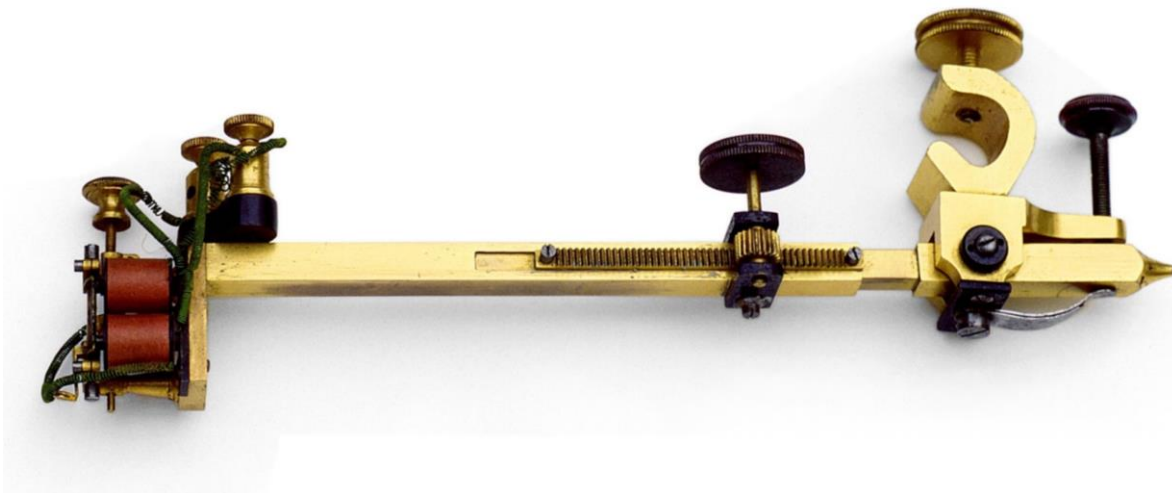


PROCEEDINGS OF THE
XXIX SCIENTIFIC CONFERENCE

EMPIRICAL STUDIES IN PSYCHOLOGY

MARCH 31ST – APRIL 2ND, 2023

FACULTY OF PHILOSOPHY, UNIVERSITY OF BELGRADE



INSTITUTE OF PSYCHOLOGY
LABORATORY FOR EXPERIMENTAL PSYCHOLOGY
FACULTY OF PHILOSOPHY, UNIVERSITY OF BELGRADE

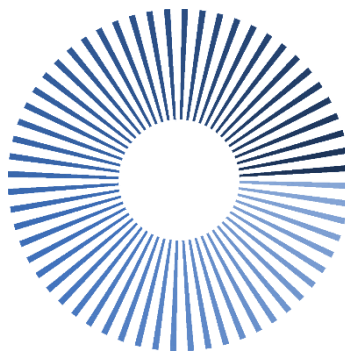
EMPIRICAL STUDIES IN PSYCHOLOGY

MARCH 31ST – APRIL 2ND, 2023

FACULTY OF PHILOSOPHY, UNIVERSITY OF BELGRADE



INSTITUTE OF PSYCHOLOGY



LABORATORY FOR EXPERIMENTAL PSYCHOLOGY
FACULTY OF PHILOSOPHY, UNIVERSITY OF BELGRADE

BELGRADE, 2023

PROGRAMME COMMITTEE

Prof. Dr Dušica Filipović Đurđević, chairwoman
Prof. Dr Laurie Beth Feldman
Prof. Dr Agostini Tiziano
Prof. Dr Lucia Tramonte
Prof. Dr Maria do Céu Taveira
Prof. Dr Gonida Sofia-Eleftheria
Prof. Dr Zvonimir Galić
Prof. Dr Pavle Valerjev
Prof. Dr Dražen Domijan
Dr Anja Wertag, research associate
Asst. Prof. Dr Žan Lep
Dr Dragan Rangelov
Dr Ivan Grahek
Prof. Dr Slobodan Marković
Prof. Dr Sunčica Zdravković
Prof. Dr Iris Žeželj
Prof. Dr Zoran Pavlović
Prof. Dr Tamara Džamonja Ignjatović
Dr Zora Krnjaić, senior research associate
Dr Nataša Simić, senior research associate
Dr Janko Međedović, senior research associate
Dr Ljiljana Lazarević, senior research associate
Prof. Dr Kaja Damnjanović, research associate
Prof. Dr Ksenija Krstić

Prof. Dr Goran Opačić
Prof. Dr Oliver Tošković
Prof. Dr Petar Čolović
Asst. Prof. Dr Milica Vukelić
Asst. Prof. Dr Ivana Stepanović Ilić
Asst. Prof. Dr Danka Purić
Asst. Prof. Dr Olja Jovanović
Asst. Prof. Dr Dobrinka Kuzmanović
Asst. Prof. Dr Bojana Bodroža
Asst. Prof. Dr Ivana Jakovljević
Asst. Prof. Dr Dragan Janković
Asst. Prof. Dr Jelena Matanović
Asst. Prof. Dr Marija Branković
Asst. Prof. Dr Dragana Stanojević
Asst. Prof. Dr Maja Savić
Dr Smiljana Jošić, research associate
Dr Maša Popović, research associate
Dr Darinka Anđelković, research associate
Dr Marina Videnović, research associate
Dr Maša Vukčević Marković, research associate
Dr Marko Živanović, research associate
Prof. Dr Dejan Todorović
Prof. Dr Aleksandar Kostić
Prof. Dr Nenad Havelka

ORGANIZING COMMITTEE

Prof. Dr Dušica Filipović Đurđević, chairwoman
Prof. Dr Slobodan Marković
Dr Nataša Simić, senior research associate
Prof. Dr Oliver Tošković
Prof. Dr Kaja Damnjanović, research associate
Asst. Prof. Dr Ivana Stepanović Ilić
Dr Marina Videnović, research associate
Dr Marko Živanović, research associate
Predrag Nedimović, MA in Psychology, teaching assistant

Ksenija Mišić, MA in Psychology, research assistant
Sandra Ilić, MA in Psychology, research assistant
Milana Rajić, MA in Psychology, research assistant
Kristina Mojović Zdravković, MA in Psychology, research assistant
Sara Anđelić, MA in Psychology, junior research assistant
Olga Marković Rosić, MA in Psychology

REVIEWERS

Dr Anja Wertag, research associate
Dr Darinka Anđelković, research associate
Asst. Prof. Dr Danka Purić
Asst. Prof. Dr Dragan Janković
Asst. Prof. Dr Ivan Stojilović
Asst. Prof. Dr Ivana Jakovljević
Asst. Prof. Dr Iris Žeželj
Asst. Prof. Dr Ksenija Krstić
Asst. Prof. Dr Marija Branković
Dr Milena Jakić Šimšić, research associate
Asst. Prof. Dr Milica Vukelić
Prof. Dr Slobodan Marković
Dr Smiljana Jošić, research associate

EDITORS

Prof. Dr Dušica Filipović Đurđević
Prof. Dr Slobodan Marković
Prof. Dr Kaja Damjanović, research associate
Prof. Dr Oliver Tošković
Dr Nataša Simić, senior research associate
Dr Marina Videnović, research associate
Dr Marko Živanović, research associate

Proofreading and layout:

Kristina Mojović Zdravković, MA in Psychology, research assistant
Predrag Nedimović, MA in Psychology, teaching assistant

Cover photo:

Deprez time-marker (G. Boulitte, Paris)

Device for setting a fine time base for kymographic recording. It provides oscillations for intervals down to 0.005 sec. A pen is attached to the plunger of an electromagnet. The movements of the plunger may be varied with a conical regulator. The device now lacks the pen. The author of this device is French electrical engineer Marcel Deprez who conducted the first experiments to transmit electrical power (DC) over long distances. Dimensions: 18.5 x 4 x 4.5 cm; Net weight; 145 g; Voltage: V DC = 2 – 4 V

From the collection of old scientific instruments of the Laboratory of Experimental Psychology, Faculty of philosophy, University of Belgrade

To Prevent or to Cure: How People Use Traditional, Complementary and Alternative Medicine

Danka Purić (dpuric@f.bg.ac.rs)

Laboratory for Research of Individual Differences and Department of Psychology, Faculty of Philosophy, University of Belgrade

Goran Opačić (goran.opacic@f.bg.ac.rs)

Laboratory for Research of Individual Differences and Department of Psychology, Faculty of Philosophy, University of Belgrade

Marija Petrović (marija.petrovic@f.bg.ac.rs)

Laboratory for Research of Individual Differences and Department of Psychology, Faculty of Philosophy, University of Belgrade

Goran Knežević (gknezevi@f.bg.ac.rs)

Laboratory for Research of Individual Differences and Department of Psychology, Faculty of Philosophy, University of Belgrade

Sanda Stanković (sanda.stankovic@f.bg.ac.rs)

Laboratory for Research of Individual Differences and Institute of Psychology, Faculty of Philosophy, University of Belgrade

Aleksandra Lazić (aleksandra.lazic@f.bg.ac.rs)

Laboratory for Research of Individual Differences and Department of Psychology, Faculty of Philosophy, University of Belgrade

Petar Lukić (petar.lukic@f.bg.ac.rs)

Laboratory for Research of Individual Differences and Department of Psychology, Faculty of Philosophy, University of Belgrade

Ljiljana Lazarević (ljiljana.lazarevic@f.bg.ac.rs)

Laboratory for Research of Individual Differences and Institute of Psychology, Faculty of Philosophy, University of Belgrade

Predrag Teovanović (teovanovic@fasper.bg.ac.rs)

Faculty of Special Education and Rehabilitation, University of Belgrade

Zorana Zupan (zorana.zupan@f.bg.ac.rs)

Laboratory for Research of Individual Differences and Institute of Psychology, Faculty of Philosophy, University of Belgrade

Milica Ninković (milica.ninkovic@f.bg.ac.rs)

Laboratory for Research of Individual Differences and Department of Psychology, Faculty of Philosophy, University of Belgrade

Marija Branković (marija.brankovic@fmk.edu.rs)

Institute for Philosophy and Social Theory, University of Belgrade and Faculty of Media and Communications, Singidunum University

Marko Živanović (marko.zivanovic@f.bg.ac.rs)

Laboratory for Research of Individual Differences and Institute of Psychology, Faculty of Philosophy, University of Belgrade

Iris Žeželj (izezelj@f.bg.ac.rs)

Laboratory for Research of Individual Differences and Department of Psychology, Faculty of Philosophy, University of Belgrade

Abstract

To understand the reasons behind the trend of growing use of traditional, complementary and alternative (TCAM) practices this study sought to uncover how people use them - to prevent disease/promote health, to treat medical conditions by complementing official medical treatments, or as an alternative to them. A sample of $N = 583$ Serbian citizens completed an online questionnaire assessing four TCAM domains: Alternative medical systems (AMS), Natural product-based practices (NP), New Age medicine (NA), and Rituals/Customs (RC). Participants indicated whether they had used a given practice in the past year, and if yes, how they used it. Overall, participants used TCAM preventively in two-thirds of cases, but we also found a significant association between TCAM domain and way of use. AMS was used alternatively more than any other TCAM domain, NP was the most prevalent complementary treatment, while NA and RC were predominantly used preventively. Our results suggest that different domains of TCAM practices may impact people's health differently, depending on how they are used, which should inform interventions.

Keywords: alternative medicine, traditional medicine, preventive TCAM use, alternative TCAM use, health behaviors

Introduction

Traditional, complementary, and alternative medicine (TCAM) denotes a broad set of healthcare practices that are not a part of conventional medical systems (World Health Organization [WHO], 2019). Despite their questionable effectiveness (WHO, 2013), the use of TCAM practices is growing, with half of the general population using it in developed countries (Posadzki et al., 2013). People use these practices for different purposes: 1) to promote health and prevent disease (preventive use), 2) as an addition to conventional medical treatments (complementary use), and 3) as a substitution for conventional treatments (alternative use). While some TCAM modalities do not cause harm (e.g., herbal teas as a complementary treatment for the common cold), others can have detrimental effects on health (e.g., lead pouring as a treatment for anxiety) or interfere with conventional therapies (e.g., using herbal remedies during chemotherapy; Meijerman et al., 2006). However, empirical evidence about how individuals use different TCAM practices is still scarce.

A previous study in Serbia (Purić et al., 2022) suggested that TCAM practices group into four domains: 1) Alternative medical systems (e.g., acupuncture, homeopathy, quantum medicine), 2) Natural product-based medicine (e.g., herbal teas, balms, minerals, antioxidants), 3) New age medicine (e.g., meditation, mindfulness, healing crystals), and 4) Rituals/customs (e.g., prayers for health, water from healing springs, red string around the hand). Unlike previous, conceptual taxonomies (e.g., Kaptchuk & Eisenberg, 2001), these four domains were obtained empirically, based on self-reported use patterns. Furthermore, this novel classification is based on the behavior of Serbian citizens, making it more relevant for the local context, given the cultural specificities of TCAM practices (Kempainen et al., 2018).

In this study, we aimed to explore how each of the four TCAM domains is typically used - for preventive, complementary, or alternative purposes.

Method

Participants

A total of $N = 583$ adult Serbian citizens (74% women; $M_{age} = 39$, $SD_{age} = 12.1$) voluntarily took part in the study and were not compensated for their participation. An average participant had spent 17.11 years in formal schooling ($SD = 2.66$), had moderately high self-perceived socioeconomic status ($M = 4.06$, $max = 6$, $SD = 0.86$), and held a somewhat left-leaning political orientation ($M = 3.01$, from 1 = *left* to 7 = *right*; $SD = 1.54$). Data were collected online in July 2022 through social networks using the snowball method. The research was approved by the Research Ethics Committee at the Faculty of Philosophy, University of Belgrade, Serbia, reference number 935/1 (<https://osf.io/bv7yh>).

Instruments and measures

Participants filled in a checklist of 32 TCAM practices (Purić et al., 2022), grouped into four domains: Alternative medical systems (six items, Cronbach's $\alpha = .52$), Natural product-based practices (nine items, $\alpha = .77$), New Age medicine (ten items, $\alpha = .67$), and Rituals/Customs (seven items, $\alpha = .71$), and asked to indicate whether they used them in the past year. In addition, for each selected practice, participants were asked to consider their most recent experience with a given practice and indicate if they used it for advancing health (preventive use), simultaneously with official medicine therapy (complementary use), or instead of official medicine therapy (alternative use).

Data Transformations

Since only participants who responded that they had used a particular practice in the past year were asked in which way they used it, different participants responded to a different number of items. Subsequently, summary scores for preventive, complementary, and alternative ways of using would not be directly comparable. Therefore, for each participant, we calculated the proportion of TCAM use within a given TCAM domain for each of the three ways of use. We multiplied these proportion scores by the number of participants who used either of the practices from a given domain to obtain observed frequencies.

Results

TCAM practices were most frequently used ($\chi^2(2) = 588.24$, $p < .001$) for preventive purposes (63%), followed by complementary (31%) and alternative purposes (6%). Also, practices from four different domains were not used equally frequently ($\chi^2(3) = 319.05$, $p < .001$), as shown in the last row of Table 1.

The association between TCAM domain and way of use was significant ($\chi^2(6) = 107.23$, $p < .001$; Table 1). To better

understand the nature of this association we created a mosaic plot which visualizes contingency tables (Figure 1) using the mosaic function of the vcd package for R (Meyer et al., 2006; 2023). Tile size indicates the relative frequency of use for both different domains and ways of use. For example, looking at the horizontal axis only we see that Natural-product based practices were the most often used TCAM domain, while Alternative medical systems were used the least.

Table 1. Frequency of use for different TCAM domains and ways of using

Use / Domain	AMS	NP	NA	RC
Preventive	52	308	218	173
Complementary	48	195	47	45
Alternative	27	36	12	6
Total	127	539	277	224

Note. AMS - Alternative medical systems, NP - Natural product-based, NA - New Age medicine, RC - Rituals/Customs

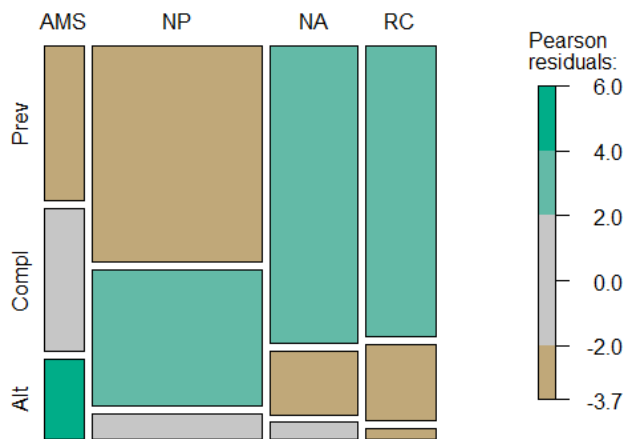


Figure 1. Pearson residuals for the association between TCAM domain (AMS - Alternative medical systems, NP - Natural product-based, NA - New Age medicine, RC - Rituals/Customs) and way of use (Alt - alternative, Compl - Complementary, Prev - Preventive).

On the other hand, tile color indicates the relative size of Pearson residuals i.e. demonstrates which cells contributed to the association. Yellow tiles indicate significantly lower and green tiles significantly higher frequency in a cell than would be expected if there were no association. It is evident that Alternative medical systems were more frequently used in an alternative and less frequently used in a preventive manner, while New Age medicine and Rituals/Customs were predominantly used preventively, and to a much lesser degree in a complementary or alternative way. Natural-product based practices were more frequently used in parallel with

official medical treatments and less frequently used preventively compared to other practices.

Discussion

Overall, almost two-thirds of participants used TCAM practices preventively, followed by complementary use, while a minority of participants used these practices instead of official medicine. However, when broken down by type of practice, TCAM domains had different patterns of use. New Age medicine and Rituals/Customs were used preventively more often than other practices, perhaps because many can be incorporated into one’s daily or weekly routine (e.g. practicing yoga, meditation, religious practices). Unsurprisingly, complementary use was the most frequent for natural-based products, which are typically presented in media as quick and easy cure-alls (Lazić et al., 2023). Finally, as suggested by their name, alternative use of TCAM was most common in the case of Alternative medical systems, which are based on unconventional ideas about health and disease (WHO, 2019).

To our knowledge, this is the first study not only in Serbia, but worldwide, to offer insights on how various TCAM domains are used. However, our convenience sample was predominantly female and highly educated, so future studies should ascertain these trends on a representative sample. Moreover, it is also important to explore whether some stable characteristics of participants (e.g. socio-demographic, health-related or psychological) are predictive of their preferred manner of TCAM use.

Our findings have important implications, as observed patterns of use may impact people’s health differently. While New Age medicine and Rituals/Customs may not be particularly effective in preventing disease, they may not be harmful to health either. However, active ingredients in natural products can interact with drugs or produce side effects, underlying the importance of consulting with healthcare professionals when using these products complementary to treatment. Although the least common, rejecting evidence-based official medicine in favor of alternative practices can cause the greatest harm, since there is no strong evidence in favor of either their safety or efficiency (Ernst, 2019). Knowing the harms of uninformed use of TCAM, providing patients with reliable and responsible sources of information, as well as designing interventions to help patients use evidence for effective decision-making, may prove to be beneficial future avenues for improving population health.

Acknowledgments

This research was supported by the Science Fund of the Republic of Serbia, #GRANT 7739597, Irrational mindset as a conceptual bridge from psychological dispositions to questionable health practices – REASON4HEALTH.

References

- Ernst, E. (2019). *Alternative Medicine: A Critical Assessment of 150 Modalities*. Switzerland: Springer Cham.
- Kaptchuk, T. J., & Eisenberg, D. M. (2001). Varieties of healing. 2: A taxonomy of unconventional healing practices. *Annals of Internal Medicine*, *135*(3), 196-204. <https://doi.org/10.7326/0003-4819-135-3-200108070-00012>
- Kemppainen, L. M., Kemppainen, T. T., Reippainen, J. A., Salmenniemi, S. T., & Vuolanto, P. H. (2018). Use of complementary and alternative medicine in Europe: Health-related and sociodemographic determinants. *Scandinavian journal of public health*, *46*(4), 448-455. <https://doi.org/10.1177/1403494817733869>
- Lazić, A., Petrović, M., Branković, M., & Žeželj, I. (2023). Quick natural cure-alls: Portrayal of traditional, complementary, and alternative medicine in Serbian online media. *Collabra: Psychology*, *9*(1), 82189. <https://doi.org/10.1525/collabra.82189>
- Meijerman, I., Beijnen, J. H., & Schellens, J. H. (2006). Herb–drug interactions in oncology: focus on mechanisms of induction. *The oncologist*, *11*(7), 742-752. <https://doi.org/10.1634/theoncologist.11-7-742>
- Meyer D, Zeileis A, Hornik K (2006). “The Strucplot Framework: Visualizing Multi-Way Contingency Tables with vcd.” *Journal of Statistical Software*, *17*(3), 1–48. doi:10.18637/jss.v017.i03
- Meyer D, Zeileis A, Hornik K (2023). vcd: Visualizing Categorical Data. R package version 1.4-11, <https://CRAN.R-project.org/package=vcd>
- Posadzki, P., Watson, L. K., Alotaibi, A., & Ernst, E. (2013). Prevalence of use of complementary and alternative medicine (CAM) by patients/consumers in the UK: systematic review of surveys. *Clinical Medicine*, *13*(2), 126. <https://doi.org/10.7861/clinmedicine.13-2-126>
- Purić, D., Živanović, M., Petrović, M. B., Lukić, P., Knežević, G., Teovanović, P., Ninković, M., Lazić, A., Opačić, G., Branković, M., Lazarević, Lj., & Žeželj, I. (2022). *Something old, something new, something borrowed, something green: How different domains of traditional, alternative, and complementary medicine use are rooted in an irrational mindset*. PsyArXiv. <https://doi.org/10.31234/osf.io/agp5y>
- World Health Organization. (2013). *WHO traditional medicine strategy: 2014-2023*. WHO.
- World Health Organization (2019). *WHO global report on traditional and complementary medicine 2019*. WHO.

CIP – Katalogizacija u publikaciji

Narodna biblioteka Srbije, Beograd

PROCEEDINGS OF THE XXIX SCIENTIFIC CONFERENCE EMPIRICAL STUDIES IN PSYCHOLOGY

(29; 2023, Beograd)

[Zbornik radova] / XXIX naučni skup Empirijska istraživanja u psihologiji

31. mart-2. april 2023; Filozofski fakultet, Univerzitet u Beogradu; [organizatori]

Institut za psihologiju i Laboratorija za eksperimentalnu psihologiju – 1. Izd –

Beograd: Filozofski fakultet, 2023 –74 str.

Kor. Nasl. – Zbornik radova na engl. jeziku – elektronsko izdanje

ISBN-978-86-6427-249-0

1. Institut za psihologiju (Beograd)
2. Laboratorija za eksperimentalnu psihologiju (Beograd)
 - a) Psihologija – Empirijska istraživanja – Zbornik radova