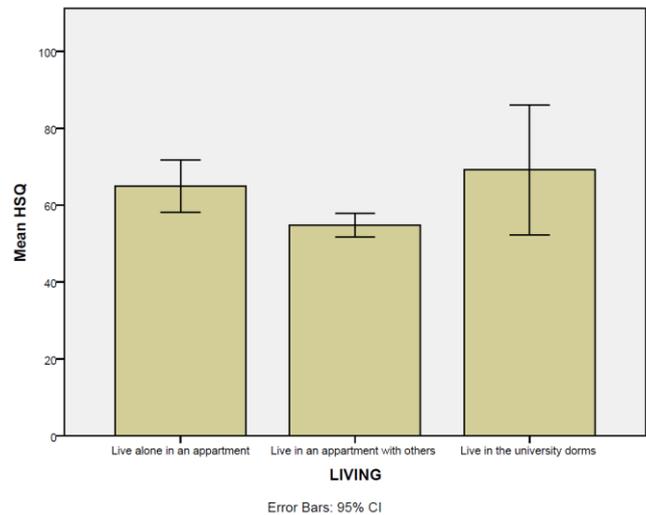
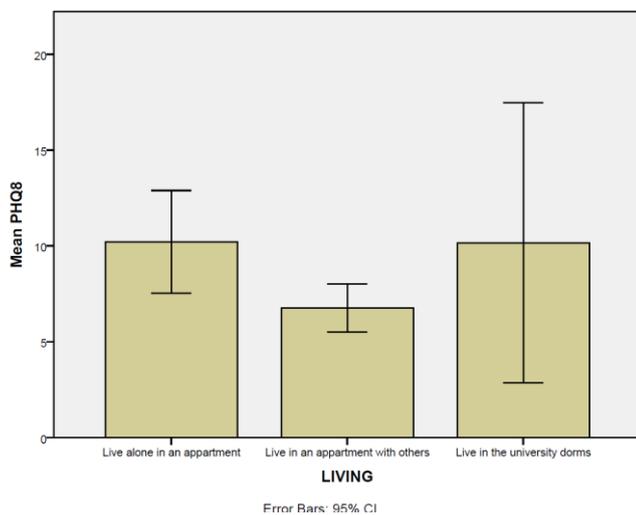
			PHQ8	SEMESTER	HSQ	AGE
Spearman's rho	PHQ8	Correlation Coefficient	1.000	-.424**	.527**	-.267**
		Sig. (2-tailed)	.	.000	.000	.004
		N	114	114	114	114
	SEMESTER	Correlation Coefficient	-.424**	1.000	-.360**	.663**
		Sig. (2-tailed)	.000	.	.000	.000
		N	114	114	114	114
	HSQ	Correlation Coefficient	.527**	-.360**	1.000	-.228*
		Sig. (2-tailed)	.000	.000	.	.014
		N	114	114	114	114
	AGE	Correlation Coefficient	-.267**	.663**	-.228*	1.000
		Sig. (2-tailed)	.004	.000	.014	.
		N	114	114	114	114

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).



Looking at the Living conditions of the participants, we can see that participants who live in the university dormitories scored the highest average scores on both the PHQ-8 and the HSQ. Participants who lived in apartments with other people scored the lowest average scores on both the PHQ-8 and the HSQ.



### Ranks

	LIVING	N	Mean Rank
PHQ8	0 Live alone in an apartment	28	69.29
	1 Live in an apartment with others	80	52.19
	2 Live in the university dorms	6	73.25
	Total	114	
HSQ	0 Live alone in an apartment	28	70.14
	1 Live in an apartment with others	80	51.21
	2 Live in the university dorms	6	82.33
	Total	114	

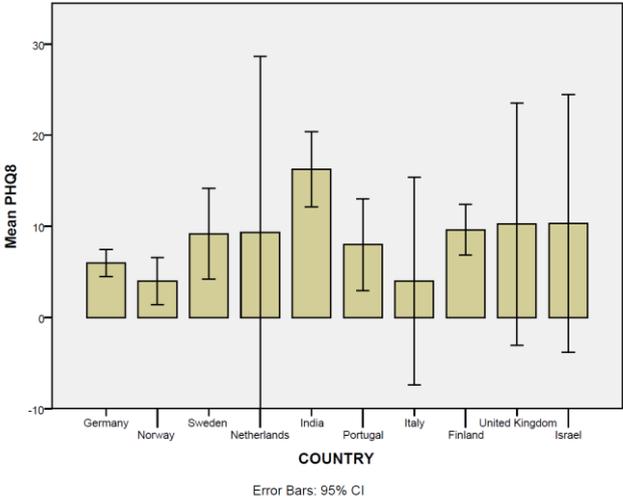
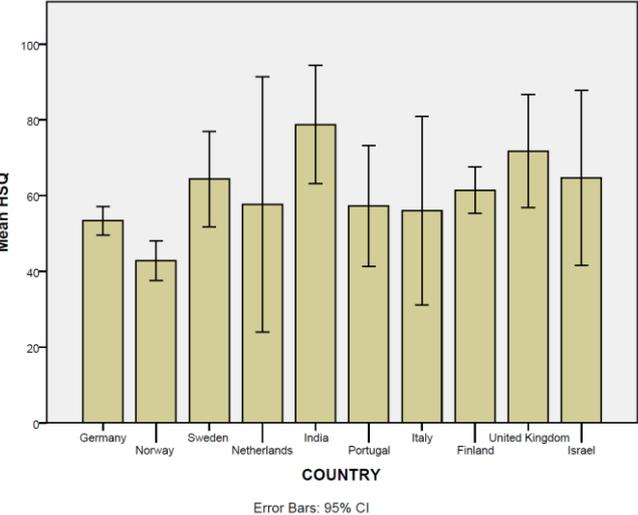
### Test Statistics<sup>a,b</sup>

	PHQ8	HSQ
Chi-Square	7.016	10.389
df	2	2
Asymp. Sig.	.030	.006

a. Kruskal Wallis Test

b. Grouping Variable: LIVING

When looking at the country of origins, participants who lived in India before coming to Riga score the highest average scores in both the PHQ-8 and the HSQ, while participants who lived in Norway score the lowest average on both questionnaires.



## **5. Conclusion**

The results clearly show a strong correlation between scoring high in the PHQ-8 and the HSQ, meaning that if you suffer from depression you are more likely to suffer from homesickness and vice versa. The study also showed that nearly all the factors examined (except for age) have an influence on the students' mental health.

## **6. Bibliography**

- Ahrnsbrak, R., Bose, J., Hedden, S. L., Lipari, R. N., Park-Lee, E., & Tice, P. (2016). *National Survey on Drug Use and Health Key Substance Use and Mental Health Indicators in the United States: Results from the 2016 National Survey on Drug Use and Health Results from the 2016 National Survey on Drug Use and Health*. Retrieved from <https://www.>
- Anda, R. F., Williamson, D. F., Escobedo, L. G., Mast, E. E., Giovino, G. A., & Remington, P. L. (1990). Depression and the Dynamics of Smoking. *JAMA*, *264*(12), 1541. <https://doi.org/10.1001/jama.1990.03450120053028>
- Archer, J., Ireland, J., Amos, S.-L., Broad, H., & Currid, L. (1998). Derivation of a homesickness scale. *British Journal of Psychology*, *89*(2), 205–221. <https://doi.org/10.1111/j.2044-8295.1998.tb02681.x>
- Baldassin, S., Silva, N., de Toledo Ferraz Alves, T. C., Castaldelli-Maia, J. M., Bhugra, D., Nogueira-Martins, M. C. F., ... Nogueira-Martins, L. A. (2013). Depression in medical students: Cluster symptoms and management. *Journal of Affective Disorders*, *150*(1), 110–114. <https://doi.org/10.1016/J.JAD.2012.11.050>
- Beck, R., Taylor, C., & Robbins, M. (2003). MISSING HOME: SOCIOTROPY AND AUTONOMY AND THEIR RELATIONSHIP TO PSYCHOLOGICAL DISTRESS AND HOMESICKNESS IN COLLEGE FRESHMEN. *Anxiety, Stress & Coping*, *16*(2), 155–166. <https://doi.org/10.1080/1061580021000056979>
- Breslau, N., Kilbey, M. M., & Andreski, P. (1993). Vulnerability to psychopathology in nicotine-dependent smokers: An epidemiologic study of young adults. *American Journal of Psychiatry*, *150*(6), 941–946. <https://doi.org/10.1176/ajp.150.6.941>
- Bruffaerts, R., Mortier, P., Kiekens, G., Auerbach, R. P., Cuijpers, P., Demyttenaere, K., ... Kessler, R. C. (2018). Mental health problems in college freshmen: Prevalence and academic functioning. *Journal of Affective Disorders*, *225*, 97–103. <https://doi.org/10.1016/j.jad.2017.07.044>
- Burt, C. D. B. (1993). Concentration and academic ability following transition to University: An investigation of the effects of homesickness. *Journal of Environmental Psychology*, *13*(4), 333–342. [https://doi.org/10.1016/S0272-4944\(05\)80255-5](https://doi.org/10.1016/S0272-4944(05)80255-5)

- DiMatteo, M. R., Lepper, H. S., & Croghan, T. W. (2000). Depression Is a Risk Factor for Noncompliance With Medical Treatment. *Archives of Internal Medicine*, *160*(14), 2101. <https://doi.org/10.1001/archinte.160.14.2101>
- Dyrbye, L. N., Thomas, M. R., Power, D. V., Durning, S., Moutier, C., Massie, F. S., ... Shanafelt, T. D. (2010). Burnout and Serious Thoughts of Dropping Out of Medical School: A Multi-Institutional Study. *Academic Medicine*, *85*(1), 94–102. <https://doi.org/10.1097/ACM.0b013e3181c46aad>
- English, T., Davis, J., Wei, M., & Gross, J. J. (2017). Homesickness and adjustment across the first year of college: A longitudinal study. *Emotion (Washington, D.C.)*, *17*(1), 1–5. <https://doi.org/10.1037/emo0000235>
- Eurelings-Bontekoe, E. H. M., Vingerhoets, A., & Fontijn, T. (1994). Personality and behavioral antecedents of homesickness. *Personality and Individual Differences*, *16*(2), 229–235. [https://doi.org/10.1016/0191-8869\(94\)90161-9](https://doi.org/10.1016/0191-8869(94)90161-9)
- Fawzy, M., & Hamed, S. A. (2017). Prevalence of psychological stress, depression and anxiety among medical students in Egypt. *Psychiatry Research*, *255*, 186–194. <https://doi.org/10.1016/J.PSYCHRES.2017.05.027>
- Fisher, S., & Hood, B. (1987). The stress of the transition to university: a longitudinal study of psychological disturbance, absent-mindedness and vulnerability to homesickness. *British Journal of Psychology (London, England : 1953)*, *78* ( Pt 4), 425–441. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/3427309>
- Fisher, S., & Hood, B. (1988). Vulnerability factors in the transition to university: Self-reported mobility history and sex differences as factors in psychological disturbance. *British Journal of Psychology*, *79*(3), 309–320. <https://doi.org/10.1111/j.2044-8295.1988.tb02290.x>
- Fisher, S., Murray, K., & Frazer, N. A. (1985). Homesickness, health and efficiency in first year students. *Journal of Environmental Psychology*, *5*(2), 181–195. [https://doi.org/10.1016/S0272-4944\(85\)80016-5](https://doi.org/10.1016/S0272-4944(85)80016-5)
- Flett, G. L., Endler, N. S., & Besser, A. (2009). Separation Anxiety, Perceived Controllability, and Homesickness<sup>1</sup>. *Journal of Applied Social Psychology*, *39*(2), 265–282. <https://doi.org/10.1111/j.1559-1816.2008.00438.x>

- Gluck, M. E., Geliebter, A., & Satov, T. (2001). Night eating syndrome is associated with depression, low self-esteem, reduced daytime hunger, and less weight loss in obese outpatients. *Obesity Research*, 9(4), 264–267. <https://doi.org/10.1038/oby.2001.31>
- Goebert, D., Thompson, D., Takeshita, J., Beach, C., Bryson, P., Ephgrave, K., ... Tate, J. (2009). Depressive Symptoms in Medical Students and Residents: A Multischool Study. *Academic Medicine*, 84(2), 236–241. <https://doi.org/10.1097/ACM.0b013e31819391bb>
- Ibrahim, A. K., Kelly, S. J., Adams, C. E., & Glazebrook, C. (2013). A systematic review of studies of depression prevalence in university students. *Journal of Psychiatric Research*, 47(3), 391–400. <https://doi.org/10.1016/J.JPSYCHIRES.2012.11.015>
- Istvan, J., Zavela, K., & Weidner, G. (1992). Body weight and psychological distress in NHANES I. *International Journal of Obesity and Related Metabolic Disorders : Journal of the International Association for the Study of Obesity*, 16(12), 999–1003. <https://doi.org/10.1016/j.mulfin.2012.01.002>
- Johnson, L. R., & Sandhu, D. S. (2007). Isolation, adjustment, and acculturation issues of international students: Intervention strategies for counselors. In *A handbook for counseling international students in the United States*. (pp. 13–35). Alexandria, VA, US: American Counseling Association.
- Khademi, A., & Aghdam, A. A. F. (2013). The Role of Personality Traits and Resilience on Homesickness of College Students. *Procedia - Social and Behavioral Sciences*, 82, 537–541. <https://doi.org/10.1016/j.sbspro.2013.06.305>
- Kroska, E. B., Calarge, C., O'Hara, M. W., Deumic, E., & Dindo, L. (2017). Burnout and depression in medical students: Relations with avoidance and disengagement. *Journal of Contextual Behavioral Science*, 6(4), 404–408. <https://doi.org/10.1016/j.jcbs.2017.08.003>
- Longo, G. S., & Kim-Spoon, J. (2013). Homesickness in college students: The role of religion in combating depression. *Mental Health, Religion and Culture*, 16(5), 489–500. <https://doi.org/10.1080/13674676.2012.696600>
- Marcus, M. D., Moulton, M. M., & Greeno, C. G. (1995). Binge eating onset in obese patients with binge eating disorder. *Addictive Behaviors*, 20(6), 747–755. [https://doi.org/10.1016/0306-4603\(95\)00104-2](https://doi.org/10.1016/0306-4603(95)00104-2)

- McMorran, J., Crowther, D. C., McMorran, S., Prince, C., YoungMin, S., Pleat, J., & Wacogne, I. (2013). ICD-10 depression diagnostic criteria - General Practice Notebook. Retrieved June 3, 2018, from <http://www.gpnotebook.co.uk/simplepage.cfm?ID=x20091123152205182440>
- Musselman, D. L., Evans, D. L., & Nemeroff, C. B. (1998). The Relationship of Depression to Cardiovascular Disease. *Archives of General Psychiatry*, *55*(7), 580. <https://doi.org/10.1001/archpsyc.55.7.580>
- Nijhof, K. S., & Engels, R. C. M. E. (2007). Parenting styles, coping strategies, and the expression of homesickness. *Journal of Adolescence*, *30*(5), 709–720. <https://doi.org/10.1016/j.adolescence.2006.11.009>
- OECD. (2018). *Education at a Glance 2018*. OECD. <https://doi.org/10.1787/eag-2018-en>
- Paluska, S. A., & Schwenk, T. L. (2000). Physical activity and mental health: current concepts. *Sports Medicine (Auckland, N.Z.)*, *29*(3), 167–180. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/10739267>
- Penninx, B. W., Guralnik, J. M., Mendes de Leon, C. F., Pahor, M., Visser, M., Corti, M. C., & Wallace, R. B. (1998). Cardiovascular events and mortality in newly and chronically depressed persons > 70 years of age. *The American Journal of Cardiology*, *81*(8), 988–994. [https://doi.org/10.1016/S0002-9149\(98\)00077-0](https://doi.org/10.1016/S0002-9149(98)00077-0)
- Pine, D. S., Goldstein, R. B., Wolk, S., & Weissman, M. M. (2001). The association between childhood depression and adulthood body mass index. *Pediatrics*, *107*(5), 1049–1056. <https://doi.org/10.1542/PEDS.107.5.1049>
- Popescu, C. A., & Buzoianu, A. D. (2017). Symptoms of anxiety and depression in Romanian and international medical students: Relationship with big-five personality dimensions and social support. *European Psychiatry*, *41*, S625. <https://doi.org/10.1016/J.EURPSY.2017.01.1011>
- Porritt, D., & Taylor, D. (1981). An Exploration of Homesickness among Student Nurses. *Australian & New Zealand Journal of Psychiatry*, *15*(1), 57–62. <https://doi.org/10.3109/00048678109159411>
- Poyrazli, S., & Lopez, M. D. (2007). An Exploratory Study of Perceived Discrimination and Homesickness: A Comparison of International Students and American Students. *The Journal of Psychology*, *141*(3), 263–280. <https://doi.org/10.3200/JRLP.141.3.263-280>

- Rajapaksa, S., & Dundes, L. (2002). It's a Long Way Home: International Student Adjustment to Living in the United States. *Journal of College Student Retention: Research, Theory & Practice*, 4(1), 15–28. <https://doi.org/10.2190/5HCY-U2Q9-KVGL-8M3K>
- Reynolds, C. R., & Kamphaus, R. W. (2013). Major Depressive Disorder. *Diagnostic & Statistical Manual of Mental Disorders*, 5, 32–34. Retrieved from [https://images.pearsonclinical.com/images/assets/basc-3/basc3resources/DSM5\\_DiagnosticCriteria\\_MajorDepressiveDisorder.pdf](https://images.pearsonclinical.com/images/assets/basc-3/basc3resources/DSM5_DiagnosticCriteria_MajorDepressiveDisorder.pdf)
- Rose, A. A. (1947). A Study of Homesickness in College Freshmen. *Journal of Social Psychology*, 26(2), 185–202. <https://doi.org/10.1080/00224545.1947.9921743>
- Rotenstein, L. S., Ramos, M. A., Torre, M., Segal, J. B., Peluso, M. J., Guille, C., ... Mata, D. A. (2016). Prevalence of Depression, Depressive Symptoms, and Suicidal Ideation Among Medical Students. *JAMA*, 316(21), 2214. <https://doi.org/10.1001/jama.2016.17324>
- Saravanan, C., Alias, A., & Mohamad, M. (2017). The effects of brief individual cognitive behavioural therapy for depression and homesickness among international students in Malaysia. *Journal of Affective Disorders*, 220, 108–116. <https://doi.org/10.1016/j.jad.2017.05.037>
- Schulz, R., Beach, S. R., Ives, D. G., Martire, L. M., Ariyo, A. A., & Kop, W. J. (2000). Association Between Depression and Mortality in Older Adults. *Archives of Internal Medicine*, 160(12), 1761. <https://doi.org/10.1001/archinte.160.12.1761>
- Shal, R. S., sharbaf, H. A., Abdekhodae, M. S., Masoleh, S. M. kafi, & Salehi, I. (2011). Survey the Relationship Between Attachment Style and General Self Efficacy with Homesickness Among College Students. *Procedia - Social and Behavioral Sciences*, 30, 538–541. <https://doi.org/10.1016/J.SBSPRO.2011.10.105>
- Stroebe, M., van Vliet, T., Hewstone, M., & Willis, H. (2002). Homesickness among students in two cultures: antecedents and consequences. *British Journal of Psychology (London, England : 1953)*, 93(Pt 2), 147–168. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/12031144>

- Tartakovsky, E. (2007). A longitudinal study of acculturative stress and homesickness: high-school adolescents immigrating from Russia and Ukraine to Israel without parents. *Social Psychiatry and Psychiatric Epidemiology*, 42(6), 485–494.  
<https://doi.org/10.1007/s00127-007-0184-1>
- Terry, M. L., Leary, M. R., & Mehta, S. (2013). Self-compassion as a Buffer against Homesickness, Depression, and Dissatisfaction in the Transition to College. *Self and Identity*, 12(3), 278–290. <https://doi.org/10.1080/15298868.2012.667913>
- Thurber, C. A., & Walton, E. A. (2012). Homesickness and adjustment in university students. *Journal of American College Health*, 60(5), 415–419.  
<https://doi.org/10.1080/07448481.2012.673520>
- Tognoli, J. (2003). Leaving Home. *Journal of College Student Psychotherapy*, 18(1), 35–48.  
[https://doi.org/10.1300/J035v18n01\\_04](https://doi.org/10.1300/J035v18n01_04)
- Van Tilburg, M. A. L., Vingerhoets, A. J. J. M., & Van Heck, G. L. (1996). Homesickness: a review of the literature. *Psychological Medicine*, 26(05), 899.  
<https://doi.org/10.1017/S0033291700035248>
- Verschuur, M. J., Eurelings-Bontekoe, E. H. M., & Spinhoven, P. (2004). Associations among Homesickness, Anger, Anxiety, and Depression. *Psychological Reports*, 94(3\_suppl), 1155–1170. <https://doi.org/10.2466/pr0.94.3c.1155-1170>
- Watt, S. E., & Badger, A. J. (2009). Effects of Social Belonging on Homesickness: An Application of the Belongingness Hypothesis. *Personality and Social Psychology Bulletin*, 35(4), 516–530. <https://doi.org/10.1177/0146167208329695>
- Wing, R. R., Phelan, S., & Tate, D. (2002). The role of adherence in mediating the relationship between depression and health outcomes. *Journal of Psychosomatic Research*, 53(4), 877–881. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/12377297>
- World Health Organization. (2016). International statistical classification of diseases and related health problems. - 10th revision, Fifth edition, 2016., 1.  
<https://doi.org/10.1136/annrheumdis-2017-212880>
- Wulsin, L. R. (2000). Does Depression Kill? *Archives of Internal Medicine*, 160(12), 1731.  
<https://doi.org/10.1001/archinte.160.12.1731>

## Pledge

I, Matthias Kohmann, pledge that this scientific thesis, titled "Correlation between depression and homesickness in international medical students at Riga Stradins University" was written by me independently. All other data, definitions and quotations used in my thesis have been given references. The text of this written work neither in its entirety, nor its parts has ever been submitted to another committee for presentation and it has never been published in its entirety.



Signature

Matthias Kohmann

Name Surname

Date: 12<sup>th</sup> November 2018