

Helping the Planet for a More Sustainable Future: Spill-Overs among Young Adults' Prosocial and Pro-Environmental Attitudes and Behavior

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This study explores how prosocial engagement may enable young people to become committed to environmental protection. Using serial mediation analysis, we examine the data from 530 undergraduate business students in Southeast Europe to depict the psychological pathways connecting prosocial attitudes and behaviors with a propensity for environmental engagement. Statistical analysis is performed using the PROCESS macro Model 6. Although limited by similar socio-economic circumstances across the analyzed region and the cross-sectional research design, our findings suggest that the mediated indirect relationships help to develop attitudes and behaviors responsible toward the environment. Implications of the study include the broader possibilities for education and public policy-making: prosocial engagement could serve as a promising instrument to motivate young adults to accept the

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concept of sustainable development. In this way, synergies between prosocial engagement and environmental awareness might be used to develop a more sustainable, ecologically aware society.

Keywords: prosociality, environmental engagement, attitudes, behaviors, young adults.

INTRODUCTION

In the face of political upheavals (Kobal Grum & Babnik, 2022), mounting climate challenges, and widespread anxiety about environmental crises (Wu et al., 2020; Crandon et al., 2022), it has become ever more urgent to understand what drives young adults to involve themselves in activities that affect both society and nature. At this pivotal life stage, they are forming habits that will eventually shape future regulations and societal norms (Walther, 2012).

Recent research has shown how prosocial behaviors and efforts to support others and the wider community have multiple benefits for young adults. Not only do these behaviors foster closer interpersonal connections, but they may also eliminate feelings of social isolation (Chen, 2024). Emotional intelligence, which involves recognizing and managing personal and others' emotions, is a robust predictor of these prosocial behaviors (Cao & Chen, 2024). These findings emphasize the psychological underpinnings of activities that foster solidarity and collective well-being. Moreover, practicing prosociality can lay the groundwork for more expansive ethical perspectives, potentially extending to environmental responsibility.

Meanwhile, as environmental problems intensify, attention has increasingly turned to pro-environmental practices that aim to limit ecological footprints. Young adults, often uniquely concerned about what lies ahead, are especially prone to anxiety over climate change (Pavani et al., 2023). Although this sense of eco-anxiety can bring emotional strain, it has also been linked to

greater involvement in eco-friendly efforts. Similarly, factors such as future self-continuity and green self-efficacy have proven vital in motivating adolescents to take climate-related action, highlighting the layered nexus of cognitive beliefs and emotional drives (Qin et al., 2024). These insights underscore the importance of investigating how social and environmental attitudes emerge and interact to influence behavior.

Although a considerable body of work addresses prosocial and pro-environmental behavior in separate streams, fewer studies have examined how these areas converge in young adults. Both rely on related psychological processes – empathy, moral identity, and personal norms (Eisenberg, Spinrad, & Morris, 2015; Gifford & Nilsson, 2014) – yet tend to be treated as distinct subjects. This gap is especially pertinent in regions like Southeast Europe, where local cultural and socioeconomic conditions may shape how social and environmental mindsets intersect and reinforce each other.

The present study focuses on how young adults' inclination toward helping, sharing, and collaborating can inform their sense of environmental responsibility and their willingness to behave pro-environmentally. Using a serial mediation approach, we examine how prosocial behavior, social responsibility, environmental responsibility, and pro-environmental behavior are psychologically linked. By centering on young adults in Southeast Europe, we aim to focus on the specific factors that encourage both social and environmental responsibility. These findings, in turn, can inform more holistic strategies for sustainability.

PROSOCIAL AND PRO-ENVIRONMENTAL RESPONSIBILITY AND BEHAVIOR

Recently, there has been a growing emphasis on the interconnectedness of prosocial and pro-environmental behaviors. While prosocial behaviors involve doing good for others and society, pro-environmental behaviors are geared toward lessening harm to nature. This study suggested that the attitudes underlying these behaviors complement each other. By exploring prosocial and pro-environmental attitudes and behaviors, this study aims to uncover how they can work together to enhance sustainability efforts. The decision to focus on young adults as the main target group is based on their future influence on shaping environmental and social policies.

While the participation of young people in prosocial and pro-environmental actions can be understood in terms of deontological motivation – they are motivated to participate because they perceive the actions *per se* to be moral (Chen & Schonger, 2022), the majority of extant research focuses on the outcomes of such actions as drivers of their behavior. Thus, youth participate because they believe their participation will lead to favorable outcomes aligned with their goals and social and self-perceptions. A vast body of literature on this topic suggests that, among other variables, personal values, goals, motives, empathy, moral reasoning, and moral identity contribute positively to prosocial behavior (Carlo & Padilla, 2020; House et al., 2020; Kaur, 2020; Mestre et al., 2019). To consolidate and explain not only the determinants and correlates but also the process of behavioral intention formation and actual participation, one of the streams of studies, especially in applied research fields, uses sociocognitive theories based on values, beliefs, and norms (Carlo & Padilla, 2020).

Regardless of the underlying theoretical framework, one of the most encompassing constructs predicting prosocial behavior is social responsibility, comprising a sense of obligation that goes beyond the individual and manifests in beliefs and behaviors (Galley, 2006; Wray-Lake & Syvertsen, 2011). Its conversion into prosocial behavior is well documented (e.g., Manzano-Sánchez et al., 2021; Martinez et al., 2022; Wang et al., 2023; Yu et al., 2022) in a range of behavioral domains-higher social responsibility can result in public welfare behavior (Wang et al., 2022); socially responsible health-related behavior such as the uptake of vaccinations (Yu et al., 2022); prosocial behavior (e.g., helping others) toward classmates (Manzano-Sánchez et al., 2021); and charitable behavior (Yu et al., 2022) such as volunteering (Cemalcilar, 2009).

Furthermore, the core of the definition of active citizenship includes, among other components, an individual's perception of responsibility toward others and the community (Zaff et al., 2010). Conceptually, social responsibility and its development are closely connected with constructs representing prosocial behavior factors such as personal and social identities, moral development, values, empathy, and altruism. Social responsibility, however, emphasizes its relation to the duty to act on these personal dispositions for the good of others, on responsibility, and on direct (behavioral) change in society (Wray-Lake & Syvertsen, 2011). In this study, in addition to the well-documented link between social responsibility and behavior, we also consider pro-environmental responsibility and expect it to be linked to greater engagement in pro-environmental behaviors.

Concerning pro-environmental behaviors (PEBs), the extant literature has also examined underlying moral norms and self-transcendence values as some of the main drivers of this type of behavior (e.g., Gifford & Nilsson, 2014; de Groot et

al., 2021; Jia et al., 2017; Kácha & van der Linden, 2021). These core ideas are closely related to responsibility, highlighting a dedication to contributing to society and nature. As these foundations are shared with social responsibility, pro-environmental responsibility could be considered its subset, applied to the environmental domain. Specifically, pro-environmental and prosocial responsibility is rooted in an ethic of life and morality oriented toward the common good and values (Kobal Grum and Babnik, 2022). Such an understanding of prosocial and pro-environmental responsibility is well established within sustainable development (Ruggerio, 2021).

Studies on PEB often account for external factors such as context, personal characteristics, or costs when studying behavioral decisions. Nevertheless, theoretical reviews exploring this topic also point to the convergence of theoretical frameworks on personal norms and rational choice based on self-perceptions and objective factors (Gifford & Nilsson, 2014; Turaga et al., 2010). In their recent bibliometric analysis of PEB research, Farrukh et al. (2023) reported that a limited number of theories are used to explain the phenomenon, all of which rely on norms, attitudes, or other self-concepts, with an emphasis placed on behavioral intentions rather than on actual behavior. Given the similarity of the theoretical frameworks used, it seems that similar mechanisms are at play in both types of engagement (i.e., prosocial and pro-environmental), which raises the question of whether they should be considered separately.

Research suggests that social responsibility, as an antecedent of prosocial behavior, should be understood more broadly than responsibility for others. For example, young people can feel responsible for animals, plant life, and the environment. This can be considered part of a process of generativity development (Pratt & Lawford, 2014) that unfolds in various contexts (e.g.,

friendship relations, school, job), as social responsibility and generativity are correlated (Hastings & Sunderman, 2019; McAdams & Logan, 2004). Recent theoretical and empirical work suggests that prosocial and PEB should not be considered as separate forms of engagement, but components of a broader 'sustainable' behavior (Duong & Pensini, 2023; Neaman & Maari, 2015). Sustainable consumption, considered a form of PEB, can also be considered socially friendly (Carrington et al., 2010), as its outcomes can benefit society (e.g., second-hand store clothing swaps). Some studies have found empirical evidence that prosocial and PEBs are correlated (Corral-Verdugo et al., 2011) and that PEBs are developed based on the behavioral evidence of other people's PEBs, which can be observed in the environment (Topf & Speekenbrink, 2022). The underlying mechanism that connects prosocial and pro-environmental responsibility (which can be considered a type of attitude because it includes cognitive, affective, and behavioral components) and behavior is one's connectedness with the higher-order context that influences behavior (collective or social and nature or environment; Duong & Pensini, 2023). Civic participation during adolescence and emerging adulthood can 'generalize' across domains, i.e., taking part in one form of engagement could encourage participation in other fields (Shen & Wang 2021; Lauren et al. 2019; Yeung 2017).

From anecdotal observations of youth civic participation, however, it seems that environmental behavior specifically serves as a gateway to participation in the wider community for many young people (Pickard et al., 2022). Young people today exhibit a strong sense of responsibility for the environment and are anxious because of the possible consequences of climate change and the deterioration of natural environments (Crandon et al., 2022). Consequently, they are prepared to engage in multiple

pro-environmental practices from an early age. The extant literature confirms the spillover among different PEB intentions, at least in the cases of similar PEBs, based on intrinsic motivation (Maki et al., 2019) or those drawing from similar resources (Margetts & Kashima, 2017). This underscores that social responsibility is context-sensitive, intertwined, and mutually reinforcing concerning environmental actions.

Therefore, the environmental domain might be beneficial for targeting interventions aimed at improving youth civic participation and prosocial behaviors at large, regardless of whether it represents a specific domain of civic participation or an entirely different (albeit correlated) type of behavior. Nevertheless, the proposed spillover effect should be empirically tested for interventions to spur environmental (and, in turn, prosocial) behavior, which is the aim of this study.

RESEARCH MODEL

In the present paper, we shift from exploring the psychological antecedents of prosocial behavior and PEB to observing potential transdisciplinary spillover from prosocial to pro-environmental behavior. We aim to study this conversion from the perspective of trans-disciplinarity (Laasch et al., 2020) and benefit from a multidisciplinary approach, combining insights from psychology, environmental science, and business studies to understand the factors influencing PEBs in young adults better. We focus on two pathways that influence PEBs – attitudinal and behavioral – as extant research suggests that both social and environmental attitudes contribute to adopting PEBs, contrary to the implication that our focus on ‘social representations’ excludes environmental considerations. The attitudinal pathway explores how values, beliefs, and social norms drive individuals to engage in PEBs. The behavioral

pathway investigates the spillover effect, where practicing one form of behavior (social or environmental) may lead to adopting another, illustrating a dynamic relationship between them.

We hypothesize the following relationships among the key research constructs:

H1: Individual social responsibility is a significant predictor of prosocial behaviors.

H2: Individual environmental responsibility is a significant predictor of pro-environmental behaviors.

While research has shown that prosocial orientation (altruism) can result in PEBs (Otto et al., 2021), the mutual relationships between the two types of responsibility and behavior have not been tested in an integrated model. Additionally, we control for demographic characteristics that could predict both observed types of responsibility (gender, age, and socio-economic status).

We further propose that both types of responsibility will have crossover effects:

H3: Social responsibility predicts environmental behaviors through attitudinal pathways.

H4: Environmental responsibility predicts prosocial behaviors through attitudinal pathways.

H5a: Social responsibility indirectly predicts environmental behavior through its influence on environmental responsibility.

H5b: Prosocial behaviors mediate the relationship between social responsibility and environmental behavior.

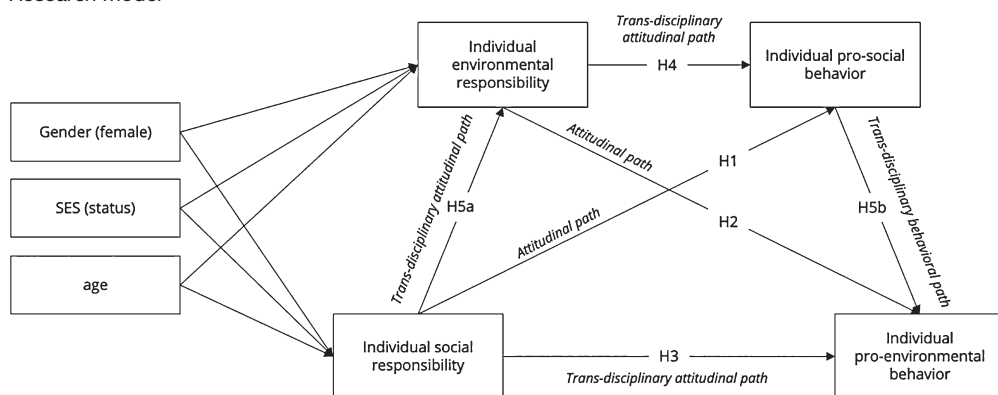
A positive spillover effect was previously found when considering different types of behaviors within domains (Lauren et al., 2019; Metzger in Smetana, 2009; Truelove et al., 2014), but also in terms of civic behavior in general (Hart et al., 2007). Additionally, we expected both types of responsibility and behaviors to be positively correlated and that social responsibility and prosocial behavior would

predict ‘narrower’ environmental responsibility and behavior, respectively (H5a; trans-disciplinary attitudinal pathway and H5b; trans-disciplinary behavioral pathway). For responsibility, our expectation is grounded in standard theoretical foundations and factors (e.g., Duong & Pensini, 2023; Neaman & Maari, 2015), while for behavior on previously reported correlations (e.g., Corral-Verdugo et al., 2011) and

findings from southeastern Europe showing that both behaviors had the same psychological mechanisms (Kadić-Maglajlić et al., 2019), which could enhance the connection between the constructs.

The hypothesized model incorporated two attitudinal paths (H1 and H2) and four transdisciplinary attitudinal paths (H3, H4, H5a, and H5b), as shown in Figure 1.

Figure 1
Research model



METHODS

Participants and procedure

This study focused on university students studying business and economics, aiming to understand their prosocial and pro-environmental attitudes and behaviors. We selected this group for their role in driving future sustainable initiatives in the corporate world and the public sector. By focusing on this demographic, we can investigate the mindsets and actions of individuals who have the potential to make changes in social issues through their career paths.

The data presented in the paper are part of a larger dataset on the prosocial orientation of university students (see Anonymized for review). The data were collected using

the CAWI method with the URL link posted on the internal discussion forum of the learning management system to alert all undergraduate students about the survey carried out during the 2020/21 academic year. The participants were asked for informed consent before completing the survey and were not required to respond to demographic questions. Additionally, the respondents were presented with the study's objectives, the data collection procedures, the assurance of anonymity and data protection, and the plan for disseminating the research results. The institutional ethics committee approved the research.

The sample includes 530 responses from undergraduate students at three public medium-sized regional business schools in

Croatia and Bosnia and Herzegovina, located at the University of Split (Croatia), University of Sarajevo (B&H – Federation of Bosnia and Herzegovina) and University of Banja Luka (B&H – RS). These schools were chosen because they play roles in preparing the generations of business leaders in the area, and their curricula encompass those issues. The decision to focus on students from these fields was driven by the influence that educated young adults in these sectors could have on promoting sustainable business practices and shaping environmental policies. This emphasis enables an examination of attitudes and actions regarding environmental stewardship among those in positions to impact economic strategies and business approaches.

Most business and economics programs across this region treat sustainability and prosocial orientation as additional content rather than core pillars of their curricula. In many cases, ethics, Corporate Social Responsibility (CSR), and sustainability are included in general management coursework but are not focused on practical applications. Such a lack of a structured approach has already been discussed by Alfirević et al. (2023).

We also did not analyze whether specific schools or academic tracks emphasize integrating sustainability and prosocial themes. Consequently, future research should answer whether giving these topics a more central role fosters stronger prosocial and pro-environmental attitudes and behaviors among students.

Recognizing the diversity in age among university students, we implemented specific criteria to focus on young adults, defining this group as individuals aged between 18 and 35. This range aligns with commonly accepted definitions of ‘young adulthood’ in psychological and sociological research. The participants’ mean age was 24.6 years ($SD = 5.4$ years), with 91.4%

being younger than 30 (with the remaining 8.6% being older than 30). As is often the case in similar studies (Starrett, 1996; Sax et al., 2008), including those in the studied region (Alfirević, Potočan & Nedelko, 2021), the responding students were predominantly female (76.5%). Two hundred nineteen participants (41.3%) studied at one of Croatia’s major regional public business schools (Faculty of Economics, Business and Tourism Split). In comparison, 311 (58.7%) participants studied at one of the two major public business schools in Bosnia and Herzegovina (B&H), located in the capitals of its two administrative entities – Federation B&H (School of Economics and Business Sarajevo) and Republic Srpska (Faculty of Economics Banja Luka). The percentages of participants from B&H were 122 or 23% and 189 or 35.7% for the Sarajevo and Banja Luka business schools, respectively. For further details on the sample, see [Anonymized for review].

Analysis

Individual social responsibility (ISR) was assessed using the 12-item individual responsibility subscale of the Global Social Responsibility Scale developed by Starrett (1996). The EFA (principal axis factoring estimation method, oblimin rotation) performed on the initial set of items indicated that items 6 and 12 should be discarded from the model. The factor structure indicated by the EFA included two factors (minimum factor loading = 0.413) and was confirmed by the CFA procedure (see Table 4). The individual social responsibility scale included items 1, 5, 7, 8, 10, and 11 of the original scale.

Individual prosocial behavior (SOC-BEH) was measured using the 16-item scale developed by Caprara et al. (2005). The results of both exploratory and confirmatory factor analysis supported a bifactor model suggested by Luengo Kanacri et al. (2021)

with two latent factors: prosocial actions (items 1, 2, 3, 4, 6, 7, 9, 10, 11, 13, 14, 15) and prosocial feelings (items 5, 8, 12, 16). For this study, only one factor – prosocial actions – was used to capture the behavioral tendencies of individuals (see Table 4 for information on CFA model fit).

The 15-item New Ecological Paradigm Scale (Dunlap et al., 2000) assessed individual environmental responsibility (IER) attitudes. Based on Tyllianakis and Ferrini (2021), CFA was conducted for items 1, 3, 5, 11, 13, and 15, and the results confirmed the proposed factor structure used in the model analysis (Table 4).

To assess individual PEB, the authors used six items adopted from the International Research Project Principles of Responsible Management Education (Haski-Leventhal and Manfield, 2018). The EFA and the CFA confirmed the appropriateness of the scale (Table 4).

All scales used in the study were adopted from previous studies and modified based on the results of exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). We acknowledge the potential concerns regarding the age of the Global Social Responsibility Scale created by Starrett in 1996, along with the scales developed by Caprara and colleagues in 2005 and the Ecological Paradigm Scale by Dunlap and team in 2000. We chose these scales because they are well-recognized and widely accepted in the extant literature. All items were measured using a 9-point Likert scale.

Validation of measures

The confirmatory factor analysis was conducted using JASP (version 0.16.3.0) to verify the construct validity (factor structure) of a set of observed variables (scales). To evaluate the goodness-of-fit, we used the indices presented in Table 1.

Table 1
Model fit indices for CFA of the observed variables

Indices	Cut-off criteria*	ISR	SOCBEH	IER	PEB
p-value	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Comparative Fit Index (CFI)	> 0.90 acceptable fit > 0.95 good fit	0.947	0.912	0.945	0.980
Tucker-Lewis Index (TLI)	> 0.90 acceptable fit > 0.95 good fit	0.927	0.895	0.908	0.958
Root mean square error of approximation (RMSEA)	< 0.06 good fit	0.051	0.079	0.072	0.083
Standardized root mean square residual (SRMR)	< 0.08 acceptable fit < 0.05 good fit*	0.041	0.048	0.036	0.024

*Cut-off criteria for selected indices were adopted from Byrne (2001) and Sun (2005).

Statistical analysis

To validate and ensure the accuracy of our survey, we first used exploratory factor analysis (EFA) to determine the structure of our data. EFA was initially employed to explore factor structures without hypotheses revealing the dimensions of pro-environmental behavior and attitudes among young adults. Subsequently, confirmatory factor analysis (CFA) was used to validate the factor structures proposed by EFA, rigorously testing the construct validity of our questionnaire. This sequential approach ensures an understanding and confirmation

ronmental behavior and attitudes among young adults. Subsequently, confirmatory factor analysis (CFA) was used to validate the factor structures proposed by EFA, rigorously testing the construct validity of our questionnaire. This sequential approach ensures an understanding and confirmation

of the measurement model supporting our study's constructs. Our research also applied the Hayes PROCESS macro to study the relationships between different variables. We focused on understanding how prosocial and pro-environmental attitudes, norms, and behaviors interact using Model 6 of the PROCESS macro to analyze mediation effects (Hayes, 2013). The regression model included individual environmental responsibility as the predictor variable, individual social responsibility as the first mediating variable, individual prosocial behavior as the second mediating variable, and individual PEB as the outcome variable. The model also included three covariate variables: sex, socio-economic status, and age. To assess the significance of the mediating effects in the serial mediation analysis, 5,000 bootstrap samples were generated to estimate the indirect effects with a 95% confidence interval (CI).

RESULTS

Participants rated their environmental and social attitudes and behaviors on a scale of 1 to 9. Internal consistency is more substantial for the scales depicting prosocial and pro-environmental behaviors (0.89 and 0.86, respectively), while the attitude measures have a lower level of internal consistency (individual social responsibility 0.68; individual environmental responsibility 0.63). Nonetheless, they are still acceptable for exploratory empirical research on nonrandom samples (Nunally & Bernstein, 1994; Ursachi, Horodnic & Zait, 2015). All variables showed weak to moderate correlations (Table 2).

After establishing the psychometric adequacy of the scales, the serial mediation regression model was tested using Model 6 of Hayes' PROCESS macro (Hayes, 2013).

Table 2
Scale reliability and correlation analysis

Scale	# of items	Cronbach's Alpha	Mean	SD	(1)	(2)	(3)	(4)
(1) Individual social responsibility (ISR)	6	0.68	6.69	1.11	—	0.58**	0.33**	0.38**
(2) Individual prosocial behavior (SOCBEH)	12	0.89	6.56	1.14		—	0.20**	0.38**
(3) Individual environmental responsibility (IER)	6	0.63	6.29	1.02			—	0.27**
(4) Individual pro-environmental behavior (PEB)	6	0.86	5.80	1.64				—

**Correlation is significant at the 0.01 level (2-tailed).

The results of the mediation analysis after each of the mediator variables were entered into the model are presented in Table 3. The model explains 21% of the variance in individual PEB (the dependent variable)

when all the variables are entered. All the other coefficients support our expectations regarding the direct links between the variables except for age, which was an insignificant predictor.

Table 3
Serial mediation results after entering new mediating variables

	Individual environmental responsibility (IER – mediating variable 1)	Individual prosocial behavior (SOCBEH – mediating variable 2)	Individual pro-environmental behavior (PEB – dependent variable)
	Beta	Beta	Beta
Individual social responsibility (ISR – independent variable)	0.29**	0.55**	0.24**
Individual environmental responsibility (IER – mediating variable 1)	-	-0.01	0.25**
Individual prosocial behavior (SOCBEH – mediating variable 2)	-	-	0.33**
<i>Covariate variables</i>			
Gender	0.07	0.23*	0.43*
Social-economic status	0.03	-0.01	0.18*
Age	-0.00	-0.02*	-0.01
	R ² = 0.10 F(4.438) = 12.57**	R ² = 0.33 F(5.437) = 43.21**	R ² = 0.21 F(6.436) = 19.52**

** $p < 0.01$

* $p < 0.05$

The results confirmed our first two hypotheses (H1 and H2), showing a direct positive relationship between individual social responsibility and individual prosocial behavior ($b = 0.55$, $t = 13.16$, $p < 0.001$), as well as between individual environmental responsibility and individual PEB ($b = 0.25$, $t = 3.47$, $p < 0.001$). We also confirmed hypothesis H3, proposing a transdisciplinary attitudinal path between individual social responsibility and individual PEB ($b = 0.24$, $t = 3.01$, $p < 0.05$), allowing for the evaluation of additional indirect effects in future research.

Two indirect effects were observed (Table 3). First, individual social responsibility

significantly indirectly affects individual PEB through individual environmental responsibility (hypotheses H5a and H2, $b = 0.05$, $t = 2.50$). The second indirect effect captures the influence of individual social responsibility on PEB mediated by prosocial behavior (hypotheses H1 and H5b, $b = 0.12$, $t = 4.00$). The proposed indirect effect, including both mediators, was not confirmed due to the absence of an impact of individual environmental responsibility on prosocial behavior (hypothesis H4 was not confirmed). The complete empirical evaluation of the direct and indirect effects proposed by the model is presented in Table 4.

Table 4

Assessing indirect and direct effects

Indirect effect	Effect (BootSE)	Confidence interval	
		LLCI	ULCI
Indirect effects of Individual social responsibility (ISR) on Individual environmental behavior (PEB)			
Total indirect effect	0.17 (0.04)	0.11	0.25
ISR → IER → PEB	0.05 (0.02)	0.02	0.09
ISR → SOCBEH → PEB	0.12 (0.03)	0.06	0.19
ISR → IER → SOCBEH → PEB	- 0.00 (0.00)	- 0.01	0.01
Direct effect of Individual social responsibility (ISR) on Individual environmental behavior (ENVBEH)			
ISR → PEB	0.24	0.08	0.39

Note: BootSE – bootstrapped standard error, LLCI – lower-level confidence interval, ULCI – upper-level confidence interval, IER – Individual environmental responsibility, ISB – Individual prosocial behavior.

DISCUSSION

Implications of the research results

Our findings align with Yu et al.'s (2022) research showing how prosociality and social responsibility can drive health-related behaviors, further highlighting the interplay between prosocial attitudes and behavior. Similarly to our understanding of young adults' prosocial engagement, Vesely et al. (2020) suggested that more cooperative individuals are likelier to engage in PEBs. Environmental behavior is also linked to young adults' social norms and social image, and sometimes, they refrain from environmentally friendly behavior if they believe it could harm their social image (Brick et al., 2017). Our study suggests that efforts to promote sustainability should consider the synergistic effects of fostering both prosocial and pro-environmental orientations, thus encouraging holistic and integrated sustainable citizenship behavior. This is aligned with the norm-activation theory, which states that an individual must first be aware of the consequences of their actions for the well-being of others, feel personally responsible for taking action, and then activate personally held moral

norms, including PEBs (Turaga et al., 2010; Meyer, 2016).

Countries in the wider region under study are characterized by high power distance, family and collectivistic orientations, and strong attachment to tradition and cultural heritage (Bakacsi et al., 2002). The tumultuous transition and privatization processes led to a significant loss of social trust, with the EU accession alleviating their social consequences by emphasizing democratic values and the rule of law (Wursten, 2020). This context should be considered when attempting to generalize the results, which calls for additional comparative research since culture determines social ties and trust as previously verified determinants of PEB (Irwin & Berigan, 2013). Even within a single behavioral domain, the strength of the attitude-behavior relationship has also been shown to depend on cultural patterns (Tam & Chan, 2017).

The role of 'transdisciplinary' spillovers is of paramount importance for higher education to contribute to the implementation of the United Nations Sustainable Development Goals (UN SDGs), where the transformative role of academia is based

on successful collaboration and management of multistakeholder networks, which have emerged as some of the fundamental challenges (Žalėnienė & Pereira, 2021). Spillovers can be harnessed by focusing on academic teaching and learning approaches such as service learning (Modić Stanke, Ružić & Mindoljević Drakulić, 2019) and project-based initiatives (Guo et al., 2020). By looking at the bigger picture, which includes the interdependencies and spillovers between social and environmental responsibility, higher education institutions can reinforce values and behaviors by shaping the attitudes and behaviors of future leaders in the corporate and public sectors.

Limitations of the study

Although our research suggests that young adults studying business and economics are interested in extending their social responsibility toward environmental issues, it is important to note that this group may not fully represent all young adults. This limitation arises from the fact that students in these fields may have viewpoints shaped by their education and future career goals. While our findings offer insights into how social and environmental issues are linked for this group, more diverse demographic data is needed to enhance the generalizability of these findings.

The presented empirical results should also be viewed within the limitation of cultural identity, as Waldron (2000) described. The data were collected in a limited and culturally relatively homogenous geographical area of Southeast Europe, which might limit the generalizability of the findings across different socio-economic environments. Specifically, the hypothesis on the global convergence of young adults' PEB was rejected by Katz-Gerro et al. (2015), who showed that the local context still matters more than the global behavioral benchmarks.

In addition, due to its cross-sectional design, this study provides only a snapshot of the relationships among the analyzed constructs, which hinders our ability to infer causality or the direction of the relationships observed. This limitation can be addressed by longitudinal studies of the analyzed constructs in different socio-economic and educational environments, as business school students might differ from other young adults in terms of moral orientation, prosocial and pro-environmental attitudes, and behaviors.

Implications for practice

The following implications for higher education and broader social practices emerge from this study:

- Higher education institutions should incorporate social and environmental responsibility into their courses – particularly concerning ethics, Corporate Social Responsibility (CSR), and sustainability – to inspire prosocial and pro-environmental mindsets. Experiential learning opportunities, such as community service projects and case-based learning, help students connect theory with real-world competencies. Students should also be encouraged to volunteer, organize donation drives, or participate in charitable events. These experiences nurture a broader sense of responsibility that can be transmitted into caring for the environment.
- How social and environmental responsibilities overlap within educational programs and practices should be stressed. Tailoring campaigns about climate change so they also address social justice concerns – like poverty or local community resilience – can make sustainability efforts more relatable and convincing to this age group.
- Since participants of this study were business students, its empirical results

present a strong case for programs that prepare tomorrow's leaders to think sustainably. Business schools should spotlight the importance of sustainability-focused leadership and CSR.

- When designing public campaigns, focusing on prosocial activities can help young adults see their actions – such as volunteering or peer mentoring – as directly tied to environmental protection. Tools like gamification, public recognition, or showcasing sustainable role models may improve their motivation and engagement.

By acknowledging attitudes and behaviors, our empirical results offer a roadmap for initiatives that address ecological issues while strengthening the prosocial orientation of young adults. This integrated approach can improve efforts toward building societies where social responsibility and environmental protection are interconnected and mutually supportive.

CONCLUSION

This study shows that individual social responsibility, prosocial behavior, and environmental responsibility are all important factors in shaping young adults' pro-environmental behavior. Two central indirect pathways emerge from the results, underlining how closely social and environmental engagement are linked:

- *Social Responsibility → Pro-environmental Behavior via Environmental Responsibility.* Our findings indicate that individual social responsibility can indirectly encourage pro-environmental behavior through strengthened environmental responsibility. This underscores the importance of cultivating environmental attitudes to translate social responsibility into sustainable behavior (Amel et al., 2017).
- *Social Responsibility → PEB via Prosocial Behavior.* We also see that individ-

ual social responsibility sets the stage for more environmentally friendly actions when it leads to prosocial behavior first. In other words, those who actively help others tend to be more inclined to adopt green practices, suggesting that prosocial involvement can act as an initial step toward broader sustainability outcomes (Nolan & Schultz, 2014).

These results align with research showing that highlighting social benefits boosts environmentally conscious choices (Klein et al., 2022). However, our study did not find support for the sequential mediation path that would involve both environmental responsibility and prosocial behavior at the same time. This indicates the intricate relationships involved and suggests further research needs (Meyer, 2015).

On a practical level, our findings suggest that cultivating both prosocial actions and environmental responsibility can meaningfully enhance young adults' engagement in sustainable habits. Schools and universities are uniquely positioned to incorporate social and environmental principles into everyday coursework and activities, laying the groundwork for more profound, integrated forms of responsible behavior. Policymakers can likewise draw on these insights to craft interventions that address social and ecological goals in tandem.

Finally, these findings reinforce the deeply intertwined nature of social and environmental responsibility. For instance, efforts to prevent the "brain drain" (Šlibar, Oreški, & Klačmer Čalopa, 2023) point to the importance of tackling socio-economic drivers to retain talent and foster local progress. In parallel, supporting young adults in social and environmental activities helps strengthen communities and reduces the outflow of human capital. Future studies should explore these pathways in other cultural contexts and examine additional factors that could either mediate or moderate

these links. A richer understanding of these dynamics will facilitate more effective strategies for encouraging sustainable behaviors on a broader social scale.

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Sažetak

POMAGANJE PLANETI ZA ODRŽIVIJU BUDUĆNOST: PRELIJEVANJA IZMEĐU PROSOCIJALNIH I PROOKOLIŠNIH STAVOVA I PONAŠANJA MLADIH

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U radu se istražuje kako prosocijalni angažman može omogućiti mladima da se posvete zaštiti okoliša. Koristeći serijsku medijacijsku analizu, ispituje se podatke 530 studenata dodiplomskog studija ekonomije u jugoistočnoj Europi kako bismo prikazali psihološke putove koji povezuju prosocijalne stavove i ponašanja sa sklonošću prema sudjelovanju u zaštiti okoliša. Statistička analiza provodi se pomoću PROCESS macro modela 6. Iako ograničeni sličnim socio-ekonomskim okolnostima diljem analizirane regije i presječnim dizajnom istraživanja, rezultati istraživanja sugeriraju da posredovani neizravni odnosi pomažu u razvoju stavova i ponašanja koji su odgovorni prema okolišu. Implikacije studije uključuju šire mogućnosti za obrazovanje i oblikovanje javne politike: prosocijalni angažman mogao bi poslužiti kao obećavajući instrument za motiviranje mladih da prihvate koncept održivog razvoja. Na taj bi se način sinergije između prosocijalnog angažmana i ekološke svijesti mogle iskoristiti za razvoj održivijeg, ekološki svjesnijeg društva.

Ključne riječi: prosocijalnost, ekološki angažman, stavovi, ponašanja, mlade odrasle osobe.