

A DUAL MEDIATION MODEL OF DEPRESSION AND ANXIETY: THE INDIRECT EFFECTS OF SOCIOECONOMIC STATUS THROUGH NEGATIVE AUTOMATIC THOUGHTS AND PERSONALITY TRAITS

CLARA TURTURESCU*, VIOLETA ROTARESCU, CRISTIAN OPARIUC-DAN
University of Bucharest, Doctoral School in Psychology and Education Sciences

Abstract

Socioeconomic status (SES) has an impact on human functioning, quality of life and health. Studies show that low SES and persistent mental illness are linked. Globally, 8% of people have a disability from depression and anxiety. SES is an indicator usually measured through income, education, and occupation. Dysfunctional personality is characterised by rigid traits that are associated with psychological distress. Negative automatic thoughts (NATs) and cognitive schemas shape our interpretation of situations, leading to poor coping strategies.

The study examined how socioeconomic status indirectly affects depression and anxiety through dysfunctional personality and negative automatic thoughts. The results showed that maladaptive personality significantly mediated the relationship between SES and anxiety and depression symptoms, with a negative indirect effect. Although negative automatic thoughts showed a marginal indirect effect, the result was not statistically significant indicating weaker support for its role in the mediation. These results underscore the importance of addressing mental health issues within socioeconomically disadvantaged groups, with interventions targeting both cognitive distortions and dysfunctional personality traits potentially improving mental health outcomes.

Cuvinte-cheie: model depresie - anxietate, statut socioeconomic, gânduri automate negative, trăsături disfuncționale de personalitate, mediere dublă

Keywords: depression – anxiety model, socioeconomic status, negative automatic thoughts, dysfunctional personality traits, dual mediation

1. INTRODUCTION

Socioeconomic status (SES) has an impact on human functioning, both mental and physical (Kraft and Kraft, 2021). A person's social standing affects access to resources such as knowledge and wealth, which can help one cope with stressful situations (Kirkbride *et al.*, 2024).

Globally, 8% of individuals experience disability due to depression and anxiety (Ridley *et al.*, 2020). The World Health Organization (WHO) reported a depression prevalence rate of 4.4% in Europe, though this statistic may vary (Strohmaier *et al.*, 2024).

Numerous studies have established a bidirectional relationship between low SES and persistent mental illness (Marchi *et al.*, 2024). SES is an indicator usually measured through income, education, and occupation (Xu *et al.*, 2024). Personality traits play an important role in the relationship between socioeconomic status and

* Doctoral student, Doctoral School in Psychology and Education Sciences, University of Bucharest, Romania, Șoseaua Panduri 90, Bucharest, Romania; E-mail: clara.turturescu@drd.unibuc.ro

mental health problems (Jokela and Keltikangas-Järvinen, 2011). Personality traits are predictors for health-related quality of life (Pereira-Morales *et al.*, 2018). Depression impacts quality of life, increases economic burden, and raises the risk of suicidality (Jokela and Keltikangas-Järvinen, 2011). In a comparison study between low-income and non-low-income populations regarding the psychological distress showed that individuals from disadvantaged environments are more likely to experience psychological distress (Caron and Liu, 2011).

A multi-cohort study highlighted the crucial role of health policies and healthcare practices in addressing psychological health issues within social environments, emphasizing the need for early interventions to reduce health inequalities (Kivimäki *et al.*, 2020). The study showed that low socioeconomic status was linked to a higher risk of 18 out of 56 health conditions (Kivimäki *et al.*, 2020).

A systematic review emphasized the importance of indicators such as education, employment and material circumstances for increasing occupational social class (Fryers *et al.*, 2003).

Recent decades of research have examined the correlation between personality traits and quality of life, demonstrating that personality traits act as a determinant of quality of life (Habibi *et al.*, 2025).

Meta-analytic findings indicate that current preventive interventions have the potential to reduce the prevalence of depressive disorders by 25% (Klein *et al.*, 2011).

Maladaptive personality is characterised by rigid traits that are associated with psychological distress (Ireland *et al.*, 2006). Maladaptive personality traits are considered stable throughout an individual's lifespan. Behaviour, affect and cognition are expressions of personality facets.

The literature review highlights the strong link between emotional distress and maladaptive cognitive content, such as dysfunctional attitudes and negative automatic thoughts (Geiger *et al.*, 2013).

According to Beck's theory of affects disorder, negative automatic thoughts (NATs) and underlying cognitive schemas influence how situations are interpreted, resulting in maladaptive coping strategies (Batmaz *et al.*, 2015).

To the best of our knowledge, this study is the first to investigate personality traits and NAT as mediators in the relationship between SES and symptoms of depression and anxiety; while prior research has established a direct link between SES and depression, none have explored these mediating mechanisms together.

Our study aimed to provide further understanding of the relationship between SES and the anxiety-depression symptoms through two related mediators: dysfunctional personality and NAT. We believe that these findings could have a significant impact by improving psychoeducation interventions for large populations.

2. METHODS

2.1. DESIGN

The study was pre-registered on 26.02.2025 (AsPredicted #214832). Data was collected between March 2025 and April 2025 using an online form (www.questionpro.com).

The analysis of the model was conducted using a cross-sectional design of data collection. A total of 147 participants completed the self-report questionnaires. Participants were eligible if they were at least 18 years old. Those who did not fully complete the self-report questionnaire were excluded from the analysis.

We conducted a mediation analysis using Andrew F. Hayes' PROCESS macro (version 4.2) for SPSS Statistics for Windows, version 25 (Hayes, 2022) to examine the indirect effects of socioeconomic status (SES) on depression and anxiety symptoms (DASS-21) through two mediators. Model 4 was specified to test the mediation pathways.

The independent variable (X) was SES total score (SES_T), and the dependent variable (Y) was the combined depression and anxiety symptoms score from the DASS-21. Two mediators were included simultaneously to test their mediating roles: dysfunctional personality (PID_T) and negative automatic thoughts (ATQ_T) (see Figure no. 1).

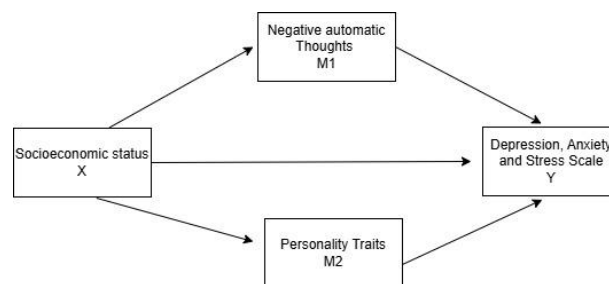


Figure no.1. Conceptual model

2.2. INFORMED CONSENT PROCESS

The informed consent form indicated that participation was voluntary, and the participants could withdraw from the study at any time. The time required to answer the questions was 10 - 15 minutes.

2.3. DEVELOPMENT AND PRE-TESTING

All the materials used for data collection were first translated from English to Romanian and then back from Romanian to English (back – translation method) by two separate teams of two professional translators. Agreements across items were discussed to preserve the content validity of the original instruments.

2.4. RECRUITMENT PROCESS

Participants were informed that their data would be confidential, anonymous, and used only for research. The questionnaire was promoted both online—via social media on Facebook and Instagram—and offline through local community groups.

2.5. SURVEY ADMINISTRATION

Questionnaires were created with QuestionPro Forms, and participation was voluntary without incentives.

2.6. PARTICIPANTS

The sample consisted of 147 participants. Of these, 118 (80.3%) identified as female and 29 (19.7%) as male. Participants' educational attainment ranged from lower secondary to postgraduate education. Specifically, 4.8% had completed only

gymnasium or vocational school (score = 3), 27.2% had a high school education (score = 4), 8.8% had completed post-secondary non-university programs (score = 5), 45.6% held a university degree (score = 6), and 13.6% had postgraduate education (score = 7). These categories reflect the structure of the Romanian education system, aligned with the scoring system of the Revised Kuppuswamy Scale. Occupational status was measured using a 7-level classification adapted from the Revised Kuppuswamy Scale and tailored to the Romanian context. Most participants (38.1%) reported occupations requiring higher education (score = 6). Additionally, 25.9% were unemployed, retired, or receiving social assistance (score = 1), 13.6% were skilled workers (score = 3), 15.0% worked as technicians, foremen, assistants, or administrative staff (score = 5), and 3.4% were experts, entrepreneurs, or freelancers with higher education (score = 10). Smaller proportions included highly skilled workers (2.0%; score = 4) and unskilled workers (2.0%; score = 2).

Participants reported their current monthly household income (net) using predefined income range. The most frequently reported income levels were between 2,400 and 4,000 RON (24.3%) and 4,000 to 5,600 RON (22.9%). A smaller proportion of participants reported household incomes above 8,800 RON, with 20.1% earning between 8,800 and 10,400 RON and 9.0% earning more than 10,400 RON. Only 12.5% of the sample reported incomes below 2,400 RON. Household income scores ranged from 1 to 12, reflecting increasing economic standing. Income data were missing for three participants (2.0%).

2.7. MEASURES

Depression – Anxiety. To assess depression and anxiety the DASS - 21 (Lovibond and Lovibond, 2011) was used, an instrument with 21 items such as: “I found it hard to wind down” or “was aware of dryness of my mouth”. Answers were given on a 4 - point scale, with high values indicating high levels of negative emotional states. The scale has strong internal consistency (Cronbach’s $\alpha = .80$, 95% CI [.80, .86]) (da Silva *et al.*, 2016).

Negative automatic thoughts. Many researchers have intended to assess automatic thoughts in the past, and in 1980, Hollon and Kendall developed the ATQ (Gökdağ and Kaçar-Başaran, 2014). The scale contains a number of 15 items (items like “I’m no good” or “I feel so helpless”) that received answers on an ordinal scale from 1 (not at all) and 5 (all the time), with high scores indicating a high level of negative thoughts, and the internal consistency of the scale being very good Cronbach’s $\alpha = .97$, 95% CI [.97, .99]) (Netemeyer and Williamson Donald A, 2024).

Socioeconomic status. A wide range of outcomes over the life span can be predicted reliably and consistently using SES, including physical and mental health (*Education and Socioeconomic Status Factsheet, n.d.*). SES was assessed using a scoring ranging from 3 to 29, indicating low to high SES. We measured SES indicators taking into consideration the Revised Kuppuswamy Scale (Majumder, 2021), with adjustments to reflect the Romanian context, including the use of participants’ own occupation rather than that of the head of the household.

Personality traits. We used Personality Inventory for DSM – 5 (PID – 5 – BF), a 25 – item self-report questionnaire designed to maladaptive personality traits. It measures five domains: Negative Affect, Detachment, Antagonism, Disinhibition, Psychoticism (Miller *et al.*, 2022). The scale contains 25 items, items like “I feel like I act totally on impulse.” or “I fear being alone in life more than

anything else.” (Research Central, n.d.). PID – 5 items are scored on a four – point scale ranging from 0 – Very False or Often False to 3 – Very True or Often True (Miller *et al.*, 2022). Higher average scores indicate greater dysfunction in a specific personality trait facet or domain (Research Central, n.d.). Cronbach’s alpha values were $>.70$ for all PID-5 facet scales and greater than $.90$ for all PID-5 domain scales (“*Reliability and Validity of the Personality Inventory for DSM-5 (PID-5) | Request PDF*,” 2025)

3. RESULTS

3.1. PRELIMINARY DESCRIPTIVE ANALYSIS

Descriptive statistics were calculated for the components of the socioeconomic status (SES) measure: education, occupation, and household income. The education score had a mean of 5.36 (SD = 1.16), with scores ranging from 3 to 7. The occupation score had a mean of 4.16 (SD = 2.34), ranging from 1 to 10. Household income scores ranged from 1 to 12, with a mean of 4.84 (SD = 3.84). Skewness values ranged from -0.39 (education) to 0.84 (household income), and kurtosis values ranged from -1.04 to -0.58 , indicating slight non-normality across variables (see Table no.1).

Table no.1
Descriptive Statistics for Socioeconomic Status indicators

Variable	N	M	SD	Median	Mode	Min	Max	Skewness	Kurtosis
Education	147	5.36	1.16	6.00	6	3	7	-0.39	-1.04
Occupation	147	4.16	2.34	5.00	6	1	10	0.05	-0.58
Household Income	144	4.84	3.84	3.00	2	1	12	0.84	-1.01

Note. SES = Socioeconomic status. Three cases had missing data for household income (N = 144). M = Mean; SD = Standard deviation.

The descriptive statistics of the key variables in this study (SES, DASS – 21, PID_T, and ATQ_T) indicate a range of distributions. The variables show slight positive skewness and platykurtic distributions, with more participants reporting average to low scores and fewer reporting extreme values. These patterns are typical for psychological measures, where there are more individuals in the middle ranges and fewer with very high or low scores (see Table no. 2).

Table no.2
Descriptive Statistics for key variables

Variable	N	Min	Max	Mean	Std. Dev.	Skewness	Std. Error	Kurtosis	Std. Error
SES	144	6.00	29.00	14.37	5.79	0.414	0.202	-0.816	0.401
DASS - 21	147	40.00	154.00	81.10	27.40	0.645	0.200	-0.425	0.397
PID_T	147	28.00	82.00	49.78	12.23	0.500	0.200	-0.366	0.397
ATQ_T	147	15.00	68.00	35.29	14.04	0.398	0.200	-0.842	0.397

Note: SES = Socioeconomic Status Total Score; DASS-21 = Depression Anxiety Stress Scale, 21 items; PID_T = Personality Inventory for DSM -5; ATQ_T = Negative Automatic Thoughts Scale.

3.2. MODEL ANALYSIS

A dual mediation analysis (see Tabel no. 2) was conducted using PROCESS Model 4 (Hayes, 2022) to examine whether the relationship between depression and anxiety symptoms (DASS-21) and socioeconomic status (SES) was mediated by maladaptive personality (PID_T) and negative automatic thoughts (ATQ_T).

The total effect of DASS-21 on SES was statistically significant, $b = -0.0517$, $SE = 0.0173$, $t(142) = -2.99$, $p = .0033$, indicating that higher levels of depression and anxiety were associated with lower socioeconomic status. However, the direct effect of DASS-21 on SES_T after accounting for the mediators was not significant, $b = 0.0249$, $SE = 0.0296$, $t(140) = 0.84$, $p = .4015$, suggesting full mediation (see Table no. 3).

Table no. 3
Mediation Analysis Results

Path	Effect	SE	t	p	95% CI Lower	95% CI Upper
Total Effect	-0.0517	0.0173	-2.986	0.0033	-0.0859	-0.0175
Direct Effect	0.0249	0.0296	0.8415	0.4015	-0.0337	0.0835
Total Indirect	-0.0766	0.028			-0.1346	-0.0243
PID_T	-0.0384	0.0141			-0.0664	-0.0101
ATQ_T	-0.0382	0.0263			-0.0934	0.0115

Note. SE = standard error; CI = confidence interval. Significant indirect effects are determined by bootstrap confidence intervals that do not include zero.

The total indirect effect was statistically significant, $b = -0.0766$, $BootSE = 0.0280$, 95% CI $[-0.1346, -0.0243]$ suggesting that depression and anxiety symptoms indirectly affect SES through the mediators. Specifically (see Table no. 4):

- A significant indirect effect was found through PID_T ($b = -0.0384$, 95% CI $[-0.0664, -0.0101]$) indicating that dysfunctional personality traits mediated the relationship between depression and anxiety symptoms and SES.
- The indirect effect through ATQ_T was not statistically significant ($b = -0.0382$, 95% CI $[-0.0934, 0.0115]$), as the confidence interval included zero. Although the confidence interval included zero at the upper bound, this suggests a marginal effect of negative automatic thoughts in mediating the relationship between anxiety – depression and SES.

Table no. 4
Bootstrap Confidence Intervals for Indirect Effects

Indirect Pathway	Bootstrapped Effect (b)	Boot SE	95% Boot CI (Lower)	95% Boot CI (Upper)
Total Indirect Effect	-0.0766	0.0280	-0.1346	-0.0243
Indirect Effect - PID_T	-0.0384	0.0141	-0.0664	-0.0101
Indirect Effect - ATQ_T	-0.0382	0.0263	-0.0934	0.0115

The model explained a significant portion of the variance in SES ($R^2 = 0.1435$, $F(3, 140) = 7.8210$, $p = .0001$). The model's predictors (DASS-21, PID_T, and ATQ_T) significantly contributed to explaining SES, with dysfunctional personality showing a significant negative effect ($b = -0.1364$, $SE = 0.0507$, $t = -$

2.6898, $p = .0080$). In contrast, negative automatic thoughts did not reach statistical significance ($b = -0.0906$, $SE = 0.0601$, $t = -1.5075$, $p = .1339$).

These results suggest that SES influence depression and anxiety symptoms indirectly, primarily through dysfunctional personality traits. Negative automatic thoughts also played a role in this relationship, though its effect was weaker and less consistent.

4. DISCUSSION

The current study tested a dual mediation model examining the indirect effects of depression and anxiety on SES thought two mediators: dysfunctional personality and negative automatic thoughts. The results showed that maladaptive personality significantly mediated the relationship between SES and anxiety and depression symptoms, with a negative indirect effect. Although negative automatic thoughts also exhibited a marginal indirect effect, the confidence interval for this effect included zero, suggesting weaker evidence for its role in the mediation.

Previous research papers have shown that socioeconomic status plays a significant role in predicting anxiety and depression symptoms (Azizabadi *et al.*, 2022). Families with low SES face multiple forms of deprivation and experience a greater number of stressors related to finances, social relationships, employment, and health issues compared to those with high SES (Reiss *et al.*, 2019). Socioeconomic status (SES) and personality are intertwined. Lower SES is often associated with a higher risk of maladaptive personality traits (Jonassaint *et al.*, 2011). Negative automatic thoughts mediate the relationship between personality traits (as neuroticism) and depression, based on previous data (Du *et al.*, 2015). Low SES is associated is linked to a higher risk of depression (Jespersen *et al.*, 2023).

Our study supports the cognitive-behavioral model, which posits that negative thinking patterns (like those found in automatic thoughts) and dysfunctional personality traits can influence emotional regulation and behavior, thus shaping life outcomes.

The findings suggest that dysfunctional personality traits may play a more central role than negative automatic thoughts in explaining the relationship between mental health and SES, providing insights into which traits or behaviors might be targeted in interventions to improve psychological distress outcomes and quality of life.

4.1 LIMITATIONS AND FUTURE DIRECTIONS

This study has cross-sectional design. Additionally, the reliance on self-report measures, such as the PID-DSM-5, DASS-21 and ATQ-15, may introduce response biases. Future research would benefit from a longitudinal approach and more diverse samples to confirm and expand upon these results.

4.2. PRACTICAL IMPLICATIONS

Mental health interventions (as Brief Cognitive – Behavioral Therapy and psychoeducation - A Provider's Guide to Brief Cognitive Behavioral Therapy) targeting both dysfunctional personality traits and negative automatic thoughts could help reduce the negative impact of depression, anxiety and, on individuals' socioeconomic status, potentially improving overall life outcomes.

5. CONCLUSIONS

This study highlights the significant impact of SES on psychological distress. The findings suggest that lower SES is associated with higher levels of depression and anxiety, with dysfunctional personality traits serving as a key mediator in this relationship. Negative automatic thoughts also play a role, although their effect is weaker and more marginal. Implementing evidence-based approaches, such as cognitive-behavioral therapy, may help reduce mental health disparities linked to socioeconomic inequality. These findings emphasize the importance of developing public policies that prioritize mental health prevention and intervention strategies within socioeconomically disadvantaged communities. Future research should build upon these results by investigating the long-term effects of SES on mental health, incorporating the five maladaptive personality domains, cognitive schemas, and irrational beliefs, and including more diverse populations to strengthen the generalizability of these findings.

6. DECLARATIONS

The research was conducted following the Helsinki Declaration guidelines and the ethical requirements of the Ethical Committee of the University of Bucharest to which the authors are affiliated (document No. 101/19.12.2021).

Received: 31.05.2025

REFERENCES

1. AZIZABADI, Z., AMINISANI, N., EMAMIAN, M. H., *Socioeconomic inequality in depression and anxiety and its determinants in Iranian older adults*. BMC Psychiatry, **22**, 761, 2022. <https://doi.org/10.1186/s12888-022-04433-w>
2. BATMAZ, S., AHMET YUNCU, O., KOCBIYIK, S., *Assessing Negative Automatic Thoughts: Psychometric Properties of the Turkish Version of the Cognition Checklist*. Iranian Journal of Psychiatry and Behavioral Sciences, **9**, 4, 2015. <https://doi.org/10.17795/ijpbs-3444>
3. CARON, J., LIU, A., *Factors Associated with Psychological Distress in the Canadian Population: A Comparison of Low-Income and Non-Low-Income Sub-Groups*, Community Mental Health Journal, **47**, 3, 2011, p. 2011318–330. <https://doi.org/10.1007/s10597-010-9306-4>
4. DA SILVA, H. A., DOS PASSOS, M. H. P., DE OLIVEIRA, V. M. A., PALMEIRA, A. C., PITANGUI, A. C. R., DE ARAÚJO, R. C., *Short version of the Depression Anxiety Stress Scale-21: Is it valid for Brazilian adolescents? Einstein*, **14**, 4, 2016, p. 486–493. <https://doi.org/10.1590/S1679-45082016AO3732>
5. DU, X., LUO, W., SHEN, Y., WEI, D., XIE, P., ZHANG, J., ZHANG, Q., QIU, J., *Brain structure associated with automatic thoughts predicted depression symptoms in healthy individuals*. Psychiatry Research: Neuroimaging, **232**, 3, 2015, p. 257–263. <https://doi.org/10.1016/j.psychresns.2015.03.002>
6. EDUCATION AND SOCIOECONOMIC STATUS FACTSHEET. (N.D.). <https://www.apa.org>. Retrieved March 20, 2025, from <https://www.apa.org/pi/ses/resources/publications/education>
7. FRYERS, T., MELZER, D., JENKINS, R., *Social inequalities and the common mental disorders: A systematic review of the evidence*, Social Psychiatry and Psychiatric Epidemiology, **38**, 5, 2003, p. 229–237. <https://doi.org/10.1007/s00127-003-0627-2>
8. GEIGER, P. J., PETERS, J. R., SAUER-ZAVALA, S. E., BAER, R. A., *Relationships among maladaptive cognitive content, dysfunctional cognitive processes, and*

- borderline personality features. *Journal of Personality Disorders*, **27**, 4, 2013, p. 457–464. https://doi.org/10.1521/pedi_2013_27_097
9. GÖKDAĞ, C., KAÇAR-BAŞARAN, S., *An Assessment of the Validity and Reliability of the Automatic Thoughts Questionnaire (ATQ) in Depressive and Control Group*, 2014.
 10. ResearchGate.
https://www.researchgate.net/publication/276761224_An_Assessment_of_the_VValidity_and_Reliability_of_the_Automatic_Thoughts_Questionnaire_ATQ_in_Depressive_and_Control_Group
 11. HABIBI, D., PARSAEI, R., ROOHAFZA, H., FEIZI, A. *Personality traits and quality of life: A cross-sectional study in a middle-aged Iranian general population. Health and Quality of Life Outcomes*, **23**, 1, 2025, p. 13. <https://doi.org/10.1186/s12955-025-02344-4>
 12. HAYES, A. F. *Introduction to Mediation, Moderation, and Conditional Process Analysis: Third Edition: A Regression-Based Approach*. Guilford Press., 2022. https://www.guilford.com/books/Introduction-to-Mediation-Moderation-and-Conditional-Process-Analysis/Andrew-Hayes/9781462549030?srsId=AfmBOopVCdE_lfWSZSRDO5_N6jFSA3pZOmz3ZAhLnYYGFWI13kjVjjDE
 13. IRELAND, J. L., BROWN, S. L., BALLARINI, S., *Maladaptive personality traits, coping styles and psychological distress: A study of adult male prisoners. Personality and Individual Differences*, **41**, 3, 2006, p. 561–573. <https://doi.org/10.1016/j.paid.2006.03.002>
 14. JESPERSEN, A., MADDEN, R., WHALLEY, H. C., REYNOLDS, R., LAWRIE, S. M., MCINTOSH, A. M., IVESON, M., *Socioeconomic Status and Depression – A Systematic Review*, 2023, <https://doi.org/10.1101/2023.12.04.23299380>
 15. JOKELA, M., KELTIKANGAS-JÄRVINEN, L. *The association between low socioeconomic status and depressive symptoms depends on temperament and personality traits. Personality and Individual Differences*, **51**, 3, 2011, p. 302–308. <https://doi.org/10.1016/j.paid.2010.05.004>
 16. JONASSAINT, C. R., SIEGLER, I. C., BAREFOOT, J. C., EDWARDS, C. L., WILLIAMS, R. B., *Low Life Course Socioeconomic Status (SES) is Associated with Negative NEO PI-R Personality Patterns. International Journal of Behavioral Medicine*, **18**, 1, 2011, p. 13–21. <https://doi.org/10.1007/s12529-009-9069-x>
 17. KIRKBRIDE, J. B., ANGLIN, D. M., COLMAN, I., DYKXHOORN, J., JONES, P. B., PATALAY, P., PITMAN, A., SONESON, E., STEARE, T., WRIGHT, T., GRIFFITHS, S. L. *The social determinants of mental health and disorder: Evidence, prevention and recommendations. World Psychiatry*, **23**, 1, 2024, p. 58–90. <https://doi.org/10.1002/wps.21160>
 18. KIVIMÄKI, M., BATTY, G. D., PENTTI, J., SHIPLEY, M. J., SIPILÄ, P. N., NYBERG, S. T., SUOMINEN, S. B., OKSANEN, T., STENHOLM, S., VIRTANEN, M., MARMOT, M. G., SINGH-MANOUX, A., BRUNNER, E. J., LINDBOHRM, J. V., FERRIE, J. E., VAHTERA, J. *Association between socioeconomic status and the development of mental and physical health conditions in adulthood: A multi-cohort study. The Lancet. Public Health*, **5**, 3, 2020 p.140–149. [https://doi.org/10.1016/S2468-2667\(19\)30248-8](https://doi.org/10.1016/S2468-2667(19)30248-8)
 19. KLEIN, D. N., KOTOV, R., BUFFERD, S. J., *Personality and Depression: Explanatory Models and Review of the Evidence*, *Annual Review of Clinical Psychology*, **7**, 2011, p. 269–295. <https://doi.org/10.1146/annurev-clinpsy-032210-104540>
 20. KRAFT, P., KRAFT, B., *Explaining socioeconomic disparities in health behaviours: A review of biopsychological pathways involving stress and inflammation*, *Neuroscience Biobehavioral Reviews*, **127**, 2021, p. 689–708. <https://doi.org/10.1016/j.neubiorev.2021.05.019>

21. LOVIBOND, S. H., LOVIBOND, P. F., *Depression Anxiety Stress Scales*, 2011, <https://doi.org/10.1037/t01004-000>
22. MAJUMDER, S., *Socioeconomic status scales: Revised Kuppaswamy, BG Prasad, and Udai Pareekh's scale updated for 2021*, *Journal of Family Medicine and Primary Care*, **10**, 11, 2021 p. 3964–3967. https://doi.org/10.4103/jfmpe.jfmpe_600_21
23. MARCHI, M., ALKEMA, A., XIA, C., THIO, C. H. L., CHEN, L.-Y., SCHALKWIJK, W., GALEAZZI, G. M., FERRARI, S., PINGANI, L., KWEON, H., EVANS-LACKO, S., DAVID HILL, W., BOKS, M. P., *Investigating the impact of poverty on mental illness in the UK Biobank using Mendelian randomization*, *Nature Human Behaviour*, **8**, 9, 2024, p. 1771–1783. <https://doi.org/10.1038/s41562-024-01919-3>
24. MILLER, J. D., BAGBY, R. M., HOPWOOD, C. J., SIMMS, L. J., LYNAM, D. R., *Normative data for PID-5 domains, facets, and personality disorder composites from a representative sample and comparison to community and clinical samples*, *Personality Disorders*, **13**, 5, 2022, p. 536–541. <https://doi.org/10.1037/per0000548>
25. NETEMEYER RICHARD G., WILLIAMSON DONALD A., *Psychometric Properties of Shortened Versions of the Automatic Thoughts Questionnaire*, 2024. <https://doi.org/10.1177/0013164402062001008>
26. PEREIRA-MORALES, A. J., ADAN, A., LOPEZ-LEON, S., FORERO, D. A., *Personality traits and health-related quality of life: The mediator role of coping strategies and psychological distress*, *Annals of General Psychiatry*, **17**, 1, 2018, p. 25. <https://doi.org/10.1186/s12991-018-0196-0>
27. REISS, F., MEYROSE, A.-K., OTTO, C., LAMPERT, T., KLASSEN, F., RAVENS-SIEBERER, U., *Socioeconomic status, stressful life situations and mental health problems in children and adolescents: Results of the German BELLA cohort-study*. *PLoS ONE*, **14**, 3, 2019. <https://doi.org/10.1371/journal.pone.0213700>
28. RELIABILITY AND VALIDITY OF THE PERSONALITY INVENTORY FOR DSM-5 (PID-5) | REQUEST PDF. (2025). <https://doi.org/10.1177/1073191113504984>
29. RESEARCH CENTRAL. (N.D.). Retrieved May 26, 2025, from <https://researchcentral.ro/detalii.php?id=433>
30. RIDLEY, M., RAO, G., SCHILBACH, F., PATEL, V., *Poverty, depression, and anxiety: Causal evidence and mechanisms*, *Science*, **370**, 6522, 2020. <https://doi.org/10.1126/science.aay0214>
31. STROHMAIER, S., PILLAI, M., WEITZER, J., HAN, E., ZENK, L., BIRMANN, B. M., BERTAU, M., CANIGLIA, G., LAUBICHLER, M. D., STEINER, G., SCHERNHAMMER, E. S., *The Relationship between Big Five Personality Traits and Depression in the German-Speaking D-A-CH Region Including an Investigation of Potential Moderators and Mediators*, *European Journal of Investigation in Health, Psychology and Education*, **14**, 8, 2024. <https://doi.org/10.3390/ejihpe14080144>
32. XU, Q., LI, H., ZHU, D., *Socioeconomic status, personality, and major mental disorders: A bidirectional Mendelian randomization study*, *Schizophrenia*, **10**, 1, 2024, p. 1–7. <https://doi.org/10.1038/s41537-024-00471-3>

