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ADMINISTRATIVE INFORMATION**Support** - Unfunded.**Review Stage at time of this submission** - Completed but not published.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY202430027**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 08 March 2024 and was last updated on 08 March 2024.**INTRODUCTION**

Review question / Objective (1) to conduct a meta-analysis of the structure of the TPB extended model to examine the predictive role of the TPB extended model components on PA participation in youth populations; (2) to examine the types of youth populations (adolescents and college students) that serve as moderators of the relationships among the TPB extended model components on PA participation in youth populations. (3) To test the mediating effect of the TPB extended model. (4) Direct effects of perceived behavioral control on behavior in youth populations. The following research questions were established: (a) How much does intention influence PA behavior in youth populations? (b) What components of the theory have a significant predictive influence on youth group intentions to engage in PA? (c) This study sought to explore group differences in the TPB extended model in a meta-analysis. (d) To test whether the TPB extended model mediation effect

exists. (e) Does youth group perceived behavioral control directly influence the occurrence of behavior?(1) To conduct a meta-analysis of the structure of the TPB extended model to examine the predictive role of the TPB extended model components on PA participation in the youth population; (2) To examine the type of youth population (adolescents and college students) as a moderator of the relationship between the components of the TPB extended model on PA participation in the youth population. (3) To test the mediating effect of the TPB extended model. (4) Direct effects of perceived behavioral control on behavior in youthpopulations.

Condition being studied Promoting Physical Activity (PA) Long-term participation is an important research topic in the field of health, and regular physical activity can have positive effects, including benefiting heart health, boosting brain function and slowing the risk of suffering from chronic diseases, such as obesity or diabetes.It also has a positive impact on reducing anxiety and

depression . The United Nations defines "youth" as people between the ages of 15 and 24, and there are currently 1.2 billion young people between the ages of 15 and 24 worldwide, representing 16% of the global population. The number of young people is expected to grow by 7% by 2030 to nearly 1.3 billion. Participation in physical activity exercise at the youth stage has great significance that can contribute to world peace . Youth participation in physical activity as part of a healthy lifestyle has benefits for physical health, social development and mental health . Therefore, physical activity in youth is an important way to gain health benefits and reduce health risks.

METHODS

Search strategy Following the guidelines of Borenstein et al. (2009) and Card (2015), we used a variety of methods to create a meta-analysis database. First, we searched computerized databases such as Web of Science, Scopus, ProQuest, Google Scholar, CNKI, and Wanfang database. Specifically, we used the following keyword combinations to retrieve "all fields" of article information in the electronic databases: "extended TPB model" or "TPB model" and "pa" or "mvpa" or "physical activity" OR "physical activity" OR "exercise behavior" OR "physical activity".

Participant or population Adolescents and college students.

Intervention Group grouping moderated the relationships in the extended TPB model.

Comparator Adolescents and college students.

Study designs to be included (1) they had to be empirical studies and reported correlation coefficients; (2) the studies included at least one of the relationships hypothesized above; (3) the definitions of the antecedent and outcome variables involved needed to be consistent with the conceptual definitions in the previous article; (4) the level of the study needed to be adolescent and (5) SCI and SSCI articles published in English and Chinese core journals or above were selected; (6) Participants were adolescents and college students.

Eligibility criteria According to the following inclusion criteria: (1) they had to be empirical studies and reported correlation coefficients; (2) the studies included at least one of the relationships hypothesized above; (3) the definitions of the antecedent and outcome

variables involved needed to be consistent with the conceptual definitions in the previous article; (4) the level of the study needed to be adolescent and (5) SCI and SSCI articles published in English and Chinese core journals or above were selected; (6) Participants were adolescents and college students.

Information sources Web of Science, Scopus, ProQuest, Google Scholar, CNKI, and Wanfang database.

Main outcome(s) The extended TPB model explained 52.4% of the variance in intentions and 29.5% of the variance in behaviors, and 25.3% of the variance in behavioral plans. Behavioral intentions mediated the effects of the three TPB factors on behavior, and chained mediation of the three TPB factors through behavioral intentions and behavioral plans was also present. Group grouping moderated the relationships in the extended TPB model.

Quality assessment / Risk of bias analysis There is no conflict of interest in this paper," excluding other sources of bias.

Strategy of data synthesis Meta-analysis was carried out using CMA 3.0 software to construct the covariance matrix, reconciled means required for the study. One-stage meta-analysis structural equation modeling was performed using Amos 24.0 software.

Subgroup analysis Age cohorts may be moderators in the model.

Sensitivity analysis All of the homogeneity Q-statistical tests were greater than 50%, which supports the need to analyze from a random effects perspective and justifies the use of moderator analysis in the next step. Fail-safe N was greater than 100 for all relationships, indicating that there was no publication bias.

Country(ies) involved China.

Keywords Extended Theory of Planned Behaviour , Physical Activity Behaviour , Youth (15-24), Meta-analytic.

Contributions of each author

Author 1 - yao yin - contributed to the evaluation and interpretation of data, writing the first drafts, final version of the manuscript.
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Author 2 - dong sun - contributed to the statistical analysis of data and development of the review concept, critically reviewed the manuscript, and participated in the interpretation and synthesis of data. CZ contributed to application of statistical to analyze and synthesize study data.

Author 3 - fei qi - contributed to verification of the overall replication of results and other research outputs.

Author 4 - cheng qiu - contributed to verification of the overall replication of results and other research outputs.