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Different Activities, Different Associations: Leisure Participation, Economic Worry, and Adolescent Well-Being in Sweden

Marwa Chebil [1,*], Cristian Bortes [1,2], Malin Eriksson [1,3] and Frida Rudolphi [1,4,5]

[1] Department of Social Work, Umeå University, SE-901 87 Umeå, Sweden; cristian.bortes@uu.se (C.B.); malin.eriksson@sh.se (M.E.); frida.rudolphi@umu.se (F.R.)
[2] Department of Social Work, Uppsala University, Box 624, SE-751 26 Uppsala, Sweden
[3] School of Social Sciences, Södertörn University, SE-141 89 Huddinge, Sweden
[4] Swedish Institute for Social Research (SOFI), Stockholm University, SE-106 91 Stockholm, Sweden
[5] Institute for Futures Studies, Box 591, SE-101 31 Stockholm, Sweden
* Correspondence: marwa.chebil@umu.se

Abstract

Although leisure activities are considered important for adolescent well-being, leisure opportunities are not evenly distributed. Using cross-sectional survey data from 2610 Swedish adolescents aged 14–15, this study examined whether weekly participation in sports/gym, nature-based activities, creative arts, reading for pleasure, and youth centres was associated with life satisfaction and psychosomatic health, and whether associations varied by gender, migration background, and economic worry. Sports/gym participation showed the most consistent positive associations with both outcomes, whereas nature-based activities were associated with life satisfaction only. Non-participation was associated with lower life satisfaction. Creative arts showed mixed patterns, particularly for psychosomatic health. Youth centre participation was not associated with either outcome overall but was associated with higher life satisfaction among adolescents reporting economic worry. Adolescent leisure emerged as a socially patterned context: creative arts participation was more common among girls than boys by approximately 20 percentage points, while sports or gym participation was lower among adolescents reporting economic worry by approximately 10 percentage points. Associations between leisure activities and well-being differed by activity type and social group, particularly in relation to economic worry.

Keywords: adolescents; leisure participation; well-being; life satisfaction; psychosomatic health; economic worry

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1. Introduction

In Sweden, psychosomatic and multiple health complaints among adolescents have increased over time, and girls have consistently reported lower life satisfaction and poorer mental well-being than boys (Public Health Agency of Sweden, 2023; Swedish Agency for Youth and Civil Society, 2024). Adolescence is a formative period of physical, cognitive, emotional, and social development that shapes the transition to adulthood and lays the foundations for long-term health and well-being (Steinberg & Morris, 2001; Dahl, 2004). Although an association between increasing psychosomatic complaints and declining life satisfaction on the one hand, and mounting pressure from school demands and expectations to perform on the other, has been well documented (e.g., Wiklund et al., 2012; Wahlström

et al., 2021), research on how leisure activities and out-of-school settings relate to adolescents' lives remains limited outside organised and structured forms of participation (Forte, 2024).

Adolescents spend much of their leisure time in activities that range from organised and highly structured to more unstructured forms. Research has largely focused on organised activities, such as sports or cultural activities, which typically involve regular participation, formal membership, and clear goals, and which have been linked to higher well-being, better school adjustment, and lower risk behaviours (Eccles et al., 2003; Mahoney et al., 2003; Fredricks & Eccles, 2006).

Sweden offers a broad range of leisure activities, such as organised sports, arts and cultural activities, outdoor recreation, reading, and youth centres. Yet extensive leisure opportunities do not necessarily translate into equal or meaningful opportunities for participation. Activities differ in their geographic accessibility, economic and practical requirements and organisational conditions, including fees, equipment, transport, adult support, and expectations of participation (Swedish Agency for Youth and Civil Society, 2023a). Such differences point to the importance of a contextualised understanding of adolescent well-being, which includes the settings in which young people spend their leisure time (Aasan et al., 2023). Moreover, young people's opportunities to engage in leisure are shaped by socioeconomic resources, family and peer support, gendered norms, cultural capital, and local context (Badura et al., 2021; Hjalmarsson, 2023; Rittsteiger et al., 2021). Differences in leisure participation may reflect both individual preferences and unequal conditions for participation, which are difficult to disentangle but important to consider.

Children and young people's opportunities to participate in leisure, cultural life and recreational activities are part of their wider right to development, participation, and well-being (United Nations, 1989). In Sweden, leisure activities and youth centres are also part of local welfare arrangements, through which municipalities and civil society actors seek to support young people's social participation and everyday belonging (Swedish Agency for Youth and Civil Society, 2016). This makes Sweden a useful context for examining how different forms of leisure participation, in both organised and less structured settings, are related to adolescent well-being, and how these associations vary depending on social and economic circumstances. Although Sweden is not unique, its combination of municipal welfare responsibility, civil society involvement, and varied leisure opportunities makes it a useful case for studying inequalities in young people's leisure participation.

Several European countries, including Sweden, provide youth centres that function as open, low-threshold spaces where adolescents can spend time without long-term commitment or formal membership. In the Swedish context, youth centres are typically publicly funded and organised at the municipal level (Swedish Agency for Youth and Civil Society, 2016). Unlike many organised activities, youth centres often combine informal social interaction, adult presence and semi-organised activities. Youth centres broaden the scope of leisure participation under examination by including settings that differ in structure, accessibility and institutional responsibility.

Two issues nevertheless remain insufficiently addressed in existing research. Different forms of leisure participation are often studied separately, making it difficult to compare typical leisure activities, including low-threshold settings such as youth centres, within the same study. Moreover, adolescents do not enter leisure contexts randomly; participation is socially patterned, so observed associations may reflect both processes within activities and selection into them (Badura et al., 2021; Hjalmarsson, 2023; Rittsteiger et al., 2021). More knowledge is needed about how different forms of leisure participation relate to both positive and symptom-based well-being, and how these associations vary by gender, migration background, and economic worry.

2. Previous Research

Organised extracurricular activities outside school have been theorised as a developmental asset that can support competence building, identity development, and social integration through exposure to prosocial peers and supportive adults (Eccles et al., 2003; Mahoney et al., 2003). Research has also pointed towards heterogeneity in both participation and outcomes, suggesting that exposure to certain peers or mentors during leisure time does not automatically lead to positive outcomes but that these benefits depend on activity type, the quantity and quality of activities, and the social context.

Participation in organised leisure activities has been found to be associated with better mental health among children and adolescents. Nonetheless, the strength of the associations varies across outcomes and between different activity types (e.g., sport vs. non-sport). Boelens et al. (2021) conducted an umbrella review of organised leisure activities and mental health among children and adolescents, concluding that both sport and non-sport participation were associated with better outcomes, while emphasising variation in evidence quality and the need to distinguish forms of participation. Leisure should thus not be treated as one homogeneous exposure, but as a set of contexts that may support well-being through partly different mechanisms.

Physical activity and organised sport are among the most studied areas in leisure research. Cross-national findings on physical activity and well-being among European adolescents show that adolescents who engage in higher levels of physical activity also report better well-being and lower levels of anxiety and depressive symptoms (McMahon et al., 2017). Swedish data show similar results. Ma et al. (2020), using data from Swedish adolescents, found that physical inactivity during leisure time was associated with higher risk for depressive symptoms, whereas adolescents who participated in physical activity at least once a month reported lower odds of frequent depressive symptoms. Research on organised sport points in a similar direction. Using a sample of more than 11,000 children and adolescents in the United States, Hoffmann et al. (2022) found positive associations between organised sport participation and lower levels of mental health difficulties across several domains.

Research on cultural and creative leisure presents a more mixed picture. Some studies highlight benefits of arts engagement for self-expression, social connection, and emotional regulation (Bone et al., 2023), but more recent work is less uniformly positive. In a systematic review, Hugh-Jones et al. (2025) found the evidence for positive effects of arts engagement on adolescent well-being to be limited and marked by methodological limitations and heterogeneity, and some studies report higher depressive symptoms among adolescents engaged in the arts (Young et al., 2013). Research on music engagement provides another example of how both negative and positive associations can exist within the same field, and how such findings can be difficult to interpret due to methodological limitations and potential selection bias (Gustavson et al., 2021; Wesseldijk et al., 2019).

Access to organised leisure is, however, unequal and socially patterned. Parents' socioeconomic resources, family and peer support, and neighbourhood factors shape participation, although mechanisms may differ by activity type (Rittsteiger et al., 2021). In Sweden, Hjalmarsson (2023) found lower extracurricular participation among children from lower-income households; these differences were not fully explained by income, pointing also to parental resources, preferences, and segregated access to organised leisure.

However, adolescents' everyday leisure also includes less formal and more open-ended settings, which are less often examined alongside organised activities. Youth centres occupy a distinct position in the leisure landscape, particularly in Nordic welfare contexts. Whereas organised activities (e.g., sports clubs, cultural activities) are often fee-based and depend more on adolescents' resources, youth centres are generally open-access,

low-threshold settings offering informal social interaction, adult support, and everyday belonging (Swedish Agency for Youth and Civil Society, 2016). Thus, youth centres may play an important role for adolescents who face economic or social barriers to participating in more structured leisure activities. However, some groups may use youth centres more than others due to different needs, resources, or vulnerabilities than adolescents who participate in organised sport or cultural activities. Studies on youth centres are sparse compared to studies on organised activities, and much less is known about associations with adolescent well-being.

Although previous research provides evidence that leisure activities are important for adolescent well-being, three important gaps remain. First, few studies investigate a variety of typical leisure activities within the same study. Second, research on open, low-threshold settings such as youth centres is sparse, and comparison alongside more organised leisure contexts is rarer still. Third, although both leisure participation and adolescent well-being are linked to socioeconomic position, little is known about whether these associations vary with adolescents' experiences of economic worry.

3. Theoretical Framework

This study takes a contextual, inequality-sensitive perspective on adolescent well-being and leisure. We draw on a dual-factor view of well-being, which separates positive well-being from symptom-based indicators and holds that low symptom levels do not necessarily imply high well-being (Suldo & Shaffer, 2008; Antaramian et al., 2010). We therefore examine both life satisfaction, as a positive indicator, and psychosomatic health, as a symptom-based indicator, recognising that determinants may relate differently to each.

Rather than considering leisure participation solely as an individual choice, we conceptualise it as taking place within socially and institutionally patterned contexts that shape both opportunities and the resources available within activities (Badura et al., 2021; Hjalmarsson, 2023). From the perspective of self-determination theory (Ryan & Deci, 2000), it can be argued that positive leisure settings support autonomy, competence, and relatedness, and these qualities of experience matter for well-being. Organised activities, such as sports or creative arts, as well as less organised ones such as open-access youth centres, may all promote well-being through experiences that support self-determination, motivation, competence, and social connection. At the same time, the potential of these different leisure settings is likely to vary in terms of how they promote autonomy and basic psychological and social needs for competence and relatedness, and in terms of their potential negative aspects, including the degree to which they create pressure, exclusion, and social comparison, as well as whether they provide adequate adult support.

Whether adolescents can access, participate in and benefit from leisure contexts is not randomly distributed. In line with a social determinant of health perspective, opportunities to access health-promoting contexts are socially patterned, and socioeconomic conditions shape both exposure to leisure arenas and the resources within them (Marmot et al., 2008; Badura et al., 2021). Economic resources may structure participation through cost and material constraints and the capacity to support regular engagement in organised activities (Hjalmarsson, 2023). Drawing on material, behavioural, and psychosocial explanations (Bartley, 2004), leisure participation may be understood as shaped by both practical resources and social meanings: what families can afford, which activities adolescents are encouraged toward, and whether leisure contexts provide recognition, belonging and support. Any observed association between leisure and well-being may therefore reflect both what happens within activities and the unequal conditions under which adolescents enter them.

This perspective also points to the importance of selection. Adolescents do not enter different leisure contexts randomly. Participation may be shaped by socioeconomic resources, gender, migration background, family support, peer networks, and prior interests or vulnerabilities. For example, participation in arts and cultural activities may reflect gendered patterns and differences in cultural capital, while extracurricular participation more broadly may be constrained by economic resources (Schmutz et al., 2016; Hjalmarsson, 2023). Participation is also driven by homophily, whereby adolescents form ties with peers of similar backgrounds (McPherson et al., 2001). Any observed association between leisure and well-being may therefore reflect both the influence of participation and compositional differences arising from selection into activities. Controlling for observed background captures only part of this; unobserved differences between participants will remain.

Hence, we approach leisure participation as occurring within socially patterned contexts that may relate to well-being differently depending on activity type and the conditions of participation. We do not assume that all activities are equally related to life satisfaction and psychosomatic symptoms: different activities offer different combinations of physical engagement, social support, structure, and recognition, shaped in turn by adolescents' socioeconomic circumstances and selection into different contexts.

4. The Present Study

The study examines adolescent leisure as a set of differentiated and socially patterned arenas. Using cross-sectional survey data from 2610 adolescents aged 14–15 years in five Swedish municipalities, it considers how weekly participation in five leisure activities is socially patterned by gender, migration background, and economic worry, and how participation in each activity is associated with two dimensions of well-being: life satisfaction and psychosomatic health.

Life satisfaction captures adolescents' global, subjective evaluations of their lives (Diener, 1984), whereas psychosomatic health is assessed through psychosomatic complaints, such as headaches, stomach aches, and sleep difficulties, which are used as indicators of symptom-related stress in adolescence (Låftman & Östberg, 2025).

The study is guided by the following research questions:

(1) How is weekly participation in leisure activities among adolescents socially patterned by gender, migration background, and economic worry?
(2) How is weekly participation in different leisure activities associated with well-being, measured as life satisfaction and psychosomatic health?
(3) To what extent do the associations between leisure activities and well-being vary by gender, migration background, and economic worry?

5. Methods

5.1. Study Design and Data

This study used data from the Swedish youth survey LUPP (Local Monitoring of Youth Policy; Swedish: Lokal uppföljning av ungdomspolitiken), a pre-existing survey instrument developed and provided by the Swedish Agency for Youth and Civil Society (Swedish Agency for Youth and Civil Society, 2023b), for local youth policy monitoring. LUPP is designed to provide local authorities (municipalities, regions, and city districts) with information about adolescents' living conditions, well-being, and societal participation to support local decision-making on issues affecting young people. The present study is a secondary analysis of data collected by the participating municipalities using the standardised questionnaire.

The sampling procedure for the survey is voluntary self-selection of municipalities, rather than probability sampling at the municipality level. The survey is administered by

municipalities and regions that voluntarily choose to participate and has been conducted since 2003, in the form of repeated cross-sections. It is primarily administered digitally in schools and covers three age groups: 13–16, 16–19, and 19–25 years. Although the questionnaires are highly standardised across municipalities and survey waves, not all items are identical.

In the present study, data were drawn from two independent cross-sectional administrations of the survey in 2018 and 2022, from five Swedish municipalities surveyed in both years. The same individuals were not followed between survey waves; each wave included a separate cohort of students attending grade 8 in the participating municipalities.

The data selection was based on data availability and comparability across survey waves. The analysis was restricted to students attending grade 8 in compulsory education (typically 14–15 years old) in both survey years. The sample covers small- to mid-sized Swedish municipal contexts across different geographic regions. The municipalities are not identified by name.

The survey was administered in schools during school hours, and participation was voluntary. Response rates for the 13–16 age group ranged from 56% to 88% across municipalities and survey years; municipality- and year-specific response rates and numbers of respondents are shown in Supplementary Table S1. Informed consent was obtained from all participants, and responses were collected anonymously. The ethical approval for the present study concerns secondary use of LUPP data for research purposes. The study received approval from the Swedish Ethical Review Authority (approval no. 2024-04477-01). After pooling data from both survey years, the initial sample comprised $N = 2882$ respondents. The gender question included the response alternatives girl, boy, and another gender identity. Respondents reporting another gender identity ($n = 64$) were not included as a separate category in the analyses because of the low number of respondents. An additional 42 respondents did not answer the gender question. The analytic sample was further restricted to respondents with valid information on all other variables included in the analyses, excluding another 166 respondents and resulting in a final analytic sample of 2610 (the excluded sub-groups are also shown in Supplementary Table S2).

Respondents excluded from the original sample ($n = 272$, 9.4%) due to missing data differed somewhat from those included in the analysis ($n = 2610$). Among excluded respondents with valid outcome data, mean life satisfaction was 3.19, compared with 3.33 among included respondents. Corresponding means for psychosomatic health were 3.51 and 3.55, respectively (Supplementary Table S2).

The data collection implies that students are nested within school classes, schools, and municipalities. Students within the same school may have correlated outcomes. However, school identifiers are not available in the data, preventing us from adjusting the standard errors for within-school correlation. If outcomes are positively correlated within schools, the standard errors may therefore be underestimated and the corresponding confidence intervals too narrow.

5.2. Measures

5.2.1. Outcomes: Life Satisfaction and Psychosomatic Health

The same items, response options, coding procedures, and scoring rules were used to construct the life satisfaction and psychosomatic health indices in both survey waves.

Life satisfaction was measured using six items introduced by the question, "How satisfied or dissatisfied are you with your life with regard to the following . . .?" The items referred to satisfaction with school, friends, family, personal finances, leisure time, and life as a whole. Responses were coded using the four-point scale in the original questionnaire: 1 = very dissatisfied, 2 = fairly dissatisfied, 3 = fairly satisfied, and 4 = very satisfied. The

scale did not include a neutral midpoint. Item scores were summed to form a composite life satisfaction index, in which higher scores indicate higher life satisfaction. Internal consistency was acceptable to good (Cronbach's alpha = 0.82 in 2018 and 0.75 in 2022).

Psychosomatic health was measured using seven self-reported psychosomatic complaints. The items were introduced by the question, "How often have you experienced the following complaints during the past six months?" and referred to headaches, stomach aches, feeling stressed, feeling low, sleep difficulties, poor sleep, and feeling aggressive or angry. Responses were given on a five-point Likert-type scale ranging from "seldom or never" to "almost every day". Items were combined into a composite index. For ease of interpretation in the regression models and figures, the index was reverse-coded so that higher values correspond to better psychosomatic health (i.e., fewer complaints). Internal consistency was good (Cronbach's alpha = 0.85 in 2018 and 2022, respectively).

5.2.2. Independent Variables: Leisure Activities

Leisure participation was assessed using self-reported frequency of engagement in leisure-time activities, introduced by the question, "Approximately how often do you do the following activities in your leisure time?" Leisure time was defined as activities outside schoolwork or paid work. Response options were given on a five-point scale, ranging from "never" to "several times a week".

The leisure section in the questionnaires included 13 activity items in 2018 and 18 activity items in 2022. For the pooled analyses, only activities available in both survey years and sufficiently comparable in wording and content were retained. Five activities met these criteria: youth centre attendance, sport or gym participation, creative arts, reading for pleasure, and nature or outdoor activities. The creative arts indicator included photography/film, social media content creation, drawing/painting, writing, crafts, sewing, or similar activities. The corresponding item wording is presented in Supplementary Table S3.

Thus, only comparable forms of leisure activities in both 2018 and 2022 were studied. The items were harmonised across survey waves and recoded into dichotomous indicators of participation (0 = not often, 1 = often), where "often" was defined as participation at least once per week. This cut-off was used to distinguish more regular participation from occasional participation and to create analytically comparable measures across activities and survey years.

These activities reflect a mix of social and institutional settings (youth centres), individual home-based cultural activities (reading, including books, newspapers, articles, blogs), low-cost outdoor engagement (nature), and creative/digital culture participation. Note that participants could report participation in multiple activities.

While the present study focuses on the five leisure activities, we also include non-participation in an additional analysis. A non-participation indicator was constructed to identify adolescents who did not participate in any of the five included leisure activities at least once per week. This indicator contrasts adolescents reporting no weekly participation in any of the five activities with those participating in at least one of these activities at least once a week. It should therefore be interpreted as no weekly participation in the included activity domains, rather than as no leisure activity at all.

5.2.3. Covariates

In adjusted regression models, we include gender, migration background, and economic worry. Gender was based on self-reported gender and was coded as 0 = boy and 1 = girl, with boys used as the reference category. The original questionnaire also included the response alternative "another gender identity". This category was not included in the regression and interaction analyses because of the small number of respondents.

Migration background was coded as Swedish background (0) and migration background (1). The variable was operationalised according to Statistics Sweden's definition of foreign background, using information on the child's and parents' country of birth. Adolescents were classified as having a migration background if they were born outside Sweden or if they were born in Sweden with two foreign-born parents. Adolescents born in Sweden with at least one parent born in Sweden were classified as having a Swedish background. Swedish background was used as the reference category in the regression models.

Economic worry was used as a subjective indicator of economic strain. It was measured using the survey question: "To what extent are you worried about your parents' economy?" with four response options ranging from "not at all worried" (1) to "very worried" (4). This measure captures adolescents' perceived economic worry rather than objective household income or parental socioeconomic position.

To distinguish adolescents reporting more pronounced economic worry from those reporting little or no worry, responses were dichotomised into no economic worry (0, responses 1–2) and economic worry (1, responses 3–4), with no economic worry used as the reference category in the regression models.

6. Analyses

For the first research question, we examined weekly participation by gender, migration background, and economic worry, and the overlap between activities. For the second, associations between participation and each outcome were estimated with linear regression, modelled stepwise: crude associations, then adjustment for gender, migration background, and economic worry, and finally for participation in other activities. For the third, interaction terms were added to the fully adjusted models to test whether associations varied by gender, migration background, or economic worry. Statistical analyses were conducted using Stata 18.0.

7. Results

7.1. Engagement in Leisure Activities

The extent to which adolescents participated in leisure activities at least once a week varied across activities, with sports or gym participation being the most common activity (80%), followed by nature-based activities (62%) and reading for pleasure (42%). The relatively high level of reading likely reflects that this measure includes not only books but also newspapers, articles, and blogs. Weekly participation was less common in creative arts-related activities (28%) and youth centre activities (16%). These patterns likely reflect both differences in interest and in opportunity structures, including availability and potential costs. They may also partly reflect that participating at least once a week does not represent the same level of effort or commitment across all activity types.

Figure 1 shows weekly participation across social groups. Gender differences were most apparent for reading for pleasure and creative arts, where girls reported markedly higher weekly participation (9 and 20 percentage points (ppt), respectively) than boys. By contrast, differences between girls and boys were small for youth centre participation, and more modest for sports or gym participation, where boys participated somewhat more frequently (5 ppt higher) than girls. Differences were also visible by migration background and economic worry. Weekly participation in youth centre activities was somewhat more common among adolescents with a migration background and among those reporting economic worry about their parents' finances. Creative arts and reading were also somewhat more common among adolescents reporting economic worry, whereas participation in nature-based activities was significantly higher among adolescents with a Swedish background than among those with a migration background (approximately

6–9 ppt). Participation in sports or gym was significantly lower among adolescents reporting economic worry, while participation in creative arts was higher in this group (approximately 9–10 ppt). About 10% of the respondents reported economic worry, and the relatively wide confidence interval for this group likely reflects its smaller size. Differences in other activities were generally small (for formal statistical tests of group differences presented in Figure 1, see Supplementary Table S4).

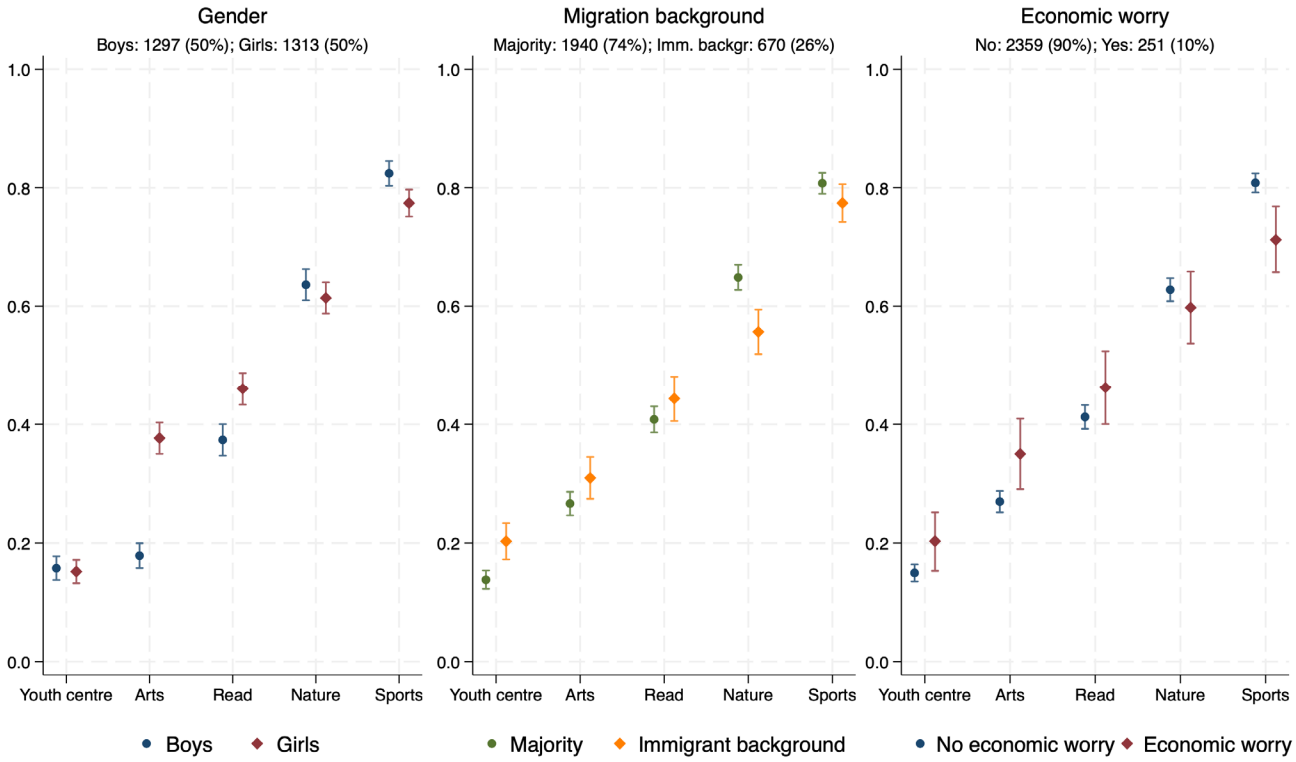

Figure 1. Leisure activities reported at least once per week, shown by gender, migration background, and economic worry. Proportions, 95% confidence intervals. $N = 2610$.

7.2. Life Satisfaction and Psychosomatic Health Among Adolescents

Figure 2 presents descriptive levels of life satisfaction and psychosomatic health across demographic and social characteristics. In the total sample, the mean levels of life satisfaction were 3.33, and the mean level of psychosomatic health was 3.55. Clear differences were observed across groups. Boys reported slightly higher life satisfaction than girls (3.4 versus 3.2), and better psychosomatic health (3.9 versus 3.2). Adolescents reporting economic worry reported lower levels of both life satisfaction (2.9 versus 3.4) and psychosomatic health (2.9 versus 3.6) compared to those reporting no economic worry. Differences by migration background were absent or small. In contrast, differences by gender and economic worry were statistically significant ($p < 0.001$) and substantively meaningful.

7.3. Associations Between Leisure Activities, Life Satisfaction and Psychosomatic Health

Figure 3 shows linear regression estimates for the associations between leisure activities and the two outcomes, life satisfaction and psychosomatic health. We first estimated a bivariate model (M1), capturing the crude associations between each leisure activity and the outcomes. To assess the role of key sociodemographic differences, we then adjusted separately for the two factors that showed the largest group differences in life satisfaction in the descriptive analyses (Figure 2): gender (M2) and economic worry (M3). Next, we included gender, economic worry, and migration background simultaneously (M4).

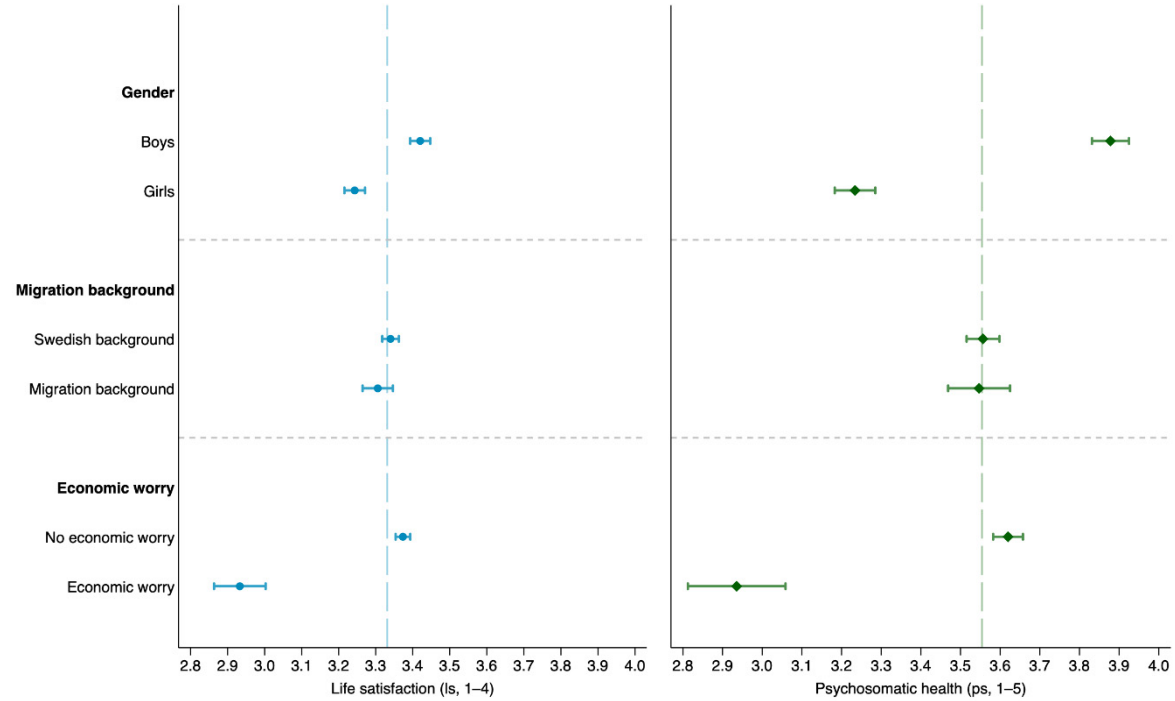

Figure 2. Life satisfaction and psychosomatic health by group. Means, 95% confidence intervals. The grand mean is denoted by a vertical line. N = 2610.

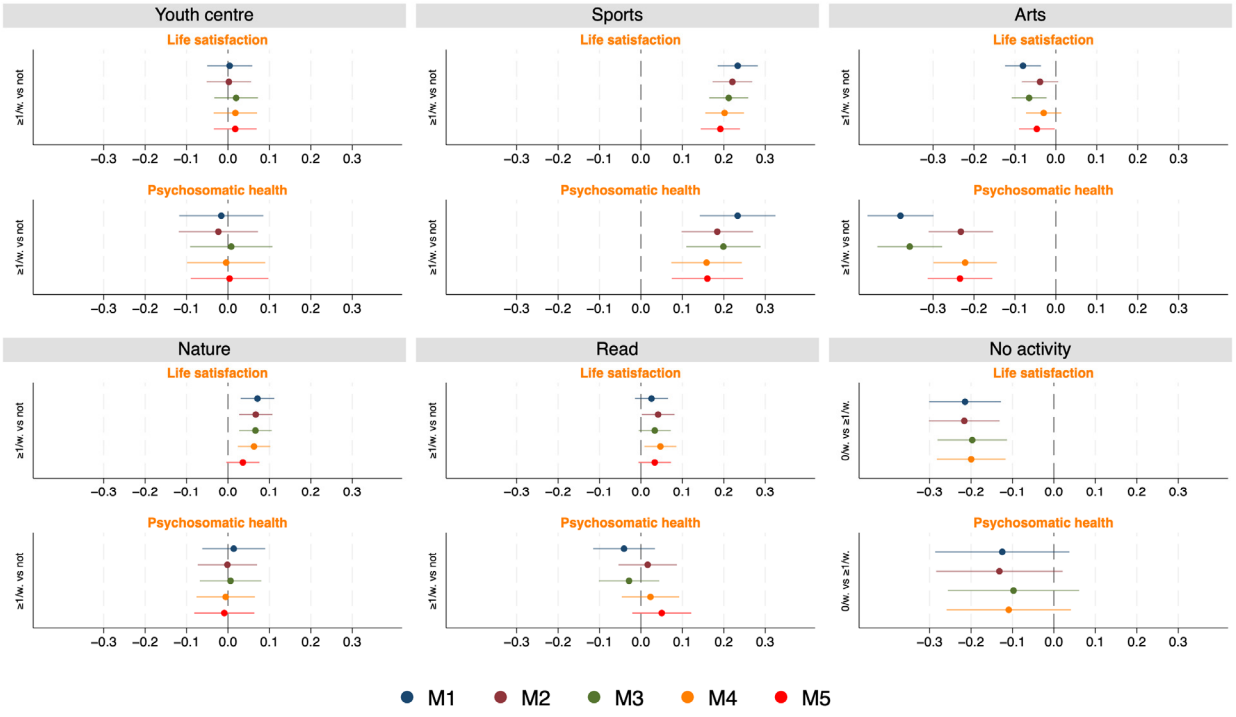

Figure 3. Linear regression estimates for associations between leisure activities, life satisfaction, and psychosomatic health, 95% confidence intervals. N = 2610. Note: controlled for gender (boy = ref.), migration background (Swedish background = ref.), economic worry (no worry = ref.).

Adolescents typically engaged in more than one activity on a weekly basis. While some did not participate in any of the activities considered (5%), most took part in multiple activities, with two or three activities being most common (60%). A fairly large proportion participated in as many as four (13%) or even five (2%) activities per week.

This overlap implies that observed associations for any given activity may partly reflect participation in other activities. We therefore additionally controlled for participation in other leisure activities in a fully adjusted model (M5) to account for overlapping patterns of participation. As a reference, Figure 3 also includes estimates for not participating in any activity. For this comparison, only models M1–M4 are shown, as the fully adjusted model is not applicable.

The linear regression models showed that participation in leisure activities was differentially associated with life satisfaction and psychosomatic health (Figure 3). Participation in sports or gym activities at least once a week was consistently and positively associated with both outcomes across all models, including the fully adjusted model. Participation in nature-based activities was also positively associated with life satisfaction, although the effect sizes were more modest after adjustment, whereas no corresponding association was observed for psychosomatic health.

In contrast, participating in weekly youth centre activities showed no independent association with either life satisfaction or psychosomatic health in the adjusted models, and the estimates were small and imprecise. The associations between reading for pleasure and both outcomes were similarly small and unstable. After adjustment for background characteristics and participation in other activities, these estimates were close to zero, indicating no robust association.

As shown in Figure 3, not participating in any of the included activities emerged as an important contrast. Adolescents who did not participate in any activity reported lower life satisfaction across models, with estimates of a magnitude comparable to the positive associations observed for sports or gym, but in the opposite direction. For psychosomatic health, however, no clear association with non-participation was observed. Participation in creative arts showed negative associations with both outcomes, particularly for psychosomatic health. Comparing the bivariate model (M1) with the adjusted model suggests that gender accounts for a substantial part of this association. The descriptive analyses (Figure 1) showed that girls participated more often in creative arts activities. In addition, the estimates for creative arts were attenuated after adjustment for gender, suggesting that gender composition may partly contribute to these associations. We therefore examined whether the associations between leisure activities, life satisfaction, and psychosomatic health varied by gender, migration background, and economic worry.

Overall, sports or gym showed the most consistent positive associations with both life satisfaction and psychosomatic health, while non-participation showed a similarly consistent association with lower life satisfaction. Associations for other activities were generally smaller and more sensitive to model specification. The adjusted models further suggest that key sociodemographic differences did not systematically account for the observed associations. Full regression results are reported for the most comprehensive models in Supplementary Table S5. Although some estimates were attenuated after adjustment, particularly the association between creative arts and psychosomatic health, adjusting for gender, economic worry, and migration background did not substantially alter the overall pattern of main associations. However, as shown in the interaction analyses below, economic worry was important for understanding variation in some associations.

7.4. Group-Specific Associations

To examine whether the associations between leisure activities and outcomes differed across subgroups, we estimated interaction models for each activity in relation to gender, migration background, and economic worry, based on the fully adjusted models. Overall, the findings indicated limited evidence of heterogeneity by gender. None of the interaction terms between leisure activities and gender reached statistical significance. This suggests

that the associations between leisure engagement and both life satisfaction and psychosomatic health were largely comparable for boys and girls. A similar pattern was found for migration background, where none of the interaction terms reached conventional levels of statistical significance. Taken together, these findings suggest that the main associations between leisure activities, life satisfaction, and psychosomatic health were generally stable across these social groups.

More variation, by contrast, was observed for economic worry. As shown in Figure 4, two interaction terms were statistically significant and indicated that the associations between certain leisure activities and life satisfaction or psychosomatic health differed depending on whether adolescents reported economic worry.

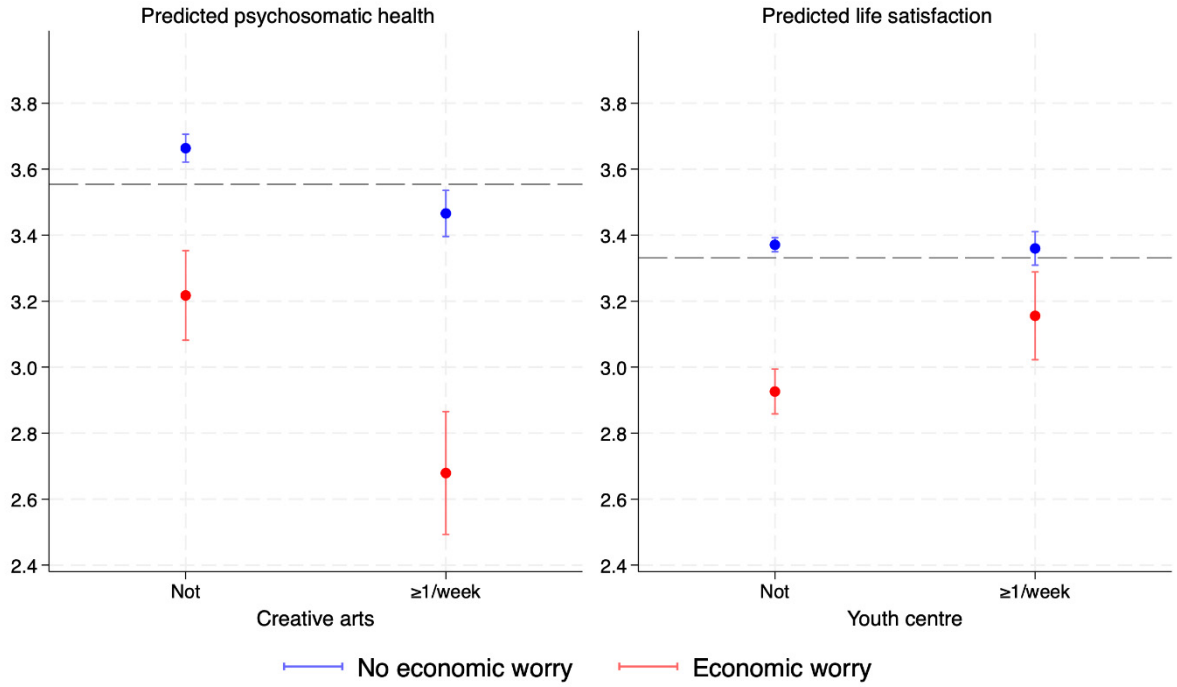

Figure 4. Predicted life satisfaction and psychosomatic health, 95% confidence intervals. N = 2610. The grand mean is denoted by a horizontal line. Note: controlled for gender, migration background, and economic worry.

As indicated in the descriptive analyses, economic worry was strongly negatively associated with both life satisfaction and psychosomatic health. The interaction models suggested that this disadvantage was more pronounced for psychosomatic health among adolescents engaged in creative arts, where the negative associations with psychosomatic health were stronger among those reporting economic worry than among those without such concerns.

The association between youth centre participation and life satisfaction differed by economic worry. Figure 4 shows that, among adolescents reporting economic worry, those who participated in youth centres had somewhat higher life satisfaction than non-participants, whereas no corresponding association was observed among adolescents without economic worry. This suggests that youth centre participation may be more positively associated with life satisfaction among adolescents reporting economic worry than among those without economic worry.

For the remaining leisure activities, interaction terms were small and not statistically significant. Overall, the findings suggest that subgroup differences were limited and that economic worry, rather than gender or migration background, was the main factor

associated with variation in the observed relationships between leisure activities, life satisfaction, and psychosomatic health.

8. Discussion

Overall, the findings suggest that leisure participation relates differently to adolescents' life satisfaction and psychosomatic health, with some variation by perceived economic constraints.

The gender differences in life satisfaction and psychosomatic health observed in the descriptive analyses are consistent with previous Swedish research showing that girls report more frequent psychosomatic complaints than boys (Public Health Agency of Sweden, 2023; Wiklund et al., 2012; Låftman & Östberg, 2025) and lower life satisfaction (Wahlström et al., 2021). School-related stress and demands may provide part of this context, as these have been linked to psychosomatic complaints and lower life satisfaction and are reported more frequently by girls. However, the present study did not examine these mechanisms and cannot determine what accounts for the observed gender differences.

8.1. Participation and Social Difference

Associations with the well-being outcomes varied across activity types, and participation differed by gender, migration background, and economic worry. These patterns are consistent with the view that leisure participation reflects broader social and material resources rather than individual preferences alone, although these mechanisms were not directly measured in the present study (Badura et al., 2021; Hjalmarsson, 2023).

8.2. Sports/Gym and Non-Participation

Sports or gym participation showed the strongest and most consistent positive associations with both outcomes, also after adjustment for sociodemographic factors and for participation in other activities, whereas non-participation was consistently associated with lower life satisfaction.

These findings align with previous work linking physical activity and sport to more favourable well-being (Boelens et al., 2021; Panza et al., 2020). Several mechanisms may contribute, including physical activity, structured participation, peer interaction, and, from a self-determination perspective, opportunities to develop competence and relatedness (Ryan & Deci, 2000).

Peer relationships may represent one possible pathway linking sports participation to well-being, particularly in organised sports. However, the sports or gym category includes both organised and more individual forms of exercise, and peer relationships were not measured directly. We therefore cannot assess the role of peer relationships in the observed association.

Non-participation was associated with lower life satisfaction, suggesting that regular leisure participation may provide opportunities for social connection, structured time use, meaningful activities, and supportive social contexts outside school and home.

8.3. Nature, Reading, and Youth Centres: Less Consistent Associations

Nature-based activities were only associated with life satisfaction, suggesting that different leisure contexts relate differently to positive well-being, rather than operating through a single, overarching mechanism. This is consistent with dual-factor approaches that distinguish positive well-being from symptom-related indicators (Suldo & Shaffer, 2008). These activities may not involve the same degree of physical intensity, structure, or focus on building competence as sports or gym activities.

In the fully adjusted regression models, youth centre participation was not independently associated with life satisfaction or psychosomatic health. Less structured or peer-oriented leisure has sometimes been viewed through concerns about peer relation-

ships and risk behaviours (Badura et al., 2018; Stattin et al., 2005). This result suggests that the relevance of youth centres depends less on participation itself and more on the quality of experiences within these settings (Swedish Agency for Youth and Civil Society, 2016).

8.4. Making Sense of the Creative Arts Findings

Contrary to expectations from self-determination theory and psychosocial accounts of leisure (Ryan & Deci, 2000; Bartley, 2004), participation in creative arts was not consistently associated with better well-being; some of the observed associations even suggested poorer psychosomatic health among adolescents reporting economic worry. Previous research likewise points to mixed findings, possibly reflecting differences in activity type and selection (Bone et al., 2023; Wesseldijk et al., 2019; Young et al., 2013; Hugh-Jones et al., 2025). The creative arts measure captures a mixed set of activities, and adolescents experiencing low well-being may also be more likely to select into creative arts activities.

8.5. Economic Worry and Unequal Leisure Conditions

Two associations varied among adolescents who reported economic worry, indicating that economic circumstances may shape not only access to leisure activities, but also how different leisure arenas relate to well-being. Although economic worry may capture financial strain, unequal leisure participation should not be understood solely in terms of direct economic constraints. It may also reflect broader social and cultural resources that shape which activities are perceived as available, desirable, and feasible (Hjalmarsson, 2023).

Only among adolescents reporting economic worry was youth centre participation associated with higher life satisfaction. This suggests that open and low-threshold youth centres may be particularly valuable for adolescents who experience constrained leisure opportunities. Compared with many organised activities, youth centres may involve fewer economic, practical and organisational requirements, as they generally do not require fees, formal membership, specialised equipment, or long-term commitment (Swedish Agency for Youth and Civil Society, 2016). Youth centres form part of a local leisure infrastructure that may provide opportunities for social interaction and adult presence for adolescents whose opportunities to participate in other leisure arenas may be shaped by economic, cultural, and relational resources (Hjalmarsson, 2023; Rittsteiger et al., 2021).

This interpretation is consistent with Villa (2024), who highlights the importance of accessible youth clubs for young people from lower-income backgrounds. Although Villa focuses on educational and crime-related outcomes rather than self-reported well-being, the study points to the potential relevance of youth centres as low-threshold settings in economically constrained contexts.

Creative arts showed a stronger negative association with psychosomatic health among adolescents reporting economic worry, whereas no corresponding pattern was observed for life satisfaction. It may reflect selection into creative arts activities among adolescents experiencing greater psychosomatic stress, rather than negative effects of participation itself. Creative arts activities perhaps may provide opportunities for emotional expression and processing for some adolescents, but they may also coincide with greater stressors or psychosomatic symptoms for economically worried adolescents. However, the cross-sectional design does not allow us to draw conclusions about the selection or direction of the associations.

However, this finding should be interpreted with caution. The group reporting economic worry is relatively small, and because school identifiers were unavailable, the analyses could not account for potential within-school correlation. If outcomes are positively correlated within schools, the confidence intervals may be too narrow. This limitation applies to the analyses more generally but is particularly relevant when interpreting subgroup differences and estimates close to conventional levels of statistical significance. Moreover,

a large number (30) of interaction terms were systematically tested, increasing the risk of Type 1 error (i.e., that a statistically significant interaction may arise by chance in the absence of a true difference).

The interpretation of these findings should also consider gender differences in the composition of the relevant groups. Participation in creative arts was substantially more common among girls than boys, and among adolescents participating in creative arts, girls were more likely than boys to report economic worry. A similar pattern was observed among adolescents attending youth centres. Thus, the subgroups underlying the interactions between economic worry and leisure participation differ in their gender composition. The present analyses, however, do not establish whether these interactions themselves differ by gender. Examining such differences would require three-way interactions between leisure participation, economic worry, and gender, which would result in small subgroup sizes and imprecise estimates in the present data. Whether the observed associations differ between girls and boys therefore remains a question for future research.

8.6. Implications for Practice and Policy

Maintaining a broad and accessible local leisure infrastructure may be important for adolescents. Participation in sports/gym was lower among adolescents reporting economic worry. Financial and material barriers to regular physical activity remain important to address. Given that the measure did not distinguish between organised sport, gym-based exercise, and more informal forms of physical activity, efforts to promote adolescent well-being should not focus exclusively on organised sport but rather support a diverse range of accessible opportunities for physical activity.

Open and low-threshold youth centres may also play an important role, particularly for adolescents whose leisure opportunities are constrained by economic circumstances. Youth centres can have a compensatory role by providing opportunities for social interaction, adult presence, and meaningful leisure participation without the same material requirements as more resource-demanding activities. Varied local leisure opportunities, including both accessible options for physical activity and youth centres, may be important for supporting adolescent well-being across different economic circumstances.

8.7. Limitations and Future Research

Several limitations should be noted. The repeated cross-sectional design prevents conclusions about the direction of the observed associations. Adolescents do not select randomly into leisure activities, and the findings may partly reflect unmeasured differences in selection, for example, in peer networks, homophily, or prior vulnerabilities, rather than effects of participation.

Dichotomising leisure participation facilitated comparisons across activities and survey waves, while not capturing differences in participation frequency, intensity, duration, quality, structure, and social experiences.

We could not account for variations in quality, content, or local availability of leisure activities, especially for youth centres, which may differ substantially across local contexts.

The available measures of adolescents' socioeconomic and migration background were also limited. The broad measure of migration background does not distinguish, for example, between newly arrived adolescents or families and those with longer residence in Sweden and may therefore not capture important heterogeneity within the group. Economic worry was also based on a single subjective indicator of socioeconomic circumstances. These measurement limitations should be considered when interpreting differences by social background.

In addition, the gender analyses were restricted to respondents identifying as girls or boys. Although the original questionnaire included "another gender identity" as a

response alternative, the number of respondents in this category was insufficient for reliable activity-specific subgroup and interaction analyses. The findings therefore only apply to respondents identifying as a boy or a girl.

Future studies would benefit from more detailed measures of activity type, including, e.g., activity quality and motivation for participation, and socioeconomic background, as well as the use of nationally representative data with a longitudinal design that can better address selection and causal direction.

9. Conclusions

Leisure participation cannot be understood in isolation from its context. Promoting adolescent well-being requires attention to whether young people participate in leisure activities, but also to the nature of those activities and the social conditions under which they take place. Rather than assuming that all activities are equally accessible or equally beneficial, different forms of leisure may offer different possibilities for social connection, support, recognition, and meaning in adolescents' everyday lives. The relevance of specific leisure activities may therefore vary across social groups, as illustrated by the finding that youth centre participation was associated with higher life satisfaction among adolescents experiencing economic worry but not in the overall sample. At the same time, these subgroup-specific findings should be interpreted cautiously, particularly given the number of interaction tests conducted.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/youth6040141/s1, Table S1: Response rates (percent) and respondents (*n*) shown by municipality and survey year; Table S2: Descriptive statistics; Table S3: Survey items and codings. Data: Lupp; Table S4: Formal statistical tests of group differences in participation in leisure activities corresponding to the descriptive estimates presented in Figure 1; Table S5: Regression estimates predicting life satisfaction and psychosomatic health for the most comprehensive models shown in Figure 3: "full" model (M5) for leisure activities; Model 4 for no activity.

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Informed Consent Statement: The present study is a secondary analysis of anonymised LUPP data originally collected by the participating municipalities. Participation in the original survey was voluntary, informed consent was obtained from all participants as part of the original data collection, and responses were collected anonymously. The research team was not involved in the original data collection or in obtaining informed consent.

Data Availability Statement: The data used in this study are not publicly available due to ethical and confidentiality considerations. The study is based on anonymised secondary survey data from the Swedish youth survey LUPP, originally collected for local and regional youth policy monitoring. Access to the data was granted for the purposes of the present research project following ethical approval. Due to the nature of the data and the risk of deductive disclosure, particularly at the municipal level, the data cannot be shared publicly.

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