INPLASY

Acculturative Stress and Markers of Well-being. A Systematic Review and Meta-Analysis

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ADMINISTRATIVE INFORMATION

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 20 February 2025 and was last updated on 20 February 2025.

INTRODUCTION

*R*eview question / Objective In the studied population, based on the included studies, what are the pooled levels of acculturative stress, and how are these levels moderated by age, sex, year of publication, study location, student population, acculturative stress measure, and percentage of women?

Among the studied population, based on the included studies, what is the relationship between acculturative stress and loneliness, and how do moderators such as age, sex, year of publication, study location, student population, acculturative stress measure, and percentage of women influence this correlation?

Among the studied population, based on the included studies, what is the relationship between acculturative stress and depression, and how do moderators such as age, sex, year of publication, study location, student population, acculturative stress measure, and percentage of women influence this correlation?

Among the studied population, based on the included studies, what is the relationship between acculturative stress and anxiety, and how do moderators such as age, sex, year of publication, study location, student population, acculturative stress measure, and percentage of women influence this correlation?

Rationale In the current global context marked by progress and increased freedom of movement on one hand, but worsening international conflict marred by mass-migratory outflows on the other, the present study is – to our current knowledge – the first meta-analysis exploring the relationship between acculturative stress and important markers of mental health and well-being in immigrant populations, including refugee and displaced groups . The examined four outcomes –

Acculturative Stress Levels (1) and correlations with Loneliness (2), Depression (3) and Anxiety (4) correspond with the study's main hypotheses of presence of acculturative stress across different contexts and positive correlations with important markers of mental health in the studied participants.

Condition being studied Acculturative Stress and its correlates with important markers of well-being.

As initially defined by anthropologists Redfield, Linton, & Herskovits (1936), acculturation is "a phenomenon resulting from continuous first-hand contact between individuals with different cultures, with subsequent changes in their original cultural patterns of either or both groups". Conceptualised by Berry (2005) and later by Lincoln et al. (2016) as a "dynamic process of psychological change", acculturation was initially observed as a group interaction dynamic (Berry, Segall, & Kagitçibasi, 1980). Later, Berry et al. (1980) formulated acculturation as a complex of behavioural changes and psychological adjustments that can either be adaptive (Berry, 2005) or can result in acculturative stress, leading to anxiety and depression (Berry, 1976). Seen as a multifaced phenomenon spanning different social interactions in different contexts (Kim & Abreu, 2001; Yoon, Langrehr, & Ong, 2011), the occurring acculturation-related modifications have been categorised by Cuellar, Arnold, & Maldonado (1995) as cognitive, emotional and behavioural.

From a general mental health and well-being perspective, acculturative stress can result in significant mental health difficulties, with identity confusion, anxiety, and depression as main presenting problems (Crockett et al., 2007). Higher levels of acculturative stress have been found to increase depression and suicidal ideation (Hovey, 2000) and substance abuse (Ortega et al., 2000) among immigrant populations, with maladaptive acculturation strategies shown to exacerbate overall mental health issues (Gebregergis et al., 2019). Significant correlations were also observed between acculturative stress, anxiety (Revollo et al., 2011) and substance abuse (Ehlers et al., 2009), as shown by studies describing anxiety sensitivity as an important aggravating factor for excessive fear and concern, further exacerbating individuals' levels of anxiety (Viana et al., 2020).

METHODS

Search strategy The present review was conducted according to the Preferred Reporting Items for Systematic Review and Meta-analysis (PRISMA) flow diagram (Liberati et al., 2009) and PRISMA Checklist. Boolean operators (including truncation), searches by topic and subtopic, and manual searches have been conducted to systematically identify records. The main search strings included terms relevant to the review research questions (e.g., acculturative stress OR acculturation stress AND depress*, acculturative stress OR acculturation stress AND loneliness etc.)

Participant or population Adult population (>18 years old).

Intervention N/A.

Comparator N/A.

Study designs to be included Quantitative research studies.

Eligibility criteria Records exclusion was performed on studies 1. Wrong population (under 18 years of age), 2., DOI not available, 3. Insufficient or no relevant data, 4. Wrong methodology, 5. Not in English, 6. Not relevant. Studies published in English, between 1990 and 2024 and reporting relevant data were included for this review.

Information sources Reputable databases (PubMed, PsychInfo, Scopus, Proquest, Web of Science, Science Direct, Springer) were searched between September 2023 to April 2024, yelding 15.410 results for the four outcomes. To minimise the risk of bias, the search was extended to both published and unpublished records, however from these, only accepted manuscripts have been included. Manual searches have also been performed and grey literature was explored, however, no relevant records could be found.

Main outcome(s) 1. Levels of Acculturative Stress in the studied population
2. Correlation between Acculturative Stress and Loneliness in the studied population.
3. Correlation between Acculturative Stress and Depression in the studied population.
4. Correlation between Acculturative Stress and Anxiety in the studied population.

Data management Resulting records were organised and screened using the EPPI Reviewer software (Thomas et al., 2023).

Quality assessment / Risk of bias analysis The included studies were assessed using an adapted version of the National Heart, Lung, and Blood Institute (NHLBI) Quality Assessment Tool for

Observational Cohort and Cross-Sectional Studies (National Heart and Blood Institute, 2021). Nine questions from the original NHLBI Assessment Tool have been applied for this review, and the Y/N answers were assigned 1 and 0 values respectively. The resulting overall score of 7.1 indicated a satisfactory quality of the included studies.

Strategy of data synthesis R Statistics (R Core Team, 2024) was used for the calculation of computed effect sizes and STATA (StataCorp, 2023) and Comprehensive Meta-Analysis V. 3.7 (Borenstein, Hedges, Higgins, & Rothstein, 2014) were used for pooling of studies results and tests of heterogeneity, sensitivity, model fitting and publication bias. For the Acculturative Stress levels outcome, Z-scores for the individual studies were computed for inter-study comparability (Andrade, 2021; Cohen et al., 2013). Correlation coefficients (r) and sample size (N) (Borenstein et al., 2009) were extracted synthesis, and Fisher's r-to-z transformation was used for correlational outcomes (M van Aert & Robbie M van Aert, 2023; Schulze, 2004). For all analyses, an $I^2 > 75\%$ ($p < 0.10$) Q test was considered for our a priori assumption of high heterogeneity (Higgins & Thompson, 2002). Due to the observed studies' sampling variation, methodology and measures, and subsequently anticipated high heterogeneity, a random effects model – DerSimonian & Laird (1986) with a 95% confidence interval (CI) – was used.

Subgroup analysis Moderator and subgroup analyses (1. Study location, 2. Mean age, 3. Student population status, 4. Acculturative Stress measure, 5. Percentage of women participants, 6. Year of publication) were conducted using a mixed effects model, and potential relations between continuous variables and the effect size were explored using meta-regression.

Sensitivity analysis Publication bias was addressed by observing and adjusting for funnel plot asymmetry using Duval & Tweedie's (2000), and further Kendall's (1949) Tau Egger's (1997) Regression test p-value. Rosenthal's (1979) Fail-Safe N method were used to assess the robustness of findings. Outlier influence was assessed using influence diagnosis tests - e.g., Cook's Distances (Cook, 2011), leave-one-out methods and weights.

Language restriction English.

Country(ies) involved Romania, Ireland.

Contributions of each author
Author 1 - Claudiu Negosanu - Author 1 performed the searches, independently screened and coded full texts, and performed the statistical analyses.
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