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How You Play Matters More than What You Play: Serious Leisure Qualities as Age-Differentiated Predictors of Adolescent Risk Behaviors

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Abstract

Serious leisure theory proposes that deep engagement in leisure activities yields personal and social benefits, yet its application to adolescent risk behavior remains unexplored. This cross-sectional study examined whether specific qualities of serious leisure (effort/perseverance, talents/skills, self-expression, activity outcomes, financial benefit, and ethos) predicted four risk behavior domains (delinquency, cyberbullying, eating disorders, sexual risk) among 1141 Croatian adolescents (64.8% female; 60.0% younger cohort aged 14–17, 40.0% older cohort aged 18–20). Serious leisure qualities were assessed with subscales adapted from the Serious Leisure Inventory and Measure (SLIM) and risk behaviors with validated self-report instruments, both administered through an anonymous online questionnaire. Hierarchical regression models revealed that serious leisure qualities explained 5–11% of variance in risk behaviors beyond demographics, with significant age-moderation effects. For younger adolescents, effort and perseverance in leisure activities served as the primary protective factor ($r = -0.14$ to -0.17), whereas for older adolescents, perceived activity outcomes (satisfaction and personal growth) emerged as the dominant protector ($r = -0.12$ to -0.21). Conversely, financial benefit derived from leisure consistently predicted higher risk across all domains, particularly cyberbullying ($r = 0.35$ among younger participants). A significant developmental shift in leisure preferences was observed, with structured activities declining from 27.6% to 18.6% as participants aged ($\chi^2 = 36.91$, $p < 0.001$). These findings suggest that the subjective quality of leisure engagement, rather than the type of activity alone, shapes risk trajectories, with distinct protective mechanisms operating at different developmental stages. Implications for age-tailored leisure-based prevention programs are discussed.

Keywords: serious leisure; adolescent risk behaviors; developmental differences; cyberbullying; delinquency; leisure qualities; social pedagogy



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1. Introduction

Adolescence is a developmental period characterized by heightened vulnerability to risk behaviors, including delinquency, substance use, cyberbullying, disordered eating, and risky sexual practices (Jessor, 1991; Steinberg, 2008). Understanding what protects young people from engaging in these behaviors has been a central concern in developmental and prevention science. While ecological models emphasize the interplay of family, peer, school, and community factors (Bronfenbrenner, 1979; Catalano & Hawkins, 1996), one domain that remains comparatively underexplored is the role of leisure.

The contemporary cohort of adolescents is growing up in a leisure environment unlike that of previous generations, saturated by smartphones, social media, and on-demand digital content, in which much of their daily free time is spent online rather than in physically co-present, adult-supervised settings (Mihajlović et al., 2023; Matijašević, 2024). For young people who are already considered at risk, whether because of socioeconomic adversity, family instability, or prior behavioral difficulties, these conditions can intensify exposure to unstructured, loosely monitored activity and to the social pressures that accompany it. A complementary body of work argues that what such youth most need is not mere diversion, but meaningful leisure engagement that is intrinsically significant, identity-affirming, and connected to a sense of purpose (Hopper & Iwasaki, 2017; Iwasaki & Hopper, 2017; Iso-Ahola & Baumeister, 2023). This meaning-focused perspective resonates closely with the serious leisure framework adopted here, yet it has rarely been brought to bear on the quantitative prediction of specific adolescent risk behaviors. Framing the present study within the realities of this digitally mediated, at-risk generation clarifies both why the quality of leisure matters and why it warrants renewed empirical attention.

Leisure has traditionally been studied in terms of what activities adolescents engage in, with research consistently showing that structured extracurricular activities (organized sports, arts programs, community volunteering) are associated with better developmental outcomes, while unstructured socializing and digital media use tend to correlate with higher risk (Osgood et al., 1996; Mahoney et al., 2005; Spillane et al., 2020; Purba et al., 2023). However, this activity-type approach overlooks a critical dimension: how young people experience their leisure, regardless of what they do.

It is important to recognize, however, that the capacity to engage in leisure and especially in serious leisure, which demands sustained investments of time, money, equipment, and instruction, is not equally distributed across adolescents. For young people growing up in poor households, structured leisure may be financially out of reach, logistically impossible, or experienced as an additional source of family strain rather than a developmental asset (Mahoney et al., 2005). This can also depend on a cultural and national background and existence of free leisure activities that anyone can approach regarding socioeconomic background (Matijašević, 2024). The present study did not collect direct indicators of family socioeconomic status, a limitation revisited below, thus our findings are best understood as describing variation in the subjective quality of leisure among adolescents who are already engaged in some form of leisure, rather than accounting for differential access to leisure itself.

1.1. The Serious Leisure Perspective

Stebbins's (1982, 2007) serious leisure perspective (SLP) offers a theoretical framework that shifts attention from activity type to the quality of engagement. The SLP distinguishes between casual leisure (immediately pleasurable activities requiring little skill) and serious leisure, which is characterized by six defining qualities: perseverance through challenges, the pursuit of a leisure career, significant effort in skill acquisition, durable personal and social benefits, a unique ethos shared with fellow participants, and strong identification with the activity.

Research on adult populations has demonstrated that serious leisure qualities are associated with greater psychological well-being, life satisfaction, and social integration (Heo et al., 2010; Kim et al., 2015). Among older adults, serious leisure that can be characterized as higher engagement in different sorts of leisure activities has been linked to reduced depression and improved quality of life (Ku et al., 2016). However, the application of the SLP to adolescent populations remains notably sparse. Most youth leisure research employs time-use inventories or simple activity categories, ignoring the depth and quality

of engagement that the SLP framework captures. To date, the SLP framework has not been systematically correlated with risk behaviors in adolescent samples; this is the research gap that the present work is designed to address.

The limited adolescent SLP research currently available has focused narrowly on specific populations, such as young competitive athletes or artistically gifted youth, without systematically relating the full set of serious leisure qualities to mainstream adolescent risk outcomes. Moreover, most existing measurements of serious leisure in youth samples have relied on single-item career-interest indicators or heavily abbreviated scales, limiting theoretical precision and cross-study comparability. The Serious Leisure Inventory and Measure (Gould et al., 2008) provides a psychometrically robust multidimensional instrument, yet has rarely been deployed with pre-college samples or integrated with risk-behavior assessment. Extending SLP to adolescence also requires conceptual refinement: while the theory was originally grounded in adult hobbyist, volunteer, and amateur subcultures, adolescents inhabit leisure ecologies in which peer networks, digital platforms, and developmental tasks all shape engagement. The present study addresses this dual theoretical and empirical gap by applying the multidimensional SLIM framework to a large adolescent sample, and by explicitly testing whether distinct qualities of serious leisure differentially buffer against specific risk behaviors. Such granular evidence is necessary to translate the SLP from a descriptive lens into an empirical base that is actionable for prevention science.

It is equally important to situate this choice of framework within ongoing theoretical debate. The serious leisure perspective has not gone uncontested: Veal (2019, 2021) argues that it functions more as a descriptive typology of leisure forms than as an explanatory theory yielding testable propositions, and that its boundaries with casual and project-based leisure are often blurred. This work decomposes engagement into its constituent, measurable qualities—effort, skill, self-expression, outcomes, financial benefit, and ethos—and asks which specific qualities predict which specific outcomes. Second, by anchoring these qualities to well-defined risk-behavior criteria, the framework moves beyond description toward falsifiable, predictive claims. In this sense, the present study responds directly to calls to demonstrate the empirical and practical value of the perspective rather than to presume it, and it does so in a developmental population for which the framework has seldom been tested.

1.2. Leisure and Adolescent Risk Behaviors

The relationship between leisure and risk is not straightforward. While participation in organized activities generally predicts lower delinquency and substance use (Eccles & Barber, 1999; Fredricks & Eccles, 2006), several studies have reported paradoxical findings. For instance, involvement in team sports has been associated with increased alcohol use (Lisha & Sussman, 2010), and higher overall leisure engagement does not uniformly reduce risk (Caldwell & Smith, 2006). These inconsistencies suggest that activity type alone is an insufficient predictor. What may matter more is the nature of the psychological investment in the activity.

Among the unstructured pursuits that now dominate adolescent free time, social media use scrutiny as a leisure activity rather than as an incidental backdrop. For a large share of contemporary youth, scrolling, posting, messaging, and content creation constitute the single most time-intensive form of discretionary activity, and unlike most traditional leisure, it unfolds in a continuous, algorithmically curated, and weakly supervised space (Choi et al., 2025). This matters because the same platforms that afford connection and self-expression also concentrate documented risks: exposure to and perpetration of cyberbullying, appearance-based social comparison and body dissatisfaction, sexualized self-presentation, and heightened susceptibility to peer pressure and to the performance

demands of an ever-present audience (Milić et al., 2025). Treating social media as merely a passive pastime therefore understates its developmental significance; whether it functions as a benign or a harmful form of leisure is likely to depend on the quality and motivational structure of a young person's engagement with it, which is precisely the question that the serious leisure framework is positioned to address.

One particularly underexplored dimension is the financial benefit that adolescents derive from their leisure activities. With the rise of social media monetization, content creation, and competitive gaming, increasing numbers of young people earn income from activities traditionally classified as leisure (Hund, 2023). Whether this commercialization of leisure functions as a protective or risk factor for adolescents has not been empirically tested.

A growing body of media-effects research has shown that adolescents who monetize their online presence experience heightened exposure to antagonistic audiences, parasocial pressures, and algorithm-driven performance demands (Hund, 2023). These conditions have been repeatedly linked to elevated rates of online harassment perpetration, body-image concerns, appearance-driven self-objectification, and sexualized self-presentation. Serious leisure perspective (SLP) theory, in contrast, was developed in an era that predated the platformization of youth culture, and its early treatment of "durable benefits" implicitly framed financial return as a secondary and generally positive consequence of deep engagement. The contemporary youth leisure landscape challenges this assumption: earning money from a leisure activity may alter the motivational structure of engagement, exposing adolescents to normative climates in which aggression, risky self-display, and substance use are rewarded rather than sanctioned. Despite the conceptual resonance with the serious leisure framework, no study to date has integrated financial benefit within the SLIM structure to test whether the protective contribution of other serious leisure dimensions is attenuated, or even reversed, when leisure becomes a source of adolescent income. The present study provides this test.

1.3. Age as a Developmental Moderator

Developmental science suggests that the protective mechanisms available to young people shift across adolescence (Steinberg, 2008). Younger adolescents, who are still developing self-regulation capacities, may benefit most from the behavioral discipline that sustained effort and practice in an activity provides. Older adolescents, who are increasingly oriented toward identity and meaning making (Erikson, 1968), may derive greater protection from the perceived outcomes and personal significance of their activities. If serious leisure qualities operate as developmental moderators, this would have direct implications for the design of age-appropriate prevention interventions.

The dual-systems model of adolescence specifies that the socioemotional reward system matures earlier than the cognitive-control system, producing a developmental imbalance during mid-adolescence that heightens sensitivity to reward cues and peer influence (Steinberg, 2008). This asymmetry implies that different protective factors may be optimally matched to different ages: for younger adolescents, external structure and effort-based behavioral engagement may compensate for still-developing self-regulation, while for older adolescents, consolidated identity commitments and subjective meaning derived from activity may provide a more internalized shield against risk-taking. A complementary framework is positive youth development (PYD), a strengths-based approach that locates healthy functioning in the alignment between the developing assets of young people and the resources of their social contexts, and that has been applied with increasing frequency to Croatian and other European adolescent samples (Roviš et al., 2025). Within this tradition, the five Cs—competence, confidence, connection, character, and caring—are understood to emerge through sustained, intentional engagement in developmentally challenging

settings, among which leisure contexts are some of the most fertile for cultivating these assets. Examining serious leisure qualities through this combined neurodevelopmental and PYD lens allows for age-specific hypotheses that are both theoretically motivated and practically informative for the design of age-tailored prevention programs.

Croatian adolescents represent a particularly relevant population for this investigation. Croatia exhibits a leisure culture in which structured and unstructured social activities coexist, and recent research has documented concerning rates of delinquency, cyberbullying, and disordered eating among Croatian youth (Matijašević, 2024).

1.4. The Present Study

This study aimed to investigate whether serious leisure qualities predict adolescent risk behaviors and whether these associations are moderated by age. Specifically, we tested three hypotheses:

H1. *Serious leisure qualities (effort/perseverance, talents/skills, self-expression, activity outcomes, ethos) will be negatively associated with risk behaviors (delinquency, cyberbullying, eating disorders, sexual risk), while financial benefit will be positively associated with risk.*

H2. *The protective associations will be moderated by age, with effort/perseverance being more protective for younger adolescents and activity outcomes being more protective for older adolescents.*

H3. *A significant developmental shift in leisure activity preferences will be observed, with older adolescents gravitating toward unstructured social activities and away from structured activities.*

2. Materials and Methods

2.1. Participants and Procedure

Participants were 1141 adolescents from Croatia (739 female, 64.8%; 402 male, 35.2%) divided into a younger cohort ($n = 685$, aged 14–17 years) and an older cohort ($n = 456$, aged 18–20 years). Data were collected via an anonymous online questionnaire distributed through schools and higher education institutions. Informed consent was obtained from all participants (and from parents or guardians for those under 18). The study was approved by Ethic Committee of Faculty of Humanities and Social Sciences in Osijek. Participation was voluntary and uncompensated.

Recruitment took place between March and June 2023 across eight public secondary schools (general gymnasias and vocational schools) and three higher-education institutions located in four Croatian counties Splitsko-dalmatinska, Zagreb, Slavonija and Istra, intentionally representing urban, suburban, and semi-rural catchment areas to improve ecological diversity. School administrators and course instructors distributed a secure survey link via official communication channels, and students accessed the questionnaire at their convenience using personal or school-provided devices. A brief landing page described the study purpose, anticipated completion time (approximately 20–25 min), data-protection procedures, and contact information for the principal investigator. Inclusion criteria were (a) current enrollment at a participating institution, (b) age between 14 and 20 years, and (c) sufficient literacy in Croatian to complete self-report measures. A priori power analysis conducted in G*Power 3.1 indicated that a sample of $n \geq 395$ per age group would provide >0.95 power to detect a small effect ($f^2 = 0.04$) in hierarchical regression with up to 10 predictors at $\alpha = 0.05$; the obtained sample substantially exceeded this threshold. Of the 1218 initial respondents, 77 were excluded for incomplete data (more than 20% missing on key scales) or inconsistent response patterns identified through two embedded attention-check items, yielding the final analytic sample of 1141 participants. With 685 participants in the younger cohort and 456 in the older cohort, the final sample of 1141 exceeded the minimum

of 395 per group indicated by the a priori power analysis by a wide margin, ensuring statistical power above the 0.95 benchmark and ample subgroup sizes for the age- and sex-stratified analyses reported below. Completion time was logged automatically by the survey platform; on average, participants completed the questionnaire in approximately 21.30 min, consistent with the anticipated 20–25-min estimate. Participants could withdraw at any point without penalty, and no personally identifying information (name, email, IP address) was stored alongside the responses.

2.2. Measures

2.2.1. Serious Leisure Qualities

Seven dimensions of serious leisure were assessed through validated subscales adapted from the Serious Leisure Inventory and Measure (SLIM; Gould et al., 2008): (a) effort/perseverance (6 items, e.g., “If I encounter an obstacle, I persist until I overcome it”; $\alpha = 0.86$), (b) motivation (2 items; $\alpha = 0.78$), (c) talents and skills (6 items; $\alpha = 0.88$), (d) self-expression (5 items; $\alpha = 0.87$), (e) activity outcomes (8 items, including satisfaction, relaxation, self-image; $\alpha = 0.89$), (f) financial benefit (2 items; $\alpha = 0.82$), and (g) ethos (11 items, measuring group identity and social bonding; $\alpha = 0.92$). All items were rated on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). To clarify the scope of the financial benefit subscale and to distinguish it from conceptually unrelated money-related behaviors, both items were adapted from the Financial Return dimension of the SLIM (Gould et al., 2008), which assesses the remuneration received for the products or expertise that result from participation in a leisure pursuit. In the original instrument, the items of this dimension include, for example, “Financially, I have benefited from my [activity] involvement” and “I have received financial payment as a result of my [activity] efforts”; for the present study, they were translated into Croatian and reworded to refer to the adolescent’s own main leisure activity. Endorsement therefore indicates that an adolescent earns money directly from the leisure pursuit they identified as their own (stipend, contracts etc.). Consistent with the original SLIM conceptualization, the subscale captures income generated by the leisure activity itself and was not designed to assess gambling, speculative trading (e.g., cryptocurrency), or other financial risk behaviors that are conceptually distinct from leisure monetization.

The SLIM subscales were adapted into Croatian following a standard forward-backward translation protocol involving two bilingual researchers and one independent reconciliation reviewer. Minor rewording of two items was undertaken to improve age-appropriateness (e.g., replacing “career” with “activity that I keep coming back to”) without altering the underlying construct. Before full-scale fielding, the Croatian version was cognitively pre-tested with eight adolescents (four aged 14–17 and four aged 18–20) to verify item comprehension and response-scale usability. Item scores were summed within subscales to yield total scores. Confirmatory factor analyses on the full sample supported the seven-factor structure (CFI = 0.93, TLI = 0.92, RMSEA = 0.048, 90% CI [0.044, 0.052], SRMR = 0.052), with values comparable to those reported in the original English validation. Measurement invariance testing across the younger and older cohorts supported configural and metric invariance ($\Delta\text{CFI} < 0.010$), justifying cross-age comparisons of regression coefficients.

2.2.2. Risk Behaviors

Four risk behavior domains were assessed using previously validated instruments, with item subsets selected to reduce respondent burden while preserving domain coverage. Delinquency was measured with 10 items drawn from the Delinquent Behavior subscale of the Communities That Care Youth Survey (CTC; Arthur et al., 2002), covering substance use, theft, physical aggression, and vandalism ($\alpha = 0.88$); the Croatian adaptation used

here was previously validated by Matijašević (2024). Online risk behavior/cyberbullying was measured with 3 items adapted from the Social Networking Usage Questionnaire (Gupta & Bashir, 2018), assessing the perpetration of aggressive online interactions on social networks ($\alpha = 0.76$). Eating disorders were assessed with 6 items adapted from the scale developed for Croatian adolescents by Livazović and Mudrinić (2017), tapping restrictive eating, binge eating, body dissatisfaction, and purging-type compensatory behaviors ($\alpha = 0.84$). Sexual risk was measured with 3 items adapted from the Screening Instrument for Risky Sexual Behaviors in Adolescents (Menon et al., 2016), assessing early sexual activity, inconsistent contraception use, and number of sexual partners ($\alpha = 0.80$). All risk items used 5-point frequency scales (1 = never to 5 = very often). Total subscale scores were computed as the sum of item responses, with higher scores indicating greater involvement in the respective risk domain.

2.2.3. Main Leisure Activity

Participants identified their main leisure activity from a list of 26 options (e.g., club team sport, individual sport, socializing with friends, social media, video games, gym/fitness, volunteering). For analysis, these were categorized into four types: (a) structured activities (club sports, organized workshops, volunteering; $n = 274$), (b) unstructured social activities (socializing with friends, social media, cafés/clubs, romantic partners; $n = 433$), (c) physical recreation (gym, recreational sport, hiking; $n = 185$), and (d) digital/passive (video games, TV; $n = 67$).

2.3. Data Analysis

Analyses proceeded in five stages. First, descriptive statistics and independent-samples *t*-tests compared serious leisure qualities across age groups and sex. Second, bivariate Pearson correlations between serious leisure qualities and risk behaviors were computed separately for each age group, with Fisher *z*-tests assessing whether correlations differed significantly between groups. Third, hierarchical regression models tested whether serious leisure qualities predicted risk behaviors beyond demographics (Step 1), and whether age moderated these effects (Step 3) through Age $\times$ SL interaction terms. All serious leisure predictors were standardized (*z*-scores) prior to computing interaction terms. Fourth, one-way ANOVAs compared serious leisure quality scores and risk outcomes across activity types. Fifth, chi-square tests assessed developmental shifts in activity type preferences. All analyses were conducted in Python 3.10 using *scipy* (v1.11), *statsmodels* (v0.14), and *pandas* (v2.0). Significance was set at $\alpha = 0.05$, with effect sizes reported as Cohen's *d* for group comparisons and η^2 for ANOVAs.

Prior to regression modeling, all continuous predictors were examined for univariate and multivariate normality, skewness, and kurtosis, and for multicollinearity using variance inflation factors (VIFs). All VIFs were below 2.4, well within acceptable limits. Interaction terms were computed as products of *z*-standardized predictors, following recommendations by Aiken and West (1991), to reduce nonessential multicollinearity and facilitate an interpretation of lower-order coefficients. Significant interactions were probed via simple-slopes analyses at conditional values representing the younger and older cohorts, and by computing Johnson–Neyman regions of significance. Missing values on non-key items ($\leq 3.4\%$ per variable) were handled via pairwise deletion, as Little's MCAR test confirmed that missingness was completely at random ($\chi^2 = 148.2$, $df = 135$, $p = 0.213$). To control for familywise error across the four risk outcomes, Benjamini–Hochberg false discovery rate (FDR) adjustments were applied within each family of significance tests; all results reported as statistically significant survived this correction unless explicitly noted.

Post hoc ANOVA contrasts across the four activity-type groups were tested with Tukey's HSD to control familywise error at $\alpha = 0.05$.

3. Results

3.1. Descriptive Statistics and Group Differences

Table 1 presents descriptive statistics for all serious leisure qualities by age group and sex. Older adolescents reported significantly higher levels of effort/perseverance ($d = 0.26$), talents/skills ($d = 0.18$), self-expression ($d = 0.27$), and activity outcomes ($d = 0.26$; all $p < 0.01$). Financial benefit did not differ by age but showed a significant sex difference, with males reporting higher financial benefit than females ($d = 0.34$, $p < 0.001$). No other sex differences reached significance.

Table 1. Descriptive statistics for serious leisure subscales by age group and sex ($M \pm SD$).

Variable	Total ($n = 1141$)	Younger ($n = 685$)	Older ($n = 456$)	Male ($n = 402$)	Female ($n = 739$)
Effort/Perseverance	24.86 (3.96)	24.45 (4.01)	25.48 (3.82) ***	25.25 (4.19)	24.65 (3.82) *
Motivation	7.25 (1.99)	7.17 (2.01)	7.38 (1.94)	7.24 (2.13)	7.26 (1.91)
Talents/Skills	24.06 (4.81)	23.72 (4.85)	24.57 (4.71) **	24.42 (4.93)	23.86 (4.73)
Self-Expression	19.57 (4.24)	19.12 (4.34)	20.24 (4.01) ***	19.37 (4.50)	19.67 (4.10)
Activity Outcomes	34.90 (5.75)	34.30 (5.87)	35.81 (5.44) ***	34.90 (5.69)	34.90 (5.78)
Financial Benefit	4.34 (2.76)	4.33 (2.78)	4.35 (2.75)	4.94 (3.00)	4.02 (2.57) †
Ethos	41.55 (9.44)	41.14 (9.47)	42.16 (9.38)	41.87 (9.48)	41.37 (9.43)

Note. Age differences (younger vs. older) tested with independent-samples t -tests. Sex differences (male vs. female) shown in rightmost column. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. † Sex difference: $d = 0.34$, $p < 0.001$.

3.2. Age-Differentiated Correlations Between Serious Leisure and Risk

Figure 1 presents the correlation matrices separately for younger and older adolescents. Two distinct patterns emerged. Among the younger adolescents, effort/perseverance showed significant negative correlations with delinquency ($r = -0.14$, $p < 0.001$), cyberbullying ($r = -0.11$, $p < 0.01$), eating disorders ($r = -0.17$, $p < 0.001$), and sexual risk ($r = -0.08$, $p < 0.05$). Among older adolescents, effort/perseverance was no longer significantly associated with any risk outcome. Instead, activity outcomes showed the strongest protective associations: delinquency ($r = -0.21$, $p < 0.001$), cyberbullying ($r = -0.19$, $p < 0.001$), and sexual risk ($r = -0.12$, $p < 0.01$).

Fisher z -tests confirmed that the age difference in correlations was statistically significant for effort–delinquency ($z = -2.03$, $p = 0.042$), effort–eating disorders ($z = -1.97$, $p = 0.049$), effort–sexual risk ($z = -2.35$, $p = 0.019$), outcomes–delinquency ($z = 2.07$, $p = 0.039$), and financial benefit–cyberbullying ($z = 2.39$, $p = 0.017$).

Financial benefit was a consistent positive correlate of risk in both age groups. Among younger adolescents, the association was particularly strong for cyberbullying ($r = 0.35$, $p < 0.001$), delinquency ($r = 0.23$, $p < 0.001$), and sexual risk ($r = 0.26$, $p < 0.001$). Among older adolescents, the associations were attenuated but remained significant for cyberbullying ($r = 0.21$, $p < 0.001$) and sexual risk ($r = 0.19$, $p < 0.001$).

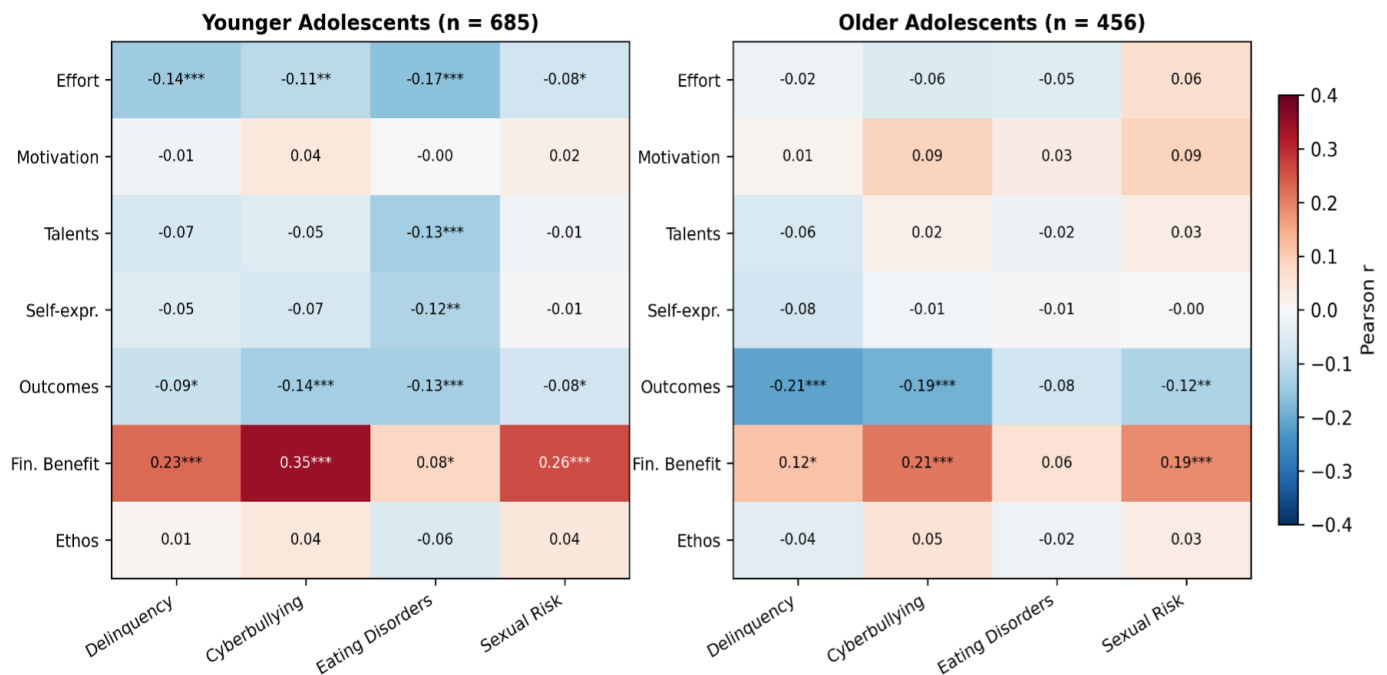


Figure 1. Correlation heatmaps between serious leisure qualities and risk behaviors for younger (left panel, $n = 685$) and older (right panel, $n = 456$) adolescents. Cell values represent Pearson r coefficients. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

3.3. Hierarchical Regression: Age-Moderated Effects

Figure 2 summarizes the hierarchical regression results for all four risk outcomes. In each model, demographics (age group, sex) were entered at Step 1, serious leisure qualities at Step 2, and Age $\times$ SL interactions at Step 3.

For delinquency, the addition of serious leisure qualities at Step 2 significantly improved the model ($\Delta R^2 = 0.052$, $F = 9.47$, $p < 0.001$). At Step 3, two interaction terms were significant: Age $\times$ Effort ($B = 2.08$, $p < 0.001$) and Age $\times$ Financial Benefit ($B = -1.52$, $p < 0.001$). The positive Age $\times$ Effort interaction indicates that the protective effect of effort weakened with age, while the negative Age $\times$ Financial Benefit interaction indicates that the risk-promoting effect of financial benefit was stronger for younger participants. The final model explained 13.0% of variance.

For cyberbullying, serious leisure qualities explained 11.2% of additional variance ($\Delta R^2 = 0.112$, $p < 0.001$), the largest increment of any outcome. Financial benefit was the strongest predictor ($B = 1.12$, $p < 0.001$ at Step 3). The Age $\times$ Financial Benefit interaction was significant ($B = -0.81$, $p < 0.001$), confirming that this risk factor is particularly potent among younger adolescents. The final model explained 18.8% of variance.

For sexual risk, the same age-moderated pattern was observed. Effort was protective among younger participants ($B = -0.42$, $p < 0.001$) but not among older ones (Age $\times$ Effort: $B = 0.63$, $p < 0.01$). Financial benefit predicted higher risk ($B = 0.61$, $p < 0.001$), with a significant age attenuation (Age $\times$ Financial Benefit: $B = -0.44$, $p < 0.01$). The final model explained 12.3% of variance.

The eating disorders pattern was weaker. Serious leisure qualities added 3.3% of variance at Step 2 ($p < 0.001$). Effort showed a marginally significant protective effect ($B = -0.68$, $p < 0.05$), and no Age $\times$ SL interaction reached significance ($\Delta R^2 = 0.008$, $p = 0.257$).

Across all four hierarchical regression models, the largest increment in variance explained at Step 2 was observed for cyberbullying ($\Delta R^2 = 0.112$), followed by delinquency ($\Delta R^2 = 0.052$), sexual risk ($\Delta R^2 = 0.048$), and eating disorders ($\Delta R^2 = 0.033$). The Step 3 Age $\times$ SL interaction block added a further 1.1–2.9% of explained variance and was statisti-

cally significant for three out of the four outcomes (all except eating disorders), supporting the age-moderation hypothesis. Inspection of standardized regression coefficients indicated that effort/perseverance ($\beta = -0.17$ to -0.09 , younger cohort) and activity outcomes ($\beta = -0.21$ to -0.12 , older cohort) emerged as the most robust protective predictors, whereas financial benefit was the most robust risk-promoting predictor ($\beta = 0.12$ to 0.29 across cohorts). Variance inflation factors across all models ranged from 1.04 to 2.38, confirming the absence of problematic multicollinearity. Model residuals satisfied assumptions of linearity, homoscedasticity, and approximate normality upon the visual inspection of residual-versus-fitted and Q-Q plots.

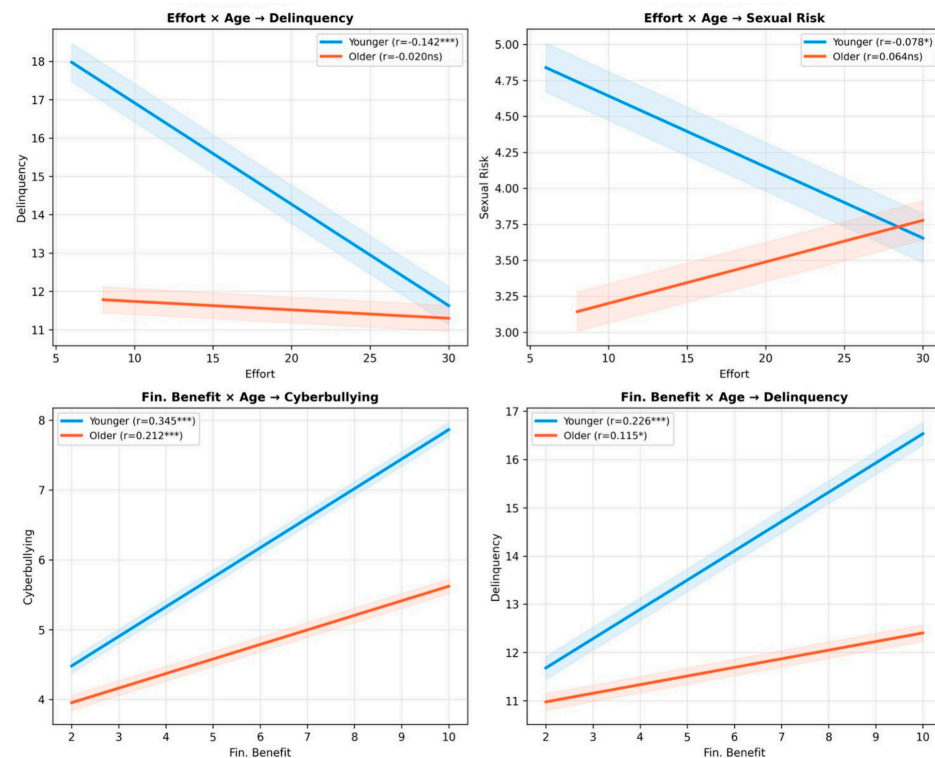


Figure 2. Age-moderated effects of effort/perseverance and financial benefit on risk behaviors. Blue lines represent younger adolescents; red lines represent older adolescents. Shaded regions indicate ± 1 SE confidence bands. Coefficients in the legend are simple-slope correlations; asterisks denote their statistical significance: $^{*} p < 0.05$, $^{***} p < 0.001$, ns = not significant.

3.4. Financial Benefit: A Closer Examination

Given the consistent risk-promoting role of financial benefit, we conducted a more fine-grained analysis examining the Financial Benefit $\times$ Age $\times$ Sex interaction across all four risk outcomes. Figure 3 presents simple slope correlations for each age-by-sex cell.

The results revealed a clear gradient: younger males showed the strongest positive associations between financial benefit and risk across all four domains ($r = 0.21$ – 0.30 , all $p < 0.001$). Among younger females, the pattern held for cyberbullying ($r = 0.37$, $p < 0.001$) and sexual risk ($r = 0.24$, $p < 0.001$) but not for eating disorders. Among older males, only sexual risk remained significant ($r = 0.18$, $p < 0.05$). The Financial Benefit $\times$ Sex interaction was significant for delinquency ($B = 1.30$, $p = 0.006$), eating disorders ($B = 1.01$, $p = 0.008$), and sexual risk ($B = 0.41$, $p = 0.012$).

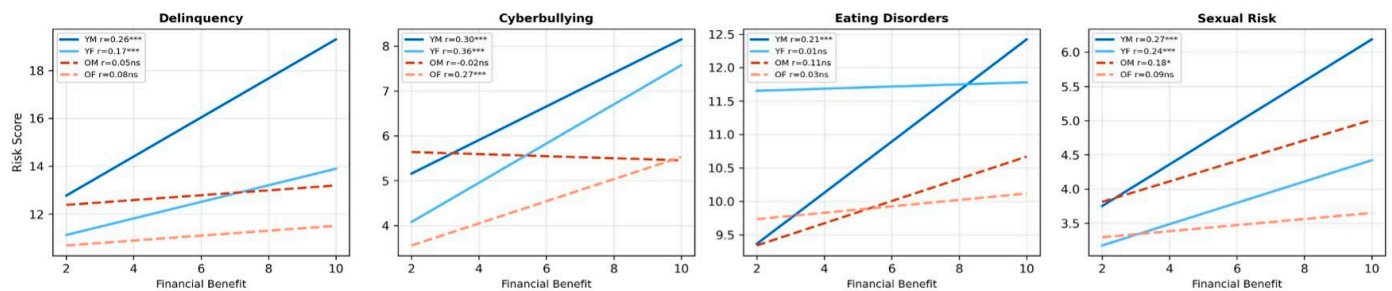


Figure 3. Simple slopes: financial benefit predicting each risk outcome across age and sex sub-groups. YM = younger males, YF = younger females, OM = older males, OF = older females. Solid lines = younger cohort; dashed lines = older cohort. Coefficients are simple-slope correlations; asterisks denote their statistical significance: * $p < 0.05$, *** $p < 0.001$, ns = not significant.

3.5. Activity Type Differences and Developmental Shift

One-way ANOVAs revealed significant differences in all serious leisure qualities across activity types (all $p < 0.001$). The largest effect sizes were observed for effort/perseverance ($\eta^2 = 0.098$), talents/skills ($\eta^2 = 0.097$), and self-expression ($\eta^2 = 0.093$). Participants in structured activities reported the highest serious leisure quality scores, while those in digital/passive activities reported the lowest. Post hoc comparisons between structured and unstructured social activities yielded medium effect sizes for effort ($d = 0.70$), talents ($d = 0.65$), and financial benefit ($d = 0.49$; all $p < 0.001$).

A significant developmental shift in activity preferences was observed ($\chi^2(4) = 36.91$, $p < 0.001$, Cramér's $V = 0.180$; Figure 4). The proportion of adolescents reporting a structured main activity declined from 27.6% (younger) to 18.6% (older), while unstructured social activities rose from 34.6% to 43.0% and physical recreation from 12.7% to 21.5%. Notably, the shift was sex-differentiated: among older females, 54% reported unstructured social activities as their primary leisure, compared to only 14% of older males, who predominantly remained in structured activities (39%) and physical recreation (29%).

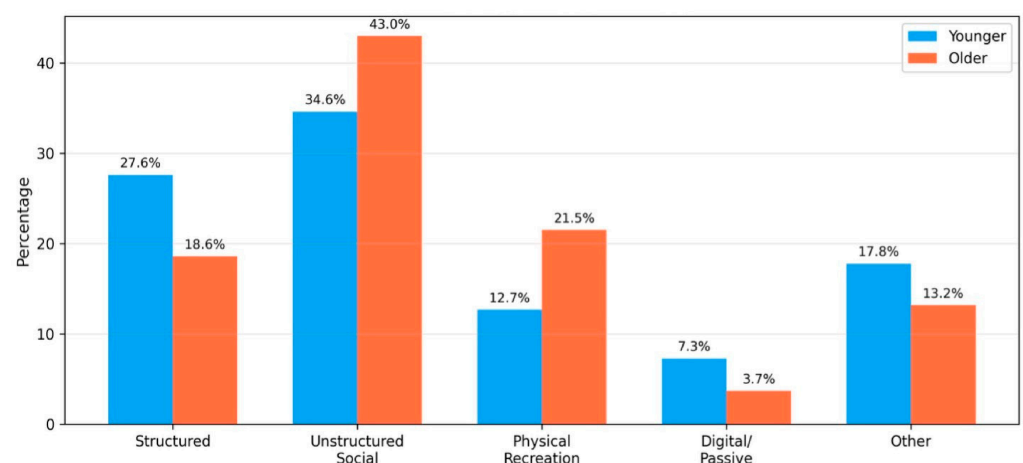


Figure 4. Developmental shift in main leisure activity type from younger to older adolescents. $\chi^2(4) = 36.91$, $p < 0.001$, Cramér's $V = 0.180$.

Tukey's HSD post hoc comparisons clarified the activity-type differences. Participants whose main activity was structured reported significantly higher effort/perseverance than those in unstructured social activities ($M\Delta = 2.74$, $p < 0.001$), physical recreation ($M\Delta = 1.63$, $p = 0.002$), and digital/passive activities ($M\Delta = 3.91$, $p < 0.001$). A similar gradient emerged for talents/skills and activity outcomes, with digital/passive participants consistently reporting the lowest scores. For risk behaviors, one-way ANOVAs revealed significant

mean differences in delinquency ($F(3, 1137) = 12.84, p < 0.001, \eta^2 = 0.033$), cyberbullying ($F(3, 1137) = 18.66, p < 0.001, \eta^2 = 0.047$), and sexual risk ($F(3, 1137) = 8.22, p < 0.001, \eta^2 = 0.021$). Adolescents categorized in digital/passive activities reported significantly higher cyberbullying and delinquency scores than those in structured and physical recreation groups (all Tukey $p < 0.01$). No significant between-group differences emerged for eating disorders, consistent with the weaker regression findings for this outcome.

4. Discussion

This study represents the first application of Stebbins' serious leisure perspective (SLP) theory to adolescent risk behaviors. Our findings demonstrate that the subjective quality of leisure engagement predicts risk behaviors beyond demographics, with distinct protective mechanisms operating at different developmental stages. Three main contributions emerge from these results.

4.1. Age-Differentiated Protection: From Effort to Outcomes

Our central finding is that the protective leisure quality shifts with age. For younger adolescents, the discipline dimension of serious leisure, specifically effort and perseverance, showed the broadest protective associations across risk domains. This is consistent with developmental literature suggesting that younger adolescents are in a period of building self-regulatory capacity (Steinberg, 2008), and that structured, effortful engagement in activities may function as a behavioral scaffold that limits opportunities and motivation for risk behavior (Osgood et al., 1996).

For older adolescents, the protection shifted to activity outcomes, including satisfaction, self-image improvement, and relaxation. This transition aligns with Erikson's (1968) identity development theory: as adolescents mature, the search for meaning and personal significance becomes more salient than the accumulation of skills. Our Fisher z-tests confirmed that these age differences are not merely descriptive; the correlational patterns are statistically distinguishable across cohorts. This finding extends the SLP framework by demonstrating that its constituent qualities do not function uniformly across developmental stages, a nuance not captured in the predominantly adult-focused serious leisure literature (Heo et al., 2010).

4.2. Financial Benefit: The Dark Side of Leisure Monetization

Perhaps the most striking finding is the consistent risk-promoting role of financial benefit. Adolescents who derive monetary gain from their leisure activities showed elevated risk across all four domains, with the strongest effects for cyberbullying ($r = 0.35$ among younger participants). This association was robust across regression models, surviving controls for all other serious leisure qualities and demographics.

We interpret this finding through two complementary lenses. First, the monetization of leisure may attract or retain adolescents in contexts that normalize risk. For example, competitive gaming environments and social media monetization cultures may expose young people to aggressive online behaviors and risky social norms (Hund, 2023). Second, earning income from leisure may shift the motivational orientation from intrinsic enjoyment to extrinsic reward, undermining the protective benefits of deep engagement. Self-determination theory (Deci & Ryan, 2000) predicts that extrinsic motivation erodes well-being when it supplants autonomous motivation, a mechanism that may operate in leisure contexts just as it does in educational settings.

The age attenuation of this effect (stronger for younger adolescents) may reflect developmental vulnerability: younger adolescents may lack the cognitive resources to separate the financial incentives from the social risks embedded in monetized leisure contexts. The

sex specificity of the effect (strongest for younger males) warrants further investigation but may relate to gendered patterns of competitive gaming and online entrepreneurship during early adolescence.

4.3. *The Developmental Activity Shift and Its Implications*

The significant decline in structured activity participation from younger to older adolescents (−9.0 percentage points) is consistent with the international literature on organized activity dropout during mid-to-late adolescence (Fredricks & Eccles, 2006). Our contribution is to show that this structural shift coincides with a change in which leisure qualities are protective. As adolescents move away from contexts that naturally cultivate effort and perseverance (structured club activities) and toward unstructured social settings, the protective mechanism must be provided by different qualities, specifically, the sense of meaning and satisfaction derived from whatever activity they do pursue.

This has direct implications for leisure-based prevention programs. Interventions targeting younger adolescents should emphasize sustained engagement, skill-building, and persistence, which can be achieved through structured programs. Interventions targeting older adolescents may need to focus on helping young people find meaningful and personally rewarding leisure pursuits, even within unstructured settings. The goal is not to prevent the developmental shift away from structured activities, which is normative, but to ensure that the quality of engagement remains high.

4.4. *Limitations and Future Directions*

Several limitations should be noted. First, the cross-sectional design precludes causal inference. The age comparisons were between-group, not longitudinal, and the observed “shifts” may reflect cohort differences rather than developmental change. Future research should employ longitudinal designs to track within-person changes in leisure qualities and risk trajectories. Second, the sample was drawn from a single country (Croatia), limiting generalizability. The leisure culture and activity infrastructure of Croatia may not be representative of other European or non-Western contexts. Third, all measures were self-reported, introducing potential common-method bias. Fourth, the internal consistency of the cyberbullying subscale ($\alpha = 0.76$) was adequate but not strong, and the binary age grouping (younger vs. older) sacrifices developmental nuance. Finally, the overall variance explained by serious leisure qualities (5–12%) was modest, indicating that other factors (e.g., peer influence, mental health) play larger roles.

A further limitation concerns the absence of socioeconomic and family-context indicators. This paper did not assess family income, parental education, or household stability, even though these factors plausibly shape both access to serious leisure and exposure to risk.

A more fundamental conceptual limitation concerns the moral and social valence of the leisure activities themselves. The SLP framework characterizes how deeply and in what manner an adolescent engages with an activity, but it is largely indifferent to whether the activity and the peer and adult climate surrounding it cultivates prosocial or antisocial habits. This distinction is consequential. Whether participation in a team sport buffers against or contributes to bullying, for example, likely depends on whether coaches’ model prosocial conduct and actively discourage aggression rather than on the structural label “team sport” alone (cf. Lisha & Sussman, 2010). Notably, the ethos subscale captured the strength of group identity and social bonding within an activity but not the prosocial or antisocial direction of that bonding, and cohesion within an antisocially oriented peer group could plausibly amplify rather than attenuate risk. Because this research did not measure the normative climate of activities (e.g., coaching behavior, peer norms, or the presence of harm-affording features), this work cannot determine how much

of the observed leisure–risk associations is attributable to the social quality of the activity rather than to serious leisure qualities per se. Future research should explicitly assess the prosocial versus antisocial character of leisure contexts—through measures of coach and peer behavior or of the moral atmosphere of the activity—to establish whether serious leisure qualities protect against risk independently of, or only in interaction with, the social quality of the pursuit.

Future studies should examine whether the financial benefit–risk association is mediated by specific online behaviors (e.g., content creation, competitive gaming). Longitudinal designs could test whether serious leisure qualities at one timepoint buffer against increases in risk behavior over time. Mixed methods approaches incorporating qualitative interviews would illuminate the subjective experience of leisure monetization among adolescents.

5. Conclusions

This study demonstrates that how adolescents experience their leisure matters more than what they do. Serious leisure qualities differentially predict risk behaviors as a function of age, with effort protecting younger adolescents and meaningful outcomes protecting older ones. The finding that financial benefit from leisure acts as a risk factor represents a novel contribution with practical significance in an era of increasing youth engagement in monetized digital activities. These results support the development of age-tailored prevention programs that attend not only to the type of leisure activity, but to the quality of engagement within it.

Beyond these broad implications, several specific conclusions carry direct, actionable value for those who design and deliver youth leisure. First, because the protective ingredient of leisure is its subjective quality rather than its category, practitioners should prioritize the depth of engagement: sustained effort, skill progression, and personal meaning over participation or attendance counts alone. Second, for younger adolescents (14–17), among whom effort and perseverance were most protective, programs should be structured to scaffold persistence and visible mastery, for example, through graded challenges, regular practice routines, and coaching that explicitly rewards improvement rather than outcomes alone. Third, for older adolescents (18–20), among whom perceived outcomes and personal significance were most protective, provision should foreground autonomy, identity-relevant goals, and opportunities to find meaning and satisfaction even within unstructured or self-directed pursuits. Fourth, the consistent risk-promoting role of financial benefit—strongest for cyberbullying among younger males indicates that parents, educators, and youth workers should treat income-generating leisure (content creation, streaming, competitive gaming) as a context warranting active guidance and monitoring rather than a neutral or purely positive accomplishment. Finally, because structured participation declines normatively across adolescence, the practical aim is not to resist this shift but to preserve the quality of engagement as young people move toward unstructured leisure. Taken together, these conclusions give schools, sports clubs, youth organizations, and families concrete levers for using leisure as a developmental and preventive resource.

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