Health and Research Journal (peer review)
ISSN:2459-3192
International Journal of Research and Review in Health Sciences

Volume 6 Issue 4 October - December 2020

EDITORIAL
THE EFFECT OF EMTRICITABINE AND TENOFOVIR USE IN THE PRE-EXPOSURE PROFYLAXIS (PREP) FOR HIV TRANSMISSION

BRIEF REPORT
DEPRESSION IN DIABETIC FOOT ULCERS

SPECIAL ARTICLES
DEVELOPING SUPPORT NETWORKS FOR SUCCESSFUL IMPLEMENTATION OF INNOVATIVE EDUCATION-AL PROGRAMMES: THE CASE OF "EVIDENCE-BASED PRACTICE IN NURSING" CONTINUING EDUCATION PROGRAMME IN GREECE

RESEARCH ARTICLES
EXPLORATION THE QUALITY OF LIFE AND THE RELATED FACTORS IN WOMEN WITH RECENT DIAGNOSIS OF GYNECOLOGICAL CANCER, BEFORE THE SURGICAL TREATMENT, IN GREECE

ADAPTATION OF "NICHOLSON MCBRIDE RESILIENCE QUESTIONNAIRE" (NMRQ) IN GREEK. A RELIABILITY AND VALIDITY STUDY IN AN EPIDEMIOLOGICAL GREEK SAMPLE

Published in cooperation with the Postgraduate Program "Intensive Care Units", the Hellenic Society of Nursing Research and Education and the Helerga

Adaptation of "Nicholson McBride Resilience Questionnaire" (NMRQ) in Greek. A reliability and validity study in an epidemiological Greek sample

Georgios Pilafas, Nefeli Paraskevi Strongylaki, Dimitrios Papaioannou, Despina Menti, Georgios Lyrakos

ADAPTATION OF 'NICHOLSON MCBRIDE RESILIENCE QUESTIONNAIRE' (NMRQ) IN GREEK. A RELIABILITY AND VALIDITY STUDY IN AN EPIDEMIOLOGICAL GREEK SAMPLE

Georgios Pilafas[1], Nefeli Paraskevi Strongylaki[2], Dimitrios Papaioannou[3], Despina Menti[4], Georgios Lyrakos[5]

1. MSc, MSc(c), Research Associate, Psychology Research Center, City Unity College, Athens, Greece
2. MSc(c), MBPsS, Research Associate, Psychology Research Center, City Unity College, Athens, Greece
3. MSc(c), Research Associate, Psychology Research Center, City Unity College, Athens, Greece
4. PgDip, MSc, PhD, CPsychol, EuroPsy, Psychology & Health Psychology Lecturer, Department of Psychology, Cardiff Metropolitan University at City Unity College, Athens, Greece; and Registered Practitioner 'Health Psychologist' with HCPC, UK
5. MSc, MPH, PhD, PostDoc, Program Director of 'MSc Health Psychology', Department of Psychology, Cardiff Metropolitan University at City Unity College, Athens, Greece; and 'Clinical Health Psychologist', Psychiatric Department, General Public Hospital of Nikaia 'Ayios Panteleimon', Athens, Greece

Abstract

Introduction: 'Psychological Resilience' is one of the key elements in human behavior that interplays with stress in mental disorders and physical illnesses in both healthy and unhealthy populations, regardless of their biopsychosocial background. Therefore, a reliable and valid resilience questionnaire for clinical and research use is of great necessity.

Aim: Hence, the present study was conducted in order for the original English version of 'Nicholson McBride Resilience Questionnaire' (NMRQ) to be adapted in the Greek population.

Methods & Materials: The original English NMRQ consists of 12 items measuring resilience. It is a self-reported questionnaire, while each respective item is measured through a 5-Likert scale point system. The design of the study was developed to firstly translate the original English questionnaire in Greek, and secondly to test the new version upon its 'item consistency', 'internal correlation', 'internal consistency', 'consistency validity', and finally perform a 'factor analysis' after recruiting a Greek sample.

Results: The results show 80% validity (Cronbach's alpha=.800) of the new Greek version. The number of participants (N= 1,158) provided to the study an 'a priori' odds ratio of 1.274, a critical z of 1.6448 and an actual power of 95%. The Greek translation was considered accurate, while the new version maintained a good item consistency.

Conclusion: It is proposed that the Greek version of NMRQ may be adapted in the Greek population in clinical and research related to resilience and stress, as well as for any future studies to test-retest its validity and reliability.

Keywords: Nicholson McBride Resilience Questionnaire, NMRQ Greek version, Greek adaptation, Resilience Questionnaire, Health Psychology Questionnaire.

Corresponding Author: Georgios Pilafas, MSc, Research Associate at CUC Psychology Lab, Email: giorgos.pilafas@gmail.com

INTRODUCTION

Psychological resilience is one of the key components of human reaction against stress and stressful situations.[1] Resilience is currently defined as the ability, after a crisis, to 'bounce back' to a pre-crisis mental and physical condition[2], and/or -based on 'post-traumatic growth' theory- to accept any negative outcome of the crisis for 'personal growth' and the best possible 'quality of life'.[3,4]

There is evidence that resilience and stress levels may contribute significantly in favor or against the development and the course of mental disorders and physical illnesses. For instance, literature shows –predominantly, but not exclusively- that resilience is important in (i) 'acute illnesses',[5] (ii) 'chronic illnesses'[6,7] –and especially combined with the idea that old people's function of 'Hypothalamic–Pituitary–Adrenal (HPA) Axis' declines with age[8]-, (iii) 'suicidal thoughts' in 'acute mental disorders',[9] (iv) 'psychosomatics' in healthy populations,[10] (v) 'neuropsychiatric disorders' in the long-run[11] and (vi) the pain perception in the 'pain triangle' of fear-pain-catastrophizing.[12] This makes research on resilience one of the most important present and promising topics in the foreseeable future, as well as of great necessity in Health Psychology and Behavioral Medicine.

The most widely used scales for measuring resilience include: the Connor- Davidson Resilience Scale (CD-RISC),[13] the Brief Resilience Scale (BRS),[14] and the 'Nicholson McBride Resilience Questionnaire'(NMRQ).[15] The CD-RISC is a 25-item questionnaire, considered to be more suitable for clinical applications as it has been delivered to both general population and clinical samples, demonstrating important findings on mental disorders such as post- traumatic stress disorder (PTSD), anxiety disorder and general psychiatric outpatients. The scale establishes a strong internal consistency (Cronbach's alpha .89) and reliability.[13] The published literature demonstrates a worldwide use of this scale for clinical interventions[16-18]. BRS is a 6-item scale which is considered to be a useful tool in the Behavioral Medicine research as it maintains a focus on individuals dealing with health-related stressors and their ability to 'bounce-back' or 'heal' from stress.[14] The survey demonstrates a good internal consistency, (Cronbach's alpha= .80 to .91) and test-retest reliability. The NMRQ is a 12-item questionnaire promoted by the National health System (NHS) of England and Wales, identified as the most suitable for the needs of the general population[15]. The available form provides the self-reported questionnaire along with the ability of self- scoring and information regarding the final score. This is the first attempt, in the published literature, of translating and adapting the (NMRQ) in Greek. Consequently, the aim of the study is to evaluate the psychometric properties of NMRQ as a valid and reliable tool to measure the levels of resilience in the Greek population. NMRQ was chosen based on its design, which was considered the most suitable for an epidemiological study.

METHOD

Original Questionnaire & Greek Translation

The original English version of NMRQ was retrieved from the official website of 'NHS England & Wales'.[15] The later questionnaire was translated from English into Greek. More information is given in the 'Results' section.

Sample, Recruitment & Conditions

The study aimed to recruit the highest possible amount of intellectually healthy adults who could read and answer questions in Greek. Recruitment of the participants took place through the 'Google Forms' function, the use of social media for promotion and overall the researchers used the 'snowball sampling'method.[19] It is worth mentioning that the authors received answers during the COVID-19 outbreak in Greece.

Demographics

The study recruited on the whole 1,158 Greek adults. The ages of the participants ranged between 18 and 78 years old. The mean age of participants is 40.51 (SD= ±12.8). More information upon the demographics is given below, in Table 1.

Ethics

Regarding the ethical considerations, the study was approved by the Ethics Committee of Research and Conduct of City Unity College and City Unity Research Center in Athens, Greece. The approval reference number is 2020PSYRSC-003.

Measures & Statistical Analysis

The original English NMRQ consists of 12 items measuring resilience. It is a self-reported questionnaire, while each respective item is measured through a 5-Likert scale point system.[20]

The scoring scheme is between 1 and 5, with 1= strongly disagree and 5= strongly agree. The same system was used in the proposed Greek version. Further analysis of the raw data was performed by the use of IBM SPSS Statistics for Windows, version 26.[21]

Design of Study

The design of the study was developed to firstly, translate the original English questionnaire in Greek, and secondly, to test the new version upon its 'item consistency', 'internal correlation', 'internal consistency', 'consistency validity', and finally perform a 'factor analysis' on a Greek sample.

RESULTS

Statistical Power

The power of the study was calculated by the use of 'G*Power 3.1'software.[22]The number of participants (N= 1,158) provided to the study an 'a priori'odds ratio of 1.274, a critical z of 1.6448 and an actual power of 95%.

Translation

The original English version of NMRQ was translated by 2 independent translators and then was back translated into English, in order to evaluate the new Greek version of the questionnaire. The two versions were similar to each other; therefore, the Greek translation was considered accurate.[23]

Item Consistency

After the translation of the NMRQ, 5 individuals with a psychology background, 3 with a non-psychology background and 2 under-aged people, aged at 14 years old, read and confirmed to the researchers, that they understand all the items and what is asked from them to do. No one asked for any further instructions or declared that they do not understand the questions. The new questionnaire was considered to have a good item consistency.[24]

Internal Correlation

Internal correlation was tested with Pearson's r analysis[25]. The results are illustrated in Table 2.

Internal Consistency

Internal Consistency was tested by the use of 'Cronbach's alpha coefficient'analysis.[25]The result of the analysis isfound at .800 in overall 12 items.

Factor Analysis

Factor analysis illustrated three factors/criteria within the questionnaire[25]. Only 2 items were found in 2 factors. Since the original version of NMRQ considered measuring one factor – resilience-, there was no further qualitative analysis for each of the 3 factors found.

Adaptation in Real Life

Finally, the proposed Greek version of the questionnaire was tested for its potential effectiveness on both research and practice. Resilience to stress, is a condition theoretically correlated with 'acute stress'[26-28] and 'psychosomatic symptoms'.[29-31] Therefore, in the present study, the proposed Greek version of NMRQ was tested whether it would show any correlation with the 'Acute Stress Disorder Scale' (ASDS)[32] that measures acute stress in 19 items and a newly designed 'Psychosomatics Questionnaire' that include 29 items measuring 'mood and cognitive', 'cardiovascular-related'and 'non-cognitive somatic' symptoms. Both questionnaires were answered by the same sample (N= 1,158). NMRQ was found to be negatively correlated with ASDS, r (1156) = -.420, p< .001, and with the psychosomatic symptoms, r(1156) = -.499, p< .001.

The findings demonstrated above are consistent to the background theory regarding the HPA Axis and may provide some support for adaptation of the Greek version of NMQR in real life conditions.

DISCUSSION

According to the findings illustrated above, the Greek version of NMRQ indicates a strong internal consistency (Cronbach's alpha =.80). Although, both the surveys of CD-RISC and BRS have been shown to have strong internal consistency as well, with Cronbach's alpha values up to .80,[13-14] the present study chose to translate and adapt the NMRQ, as the most applicable scale for studies on general population. More precisely, the NMRQ offers a full self-measurement and self-scoring design and provides useful tips on improving one's resilience, based on their current score.[15] Moreover, it does not have a specific direction, so it is not limited to people with mental or health-related issues.

On the other hand, CD-RISC maintains a significant focus on

clinical cases with specific mental disorders while BRS has also a specified interest in individuals with health-related stress.[13-14] As a result, these scales are identified as less suitable for a study interested in researching the resilience level of the general population. Along with the validity testing, the proposed scale was examined for its ability to be applied in real-life clinical and research contexts. The results provided by the validation testing indicate a negative correlation between resilience, acute stress and psychosomatic symptoms. These results are in line with previous findings supporting the negative correlation between resilience and 'acute stress'[26-28] and 'psychosomatic symptoms'.[29-31] Evidently, a high resilience score is associated with reduced levels of 'acute stress' and reduced psychosomatic symptoms. These findings highlight the need for valid resilience measurement and interventions. The proposed Greek version of NMRQ could be used for the needs of the Greek population as a reliable and valid tool, to measure the level of resilience in stressful situations. Moreover, the present questionnaire can be used for the assessment of resilience against stress, psychosomatic symptoms and conditions; whose rationale of development and classification, is based on a clear physiological, pathophysiological and etiopathological activation of the HPA Axis, against any stressor/s in healthy or unhealthy individuals, in Greece. Such an assessment is considered crucial in real-life settings, as it aims at improving the well-being of individuals with low resilience. In clinical settings, the NMRQ could provide evidence on patients' risk of developing stress or depression disorder. Last but not least, it can be used as an evaluation tool to examine the differences after interventions focused on promoting resilience.

Future Studies

The psychometric properties of the questionnaire could be examined in larger-scale studies in order to establish its properties. Also, differences based on groups could also be examined in order to better understand the applicability of the questionnaire.

Limitations

Published literature does not demonstrate previous attempts on validity testing of the NMRQ. Due to the lack of evidence, the supported arguments are compared to other surveys, ra-

ther than evidence provided by the application of NMRQ. Furthermore, the sample of this study was recruited through the convenience sampling method. The data collection took place during the national lockdown, due to the COVID-19 outbreak, which led to the necessity of using online questionnaires to collect the data. As a result, only people with access and appropriate knowledge of electronic devices, such as smartphones, tablets or computers, were able to participate.

The present questionnaire was tested exclusively during the COVID-19 outbreak, a quite distinct situation, also considered as an international health crisis, in which numerous factors may have affected the individual's resilience.

Lastly, the present study performed a factor analysis for each item of the survey. Despite the fact that this is a common analysis performed in a questionnaire's adaptation and translation process, recent evidence suggests that it is not a suitable analysis for items used in psychometry.[33]

CONCLUSIONS

To conclude, the present study tested the validity and reliability of the Greek version of NMRQ. The results show that the Greek version may be used in future studies concerning psychological resilience and stress-related conditions.

REFERENCES

1. Iacoviello BM, Charney DS. Chapter 2 - Cognitive and behavioral components of resilience to stress. In: Chen A, editor. Stress Resilience. Cambridge, MA: Academic Press; 2020. p. 23–31.

2. Terte I de, Stephens C. Psychological Resilience of Workers in High-Risk Occupations. Stress and Health 2014;30(5):353–5.

3. Brooks S, Amlôt R, Rubin GJ, Greenberg N. Psychological resilience and post-traumatic growth in disaster-exposed organisations: overview of the literature. BMJ Mil Health 2020;166(1):52–6.

4. Gooding PA, Littlewood D, Owen R, Johnson J, Tarrier N. Psychological resilience in people experiencing schizophrenia and suicidal thoughts and behaviours. Journal of Mental Health 2019;28(6):597–603.

5. Bradley-Roberts EM, Subbe CP. Role of Psychological Resilience on Health-Outcomes in Hospitalized Patients with Acute Illness: A Scoping Review. Acute Med 2017;16(1):10–5.

6. Haase JE, Kintner EK, Robb SL, Stump TE, Monahan PO, Phillips C, et al. The Resilience in Illness Model (RIM) Part 2: Confirmatory Evaluation in Adolescents and Young Adults with Cancer. Cancer Nurs 2017;40(6):454–63.

7. Hemington KS, Rogachov A, Cheng JC, Bosma RL, Kim JA, Osborne NR, et al. Patients with chronic pain exhibit a complex relationship triad between pain, resilience, and within- and cross-network functional connectivity of the default mode network. Pain 2018;159(8):1621–30.

8. Tecson KM, Wilkinson LR, Smith B, Ko JM. Association between psychological resilience and subjective well-being in older adults living with chronic illness. Baylor University Medical Center Proceedings 2019;32(4):520–4.

9. Harris K, Haddock G, Peters S, Gooding P. Psychological resilience to suicidal thoughts and behaviours in people with schizophrenia diagnoses: A systematic literature review. PsycholPsychother 2019;93(4):777-809.

10. Hemington KS, Cheng JC, Bosma RL, Rogachov A, Kim JA, Davis KD. Beyond Negative Pain-Related Psychological Factors: Resilience Is Related to Lower Pain Affect in Healthy Adults. The Journal of Pain 2017;18(9):1117–28.

11. Ovaska-Stafford N, Maltby J, Dale M. Literature Review: Psychological Resilience Factors in People with Neurodegenerative Diseases. Arch Clin Neuropsychol 2019;acz063.

12. Slepian PM, Ankawi B, France CR. Longitudinal Analysis Supports a Fear-Avoidance Model That Incorporates Pain Resilience Alongside Pain Catastrophizing. Ann Behav Med 2020;54(5):335–45.

13. Connor KM, Davidson JR. Development of a new resilience scale: The Connor-Davidson resilience scale (CD-RISC). Depression and Anxiety 2003;18(2):76-82.

14. Smith BW, Dalen J, Wiggins K, Tooley E, Christopher P, Bernard J. The brief resilience scale: assessing the ability to bounce back. International Journal of Behavioral Medicine 2008;15(3):194-200.

15. NHS England & Wales. Nicholson McBride Resilience Questionnaire (NMRQ). Resilience Questionnaire. 2020.

16. Yu X, Zhang J. Factor analysis and psychometric evaluation of the Connor-Davidson Resilience Scale (CD-RISC) with Chinese people. Social Behavior and Personality: an international journal 2007;35(1):19-30.

17. Shin GS, Choi KS, Jeong KS, Min YS, Ahn YS, Kim MG. Psychometric properties of the 10-item Conner-Davidson resilience scale on toxic chemical-exposed workers in South Korea. Annals of occupational and environmental medicine 2018;30:52.

18. Green KT, Hayward LC, Williams AM, Dennis PA, Bryan BC, Taber KH, Mid-Atlantic Mental Illness Research, Education and Clinical Center Workgroup, Davidson JR, Beckham JC, Calhoun PS. Examining the factor structure of the Connor–Davidson Resilience Scale (CD-RISC) in a post-9/11 US military veteran sample. Assessment 2014;21(4):443-51.

19. Goodman LA. Snowball Sampling. Ann Math Statist 1961;32(1):148–70.

20. Faul F, Erdfelder E, Buchner A, Lang AG. Statistical power analyses using G* Power 3.1: Tests for correlation and regression analyses. Behavior research methods 2009;41(4):1149-60.

21. Likert R. A technique for the measurement of attitudes. Archives of Psychology 1932;22 140:55–55.

22. IBM Corp. IBM SPSS Statistics for Windows. Armonk, NY: IBM Corp.; 2020.

23. KuliśD, Whittaker C, Greimel E, Bottomley A, Koller M, Group on behalf of the EQ of L. Reviewing back translation reports of questionnaires: the EORTC conceptual framework and experience. Expert Review of Pharmacoeconomics& Outcomes Research 2017;17(6):523–30.

24. Gesser-Edelsburg A, Shahbari NAE, Cohen R, Halavi AM, Hijazi R, Paz-Yaakobovitch G, et al. Differences in Perceptions of Health Information Between the Public and Health Care Professionals: Nonprobability Sampling Questionnaire Survey. Journal of Medical Internet Research 2019;21(7):e14105.

25. Field A. Discovering Statistics Using IBM SPSS Statistics. SAGE; 2013. 954 p.

26. Cai W, Pan Y, Zhang S, Wei C, Dong W, Deng G. Relation-ship between cognitive emotion regulation, social support, resilience and acute stress responses in Chinese soldiers: Exploring multiple mediation model. Psychiatry Research 2017;256:71–8.

27. Chen Y-L, Lu M-H, Weng L-T, Lin C, Huang P-W, Wang C-H, et al. A Correlational Study of Acute Stress and Resilience Among Hospitalized Burn Victims Following the Taiwan Formosa Fun Coast Explosion. Clin Nurs Res 2018;1054773818793599.

28. Zimmer C, Taff CC, Ardia DR, Ryan TA, Winkler DW, Vitousek MN. On again, off again: Acute stress response and negative feedback together predict resilience to experimental challenges. Functional Ecology 2019;33(4):619–28.

29. Karampas K, Michael G, Stalikas A. Positive Emotions, Resilience and Psychosomatic Heath: Focus on Hellenic Army NCO Cadets. Psychology 2016;7(13):1727–40.

30. Ower C, Kemmler G, Vill T, Martini C, Schmitt A, Sperner-Unterweger B, et al. The effect of physical activity in an alpine environment on quality of life is mediated by resilience in patients with psychosomatic disorders and healthy controls. Eur Arch Psychiatry ClinNeurosci 2019;269(5):543–53.

31. Ruini C. Positive Human Health, Positive Mental Health, Resilience and Their Psychosomatic Underpinnings. In: Ruini C, editor. Positive Psychology in the Clinical Domains: Research and Practice. Cham: Springer International Publishing; 2017. p. 31–62.

32. Bryant RA, Moulds ML, Guthrie RM. Acute Stress Disorder Scale: a self-report measure of acute stress disorder. Psychol Assess 2000;12(1):61–8.

33. Sellbom M, Tellegen A. Factor analysis in psychological assessment research: Common pitfalls and recommendations. Psychological Assessment 2019;31(12):1428–41.

ANNEX

Table 1. Demographic Information.

			n=	Percentage
Gender	Male		280	24.2 %
	Female		876	75.6 %
		N=	1,156	99.8 %
Education	School Level		399	34.4 %
	Undergraduate Degree		402	34.7 %
	Postgraduate Degree		357	30.9 %
		N=	1,158	100%
Marital Status	Married		508	43.9 %
	Not Married		650	56.1 %
		N=	1,158	100 %
Children	Yes		631	55.5 %
	No		527	45.5 %
		N=	1,158	100 %
Annual Income	≤10,000€		379	32.8 %
	>10,000€		778	67,2 %
		N=	1,157	99.9 %
Permanent Residence	Athens, Greece		934	80.7 %
	Other		224	19.3 %
		N=	1,158	100 %

N= total number of participants

ANNEX

Table 2. Significance of Person's r correlations between items (N= 1,158).

Item	1	2	3	4	5	6	7	8	9	10	11	12
1		.561***	.011	.253***	.384***	.449***	.269***	.062*	.391***	.225***	.324***	.250***
2	.561***		.059*	.216***	.451***	.444***	.384***	.111***	.419***	.233***	.480***	.382***
3	.011	.059*		.099***	.008	.011	.024	.054	-.048	-.008	-.013	-.008
4	.253***	.216***	.099***		.276***	.266***	.169***	.051	.197***	.167***	.177***	.139***
5	.384***	.451***	.008	.276***		.584***	.513***	.096***	.457***	.167***	.617***	.415***
6	.449***	.444***	.011	.266***	.584***		.358***	.112***	.462***	.283***	.478***	.365***
7	.269***	.384***	.024	.169***	.513***	.358***		.117***	.325***	.182***	.712***	.414**
8	.062*	.111***	.054	.051	.096***	.112***	.117***		.104***	.076**	.138***	.072*
9	.391***	.419***	-.048	.197***	.457***	.462***	.325***	.104***		.324***	.434***	.302***
10	.225***	.233***	-.008	.167***	.167***	.283***	.182***	.076**	.324***		.242***	.232***
11	.324***	.480***	-.013	.177***	.617***	.478***	.712***	.138***	.434***	.242***		.528***
12	.250***	.382***	-.008	.139***	.415***	.365***	.414***	.072*	.302***	.232***	.528***	

p≤ .05*, p≤ .01**, p≤ .001***

Figure 1. Correlation Matrix between Resilience (NMRQ) and Acute Stress (ASDS)
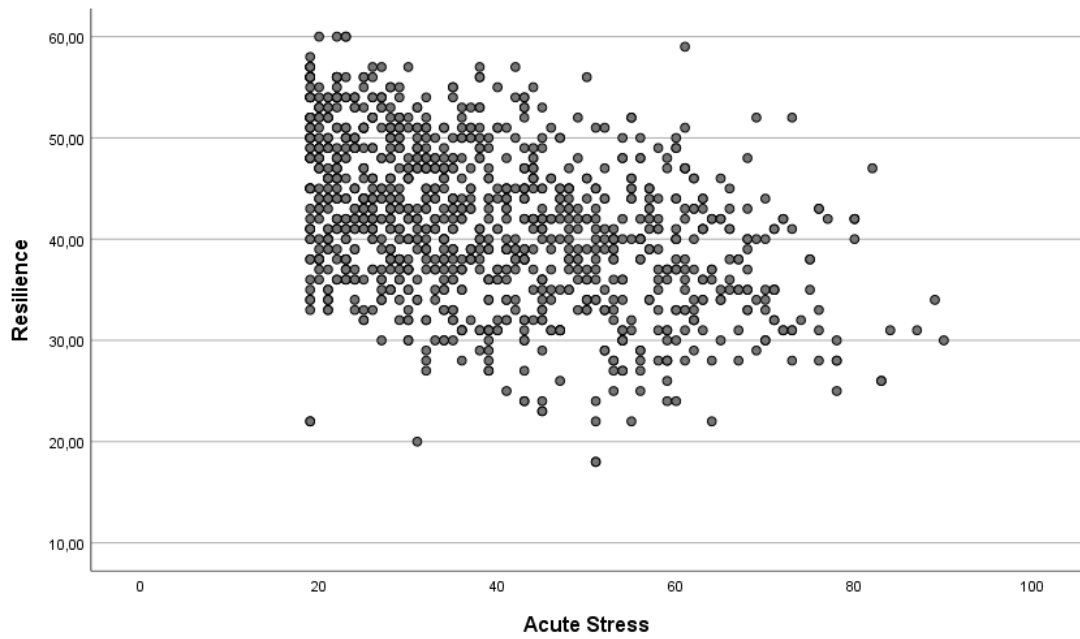

Figure 2. Correlation Matrix between Resilience (NMRQ) and Psychosomatics (PSSQ-29).