

## Understanding Mathematics Anxiety and Self-Efficacy in Kosovo: A PISA Perspective on Gender and Academic Achievement

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### Abstract:

**Aim:** This study aimed to explore the relationships of psychological factors and gender on mathematical achievement in PISA 2022 among 15-year-old Kosovar students.

**Methods:** PISA, developed by the Organization for Economic Co-operation and Development (OECD), evaluates 15-year-old students' skills in reading, mathematics, and science, focusing on their ability to apply knowledge in real-world contexts. This study used the data from 6027 Kosovar students, 2928 female. The data were obtained from the PISA 2022 database, mostly collected from tests and through questionnaires (OECD, 2023).

Descriptive analysis and the significance test to identify differences was used. The mean difference is statistically relevant at the .05 level.

**Results:** The findings indicate no significant difference in mathematics performance between boys and girls ( $p = .8077$ ), though girls' average scores increased while boys' scores declined. Male students showed lower levels of anxiety toward mathematics than female students, with Kosovar students overall displaying higher mathematics anxiety levels compared to the OECD average ( $p = .000$ ). Kosovar students also demonstrated lower self-efficacy in mathematics relative to OECD peers ( $p = .000$ ), yet their levels of effort and persistence were not significantly different from the OECD average. Notably, teacher support in mathematics lessons was rated higher among Kosovar students than the OECD average ( $p = .000$ ), suggesting that while certain psychological factors may challenge Kosovar students, they perceive strong instructional support in their mathematics education.

**Conclusion:** The findings highlight the importance of developing and implementing school-based programs aimed at reducing mathematics anxiety, particularly for female students. Schools can also offer additional resources and extracurricular mathematics activities to enhance students' self-efficacy in math. Creating a positive, low-pressure environment for students to engage with mathematics beyond the classroom could further support their confidence and interest in the subject.

### Keywords:

PISA, Anxiety, self-efficacy, Mathematics, Kosovar students, gender.