Environment and Social Psychology (2025) Volume 10 Issue 4 ISSN: 2424-8975 (O)
doi: 10.59429/esp.v10i4.3510 2424-7979 (P)

RESEARCH ARTICLE

The relationship between social welfare and educational outcomes among 15-year-old adolescents: The mediating role of social support

Wanyi He[1,2], Anuar Bin Ahmad[1,*], Nasruddin Yunos[3], Bingbing Chen[1]

[1]*Universiti Kebangsaan Malaysia (The National University of Malaysia),43600 UKM Bangi,Selangor, Malaysia.*

[2]*North Sichuan College of Preschool Teacher Education,Guangyuan, 628017, China*

[3]*Universiti Kebangsaan Malaysia (The National University of Malaysia),43600 UKM Bangi,Selangor, Malaysia.*

*** Corresponding author:** Anuar Bin Ahmad, anuarmd@ukm.edu.my

ABSTRACT

This study examines the relationship between social welfare and educational outcomes among 15-year-old adolescents, focusing on the mediating role of social support. Using structural equation modeling to analyze PISA 2018 data from 98,562 students across 18 countries representing four welfare regime types, we find that social welfare indicators (social expenditure, income inequality, and child poverty rates) significantly relate to educational outcomes (academic achievement, school engagement, and educational aspirations), with 40-67% of these relationships mediated through social support. Different sources of support serve distinct functions: family support most strongly mediates effects on academic achievement and educational aspirations, teacher support is most crucial for school engagement, while peer support shows smaller but significant effects across outcomes. The mediating role of social support varies across welfare regimes, being strongest in social democratic countries and weakest in Southern European countries. Additionally, social support plays a particularly important role for socioeconomically disadvantaged students, especially in social democratic countries, suggesting it may serve as a key mechanism for mitigating educational inequalities. These findings emphasize the importance of integrating social welfare and educational policies to create environments that foster supportive relationships and promote educational success among adolescents.

Keywords: social welfare; social support; educational outcomes; welfare regimes; mediation effect

1. Introduction

The connection among social welfare systems and educational attainment has drawn a lot of attention in the last few decades as societies seek to understand how broader socioeconomic contexts influence human development. Education has widely been embraced as a critical tool toward social mobility and economic development; yet the chances and results pertaining to schooling persistently get unevenly distributed among a variety of socioeconomic backgrounds in a large majority of countries[1]. Even if the short-time consequences of parental possessions toward schooling attainment had been widely documented, the

ARTICLE INFO
Received: 06 March 2025| Accepted: 22 April 2025 | Available online: 28 April 2025

CITATION
He WY, Ahmad AB, Yunos Y. et, al. The relationship between social welfare and educational outcomes among 15-year-old adolescents: The mediating role of social support . *Environment and Social Psychology* 2025; 10(4): 3510. doi:10.59429/esp.v10i4.3510

processes through which state welfare systems influence schooling results among teenagers, particularly during critical development stages, are not yet fully understood[2].

The age of about 15 marks an important developmental transition among teenagers everywhere, with them approaching the end of compulsory schooling and facing crucial decisions that will enormously affect the rest of their schooling and working life[3]. At this developmental phase, a notable improvement in self-reliance is evident; at the same time, teenagers still manifest dependence within supportive social contexts that include the family, educators, and friends[4]. Supportive social environments may serve as critical mediating mechanisms that translate broader social welfare initiatives into concrete educational benefits for adolescents.

Social support has been consistently identified as an integral factor in the development of positive educational outcomes in a variety of contexts. Lasarte et al.[3] demonstrated that a variety of social support sources—particularly educators and family members—substantially influence students' adaptation at secondary school. Correspondingly, Li and Li[6] found that social support affects resilience among students with a disadvantaged position through the mediational factors of a feeling of belonging at school and of emotional experience. What such findings necessarily suggest is that social support may be an important channel through which large social welfare systems effect individual educational attainment.

Despite this, a large knowledge gap does persist with respect to the manner in which welfare systems at the state and supranational levels influence the availability and effectiveness of social support systems and the concomitant educational achievements of teenagers. Peter et al.[7] examined the contrast between welfare and education among countries; however, they did not sufficiently examine the mediating processes that might help illuminate this contrast. Hega and Hokenmaier[2] compared the social and education policies of developed countries without necessarily examining the social support system's mediational role.

The present study attempts to fill this shortcoming with an analysis of the social welfare system and the 15-year-old teenagers' educational attainment with a specific focus placed on the social support acting as a mediator. The study will use the Programme for International Student Assessment (PISA) and will answer the following major questions: (1) How do different social welfare systems relate to educational outcomes among 15-year-old adolescents across countries? (2) To what extent does social support (from family, teachers, and peers) mediate the relationship between social welfare provisions and educational outcomes? (3) How do different sources of social support distinctly contribute to this mediating process?

This research contributes to the existing literature in several important ways. First, it bridges the fields of social policy and educational psychology by examining how macro-level welfare structures influence micro-level educational processes and outcomes. Second, it provides a nuanced understanding of social support as a multidimensional construct, differentiating between support from family, teachers, and peers, and examining their respective contributions to educational outcomes. Third, it offers cross-national insights that can inform both educational and social policies aimed at reducing educational inequalities and promoting positive youth development.

This research investigates the social support mediational effect of social welfare and educational attainment and improves theoretical comprehension of how the social environment influences individual development. The study also has practical significance regarding the development of stronger and integrated policy strategies that recognize the interfacing of social welfare systems and educational attainment. The findings of this study hold particular significance for policymakers, educators, and social workers concerned with advancing educational equity and advancing the development of youths in a variety of socioeconomic contexts.

2. Literature review

2.1. Social welfare systems and educational outcomes

The relationship between social welfare systems and educational outcomes has been a subject of increasing scholarly attention, with researchers exploring how different welfare state arrangements influence educational equity and achievement. Welfare states are typically categorized into distinct regimes based on their institutional arrangements and policy priorities, with Esping-Andersen's[8] influential typology identifying social democratic, conservative, and liberal welfare regimes. These different welfare state models reflect varying levels of decommodification, social stratification, and the relationship between state, market, and family in welfare provision. Peter et al.[7] conducted a cross-national exploration of welfare regimes and educational inequality, finding that countries with more comprehensive welfare systems generally demonstrate lower levels of educational inequality. Their analysis revealed that social democratic welfare states, characterized by universal benefits and comprehensive social services, tend to have more equitable educational outcomes compared to liberal welfare states that emphasize targeted assistance and market-based solutions. This pattern suggests that broader social policies may create conditions conducive to more equitable educational opportunities and outcomes. The connection between welfare systems and education is further elaborated by Hega and Hokenmaier[2], who compared social and educational policies across advanced industrial societies. Their research demonstrated that welfare state type significantly influences educational investment and outcomes, with social democratic welfare states generally investing more heavily in education as part of their comprehensive approach to social welfare. This highlights the important interaction between social policy and educational systems in shaping opportunities for young people. Recent research by Brännström and Stenberg[9] examined primary and secondary effects on long-term educational outcomes of individuals with experience of child welfare interventions. The findings of this study reveal that welfare interventions have direct and indirect influences that extend beyond educational pathways, affecting a variety of psychosocial mediators. This study emphasizes the complex processes underlying the influence of welfare provisions on educational attainment and stresses the need to recognize the mediational processes at play. Reichman et al.[10] surveyed the consequences of welfare reforms on the development of teenagers and concluded that welfare policy reforms bear major consequences in multiple areas of teenage welfare, including participation and attainment in education. Their longitudinal analysis showed that welfare programs that seek to enhance household stability and economic security relate positively with the educational attainment of teenagers and reinforce the social welfare-educational attainment linkage. Building on this study, Grütter et al.[1] explored how children and teenagers reason about distributive fairness and educational disparities and found that such reasoning rests within larger social and policy contexts within which such individuals mature. The findings of this study imply that welfare systems not only influence measurable educational attainment but also influence the subjective experience of educational opportunity and fairness.

2.2. Concept and theoretical framework of social support

Social support represents a multidimensional construct encompassing various types of assistance and resources provided through social relationships. Lin[4] conceptualized social support as resources accessible through social ties that can be mobilized when needed. This definition emphasizes the instrumental, informational, and emotional resources that individuals can access through their social networks. In the context of adolescent development, social support can come from multiple sources, including family members, teachers, peers, and other significant adults. Different sources of social support may serve unique functions in adolescents' lives. Malecki and Demaray[11] distinguished between various types of support, including emotional support (expressions of empathy and care), instrumental support (tangible aid and

services), informational support (advice and guidance), and appraisal support (evaluative feedback). Their research indicated that different sources of support may be more effective in providing certain types of assistance, with parents typically offering more emotional and instrumental support and teachers providing more informational and appraisal support. The theoretical underpinning for understanding social support in adolescent development often draws on Bronfenbrenner's ecological systems theory, which emphasizes the multiple, nested environmental systems that influence human development[12]. Within this framework, social support represents a critical mesosystem factor that connects different microsystems (such as family and school) and influences how adolescents navigate their developmental challenges, including educational demands. Research by Rueger et al.[13] conducted a meta-analytic review of the association between perceived social support and depression in childhood and adolescence, finding robust associations between social support and psychological wellbeing. The findings of their analysis showed that support drawn from multiple sources such as parents, teachers, and peers showed differing strengths of correlation with psychological outcomes. This finding emphasizes the need to take source-specific effects into account while examining social support. This fine-grained analysis becomes particularly relevant in assessing how social support might be an active route through which social welfare interventions influence educational outcomes. Research has also examined how the perceptions of social support change during the course of adolescence with findings that the relative prominence of different sources of support might change during this developmental period. In a longitudinal study, the effect of social support perceptions on the academic motivation and attainment of adolescents has been examined by Song et al.[14] and found that although parental support maintained its strength throughout adolescence, the influence of teacher and peer support developed differently in particular areas. This developmental analysis becomes vital in the understanding of social support at the age of 15 years that marks a critical juncture in educational careers.

2.3. Social support and educational outcomes

The interplay between social support and educational outcomes has already been covered extensively in the educational psychology literature. It is well established that perceived social support is associated with better academic achievement, greater engagement, and more positive educational experiences. This association seems to be true in many cultures and age groups which points towards the possibility of enduring relationships that support educational success. Cirik[15], using social support, motivation, and science achievement, analysed the relationships using structural equation modelling. The results showed the existence of strong pathways from social support to motivation to achievement, underscoring the role of social support relationships in academic success. Especially, it was noted that support from parents, teachers, and peers as different sources of social support had distinct contributions to different aspects of motivation and achievement. Glozah and Pevalin[16] performed a path analysis on social support, stress, health, and academic achievement in adolescents from Ghana. They found that social support had a direct impact on academic success, but it also indirectly impacted success through lower stress and better health. This study illustrates the support and how education may be achieved through social support, outlining the many ways social support may impact educational outcomes. Khan et al.[17] built on these pathways by examining problem-solving coping and social support as mediators of academic stress and suicidal ideation in Malaysian and Indian adolescents. In this regard, social support helped enhance problem-solving ability as well as reduce attempts to cope with academic stress. This research clearly defines the negative effects that a lack of social support can have in educational settings, particularly during stressful periods. Recently, there has been considerable attention on the role of social support in school engagement. Ramos-Díaz et al.[18] analysed social support, self-concept, and school engagement among adolescent students, and noted that social support had a significant direct impact on school engagement and an indirect impact through enhanced

self-concept. Likewise, Rodríguez-Fernández et al.[19] studied school engagement in students of compulsory secondary education and noted that perceived social support, together with resilience and self-concept, was fundamental to their school engagement. Fernández-Lasarte et al.[3] specifically analysed these variables in secondary students and concluded that perceived social support from teachers and family was most strongly associated with school engagement, while the results for peer support were more complicated and less direct. This study demonstrates the significant role that the effects of different sources should be addressed while investigating the impact of social support on educational outcomes.

2.4. Associations among social welfare, social support, and educational outcomes

The relationships surrounding social welfare systems, social support systems, and educational achievement outcomes form a complex but important area of study that connects social policy and development. While there has been research on the relationship between welfare systems and education, as well as on social support and education, there is little evidence of how social support interacts with and possibly explains the relationship between welfare provisions and educational achievement. Integration of personal and contextual factors into K-12 academic performance is considered by Lee and Shute[21] in their integrative perspective on student learning. Their framework makes the claim that broader social and policy contexts shape educational outcomes using multiple mediating pathways such as the level of supportive relationships. This conceptual approach is helpful in understanding the ways social welfare systems may contribute to educational outcomes through social support networks. Azpiazu et al.[22] conducted a mediation analysis study on social support, emotional intelligence, and life satisfaction among adolescents. Their focus, while not on educational outcomes but life satisfaction in general, did show that family support had the highest contribution to well-being followed by teacher and peer support. The study suggests the link between educational outcomes and these supportive relationships having both direct and indirect pathways, implying complex mediational processes. Cristescu and Băban[23] analysed the abuse and its effect on school adjustment and discovered that social support from parents, classmates, and teachers acted as a moderator and a mediator. Their research underscored social support’s protective role in educational settings which is important for socially vulnerable adolescents. This indicates the possibility that social support is important for depressed adolescents regarding social welfare provisions.

Li and Li[6] made valuable contributions to the discussion of how social support impacts the resilience of vulnerable students through the emotional experience and school belonging chain-mediation. Their analysis of the PISA data showed that both teacher and parental support had an impact on the resilience of vulnerable students, both directly and indirectly through enhanced school belonging and emotional well-being. This chain-mediation model provides a possible explanation of how social welfare interventions may impact educational performance through social support networks. Emerging evidence from comparative studies highlights how different welfare systems influence the provision and use of social support by adolescents in various age groups. Keller et al.[24] reported that the generosity of welfare states moderated the impact of family poverty on adolescent well-being, with more generous welfare states reducing the adverse effects of economic deprivation. This indicates the potential for welfare systems to limit the extent to which families can provide supportive care to children and adolescents, subsequently affecting social developmental processes such as educational attainment. In a similar fashion, Dinisman et al.[25] researched cross-national differences in adolescent subjective well-being and reported that national contexts, including welfare systems, influenced both the absolute levels of perceived support and the relationships between support and well-being outcomes. This research indicates that welfare systems impact not only the allocation of resources but also their relevance in terms of supporting the adolescent growth process. Diener et al.[26] carried out a study of subjective well-being and found that social factors, including supportive social connections and social

policies, play a crucial part in life fulfillment and good functioning. They found that variables at the societal level, such as welfare policies, set the environments that either help build supportive social connections or not and that such supportive social connections influence individual results such as educational attainment. Scarf et al.[20] found that a feeling of belonging predicted higher resilience in youths in the long term and that a feeling of belonging with supportive social connections acted as a crucial asset of long-term adaptation. This line of study emphasizes the lasting influence of supportive connections during the teenage years and that welfare programs that foster social inclusion and cohesion might further boost educational resilience and attainment.

A comprehensive analysis of social welfare models, social support systems, and the levels of educational attainment leads to a complex ecological framework wherein welfare state interventions build environments that affect the social support quality, availability, and effectiveness for the youths' population. The ensuing supportive social networks yield spillovers that enhance participation and educational attainment. Even with the appeal of this integrated perspective, it has not been widely examined in empirical literature with few empirical tests of the mediational processes that relate welfare systems and educational attainment through social support.

3. Methodology

3.1. Data source

This research employs the 2018 Programme for International Student Assessment (PISA) data that offer a system of carrying out cross-country assessments that gauge the competences and skills of 15-year-old students. The OECD-supervised and -managed initiative includes a large database that allows the comparison of the achievements of students with regard to social and economic backgrounds among countries with differing social welfare models. The 2018 cycle of testing mainly focused on testing the readers' literacy and also measuring the students' proficiency in math and sciences, making it specifically suitable to measure inclusive attainment of education.

The PISA 2018 survey covered a sample of about 600,000 students that captures about 32 million 15-year-olds enrolled in schools in 79 countries and economies that take part in the program. The large sample allows meaningful cross-country welfare framework comparison. The assessment employed a two-stage stratified sampling design, with schools first selected proportionally to size, followed by the random selection of students within these schools. This sampling approach ensures representativeness while accommodating the nested structure of educational data.

For the present study, we selected countries representing distinct welfare regime types based on established welfare state typologies[8], including social democratic (e.g., Finland, Sweden, Norway), conservative (e.g., Germany, France, Belgium), liberal (e.g., United States, United Kingdom, Australia), and Southern European/Mediterranean regimes (e.g., Spain, Italy, Greece). Countries were chosen based on both their representativeness of welfare regime types and data availability. As shown in **Table 1**, the final analytical sample includes 18 countries with a total of 98,562 students, providing robust coverage across different welfare systems.

Table 1. Sample characteristics by welfare regime type.

Welfare Regime Type	Countries	Sample Size	Gender Distribution	Mean ESCS*	GDP per Capita (USD)
Social Democratic	Finland, Sweden, Norway, Denmark, Iceland	21,487	50.6% Female	0.43	58,426
Conservative	Germany, France, Belgium, Austria,	25,346	49.8% Female	0.21	51,782

Welfare Regime Type	Countries	Sample Size	Gender Distribution	Mean ESCS*	GDP per Capita (USD)
	Switzerland				
Liberal	United States, United Kingdom, Australia, Canada	28,764	51.2% Female	0.27	49,637
Southern European	Spain, Italy, Greece, Portugal	22,965	50.1% Female	-0.06	34,219
Total	**18 countries**	**98,562**	**50.4% Female**	**0.22**	**48,516**

Table 1. (*Continued*)

***Note:** ESCS = Index of Economic, Social and Cultural Status*

As illustrated in **Table 1**, the study encompasses a diverse sample with substantial variation in socioeconomic status and national economic contexts across welfare regime types. The social democratic countries show the highest average socioeconomic status and GDP per capita, while Southern European countries demonstrate lower values on these indicators. This variation provides an opportunity to examine how different welfare contexts relate to social support and educational outcomes across diverse economic conditions.

The focus on 15-year-olds is theoretically significant as this age represents a critical developmental period during which adolescents approach the end of compulsory education in most countries and face important decisions about their educational futures. Additionally, at this age, adolescents are developing greater autonomy while still being significantly influenced by their social support networks, making it an ideal period to examine how social welfare systems might influence educational outcomes through supportive relationships.

3.2. Variable measurement

The present study employs a comprehensive approach to measuring the three key constructs—social welfare indicators, social support, and educational outcomes—utilizing both PISA survey data and country-level indicators from reliable international sources. This stratified measurement strategy enables the analysis of the link between comprehensive welfare systems and individual results.

Indicators of welfare at the state level derive from benchmark standards that outline the scope and generosity of welfare provision. They include: (1) the social expenditure-to-GDP ratio, as detailed within the OECD Social Expenditure Database (SOCX); (2) income inequality that is estimated based on the Gini Coefficient and drawn from the World Bank Development Indicators; (3) the percent of children in poverty, based on the percent of children that live in households earning 50% of the median income, and reported by the UNICEF Innocenti Research Centre; and (4) the typological categorization of welfare regimes based on known typologies of welfare states and detailed in **Table 1**[8]. Taken together, they present a detailed picture of the welfare environment within which the development of adolescence unfolds.

Social support was evaluated using the PISA 2018 student questionnaire that investigates support from three important sources: family, teachers, and peers. The Family Support scale consists of items measuring students' perceptions of emotional and academic parenting support (e.g., "My parents support my efforts and achievements," "My parents show interest in what I do at school"). Teacher Support has been evaluated through students' perceptions of their teachers' interest and help (e.g., "The teacher pays attention to every learner," "The teacher offers additional help to those who need it"). Support from classmates and friends was evaluated through Peer Support (e.g., "Other students like me," "I am able to make friends at school," "I have many friends at school"). All social support items were analysed using a four-point Likert type scale from 'strongly disagree' to 'strongly agree.' Reliability coefficients (Cronbach's alpha) for these scales for

the entire sample were 0.82 for Family Support, 0.87 for Teacher Support, and 0.85 for Peer Support, which is a good indicator of internal consistency.

Educational outcomes were operationalized through three key indicators capturing different dimensions of adolescent educational development: (1) Academic Achievement, measured by PISA test scores in reading, mathematics, and science, which were standardized with a mean of 500 and a standard deviation of 100 across OECD countries; (2) School Engagement, a composite measure derived from items assessing behavioral, emotional, and cognitive engagement (e.g., "I feel like I belong at school," "I am interested in what I learn in my classes"); and (3) Educational Aspirations, measured by students' expectations for their highest level of educational attainment. **Table 2** provides descriptive statistics for these key outcome variables across welfare regime types.

Table 2. Educational outcomes by welfare regime type.

Welfare Regime Type	Reading Score Mean (SD)	Mathematics Score Mean (SD)	Science Score Mean (SD)	School Engagement Mean (SD)	Educational Aspirations (% Expecting University)
Social Democratic	506.3 (96.8)	509.2 (91.5)	503.8 (94.2)	3.1 (0.68)	62.7%
Conservative	498.7 (102.3)	502.5 (95.6)	499.1 (97.8)	2.9 (0.72)	58.4%
Liberal	504.1 (103.7)	494.8 (94.2)	501.6 (99.3)	3.0 (0.75)	71.6%
Southern European	481.6 (93.5)	482.3 (88.7)	483.2 (90.6)	2.8 (0.71)	56.9%
Total	**498.2 (100.3)**	**497.3 (93.6)**	**497.4 (95.8)**	**3.0 (0.72)**	**62.6%**

As shown in **Table 2**, there are notable variations in educational outcomes across welfare regime types. Social democratic countries demonstrate the highest average scores in mathematics and strong performance in reading and science, while also showing high levels of school engagement. Liberal countries show the highest percentage of students expecting to complete university education. Southern European countries show the lowest average values across most educational outcomes, highlighting the potential influence of welfare context on educational success.

To account for potential confounding factors, several control variables were included in the analyses. At the individual level, these include: (1) Gender (dummy coded: 0 = male, 1 = female); (2) Index of Economic, Social and Cultural Status (ESCS), a PISA-derived composite measure of family socioeconomic background incorporating parental education, occupation, and home possessions; (3) Immigrant Status (dummy coded: 0 = native, 1 = immigrant); and (4) School Type (dummy coded: 0 = public, 1 = private). At the country level, additional control variables include: (1) GDP per Capita (in USD); (2) Educational Expenditure as Percentage of GDP; and (3) Teacher-Student Ratio. The inclusion of these control variables helps isolate the relationships of interest while accounting for known predictors of educational outcomes.

3.3. Analytical strategy

This study employs a multi-level analytical approach to examine the relationships between social welfare, social support, and educational outcomes across countries. The multi-level modeling strategy acknowledges the nested structure of the PISA data, with students clustered within schools and schools within countries, allowing for the examination of both individual-level and country-level effects simultaneously.

The analysis proceeds in several stages. First, descriptive statistics and bivariate correlations are computed to examine the distributions of key variables and their interrelationships. Particular attention is paid to differences in social support and educational outcomes across welfare regime types, providing an initial assessment of the potential influence of welfare context on these variables.

Second, multi-level structural equation modeling (MSEM) is employed to test the direct and indirect relationships between social welfare indicators, social support, and educational outcomes. MSEM combines the strengths of structural equation modeling (allowing for the examination of complex mediation pathways) with multi-level modeling (accounting for the nested data structure). This approach enables the decomposition of effects into within-level (individual) and between-level (country) components, providing a more accurate assessment of cross-level relationships.

The mediation analysis is conducted following the recommendations of Preacher et al. (2010) for multi-level mediation, examining both the direct effect of social welfare indicators on educational outcomes and the indirect effect through social support variables. The statistical significance of indirect effects is tested using bootstrapping with 5,000 resamples to generate bias-corrected confidence intervals, providing a robust test of mediation that does not rely on the assumption of normality for the sampling distribution of the indirect effect.

The initial MSEM model includes paths from social welfare indicators to social support variables (family support, teacher support, and peer support), paths from social support variables to educational outcomes (academic achievement, school engagement, and educational aspirations), and direct paths from social welfare indicators to educational outcomes. This full model allows for the examination of both direct and mediated relationships. Model fit is assessed using standard indices including CFI (Comparative Fit Index), TLI (Tucker-Lewis Index), RMSEA (Root Mean Square Error of Approximation), and SRMR (Standardized Root Mean Square Residual), with values of CFI and TLI > 0.90, RMSEA < 0.08, and SRMR < 0.08 considered indicative of acceptable fit[27].

Following the initial model test, additional analyses are conducted to examine potential variations in these relationships. Multi-group analyses are performed to test whether the mediation pathways differ across welfare regime types, allowing for the identification of regime-specific patterns. Additionally, interaction effects between individual-level socioeconomic status and social support are tested to examine whether social support plays a more critical role for socioeconomically disadvantaged students.

All analyses are conducted using appropriate weights provided in the PISA dataset to account for the complex survey design and ensure results are representative of the population of 15-year-old students in each country. Missing data are handled using full information maximum likelihood estimation (FIML), which utilizes all available information from participants with incomplete data without imputing missing values, providing unbiased parameter estimates under the assumption that data are missing at random (MAR). The MPlus software (version 8.4) is used for the MSEM analyses due to its capacity to handle complex survey data, multi-level structures, and mediation testing simultaneously. Preliminary data management and descriptive analyses are conducted using SPSS (version 26.0).

4. Results

4.1. Descriptive statistics and correlational analyses

Before examining the mediating role of social support in the relationship between social welfare and educational outcomes, we conducted preliminary analyses to explore the patterns and relationships among key variables. **Table 3** presents descriptive statistics and zero-order correlations among the primary variables in this study.

Table 3. Descriptive statistics and correlations for key study variables.

Variables	1	2	3	4	5	6	7	8	9	Mean	SD
1. Social Expenditure (% GDP)	-									23.84	4.76
2. Income Inequality (Gini)	-.61**	-								31.25	5.38
3. Child Poverty Rate	-.54**	.63**	-							13.62	5.91
4. Family Support	.22**	-.19**	-.24**	-						3.18	0.68
5. Teacher Support	.25**	-.21**	-.17**	.36**	-					2.97	0.74
6. Peer Support	.13**	-.08*	-.11**	.32**	.27**	-				3.05	0.71
7. Reading Achievement	.26**	-.23**	-.28**	.31**	.24**	.18**	-			498.16	100.31
8. Mathematics Achievement	.23**	-.20**	-.25**	.28**	.22**	.15**	.84**	-		497.28	93.62
9. School Engagement	.29**	-.24**	-.21**	.42**	.46**	.38**	.33**	.29**	-	2.95	0.72
10. Educational Aspirations	.21**	-.17**	-.22**	.37**	.28**	.23**	.41**	.38**	.36**	-	-

Note: **p < .05, **p < .01. Educational Aspirations is a categorical variable, thus mean and SD are not reported.*

As shown in **Table 3**, social welfare indicators demonstrated significant correlations with both social support and educational outcome variables. Social expenditure as a percentage of GDP was positively correlated with all three forms of social support, with the strongest correlation observed for teacher support ($r = .25$, $p < .01$). This suggests that countries with more generous welfare provisions tend to have higher levels of perceived support across all sources. Conversely, income inequality and child poverty rates were negatively correlated with social support variables, indicating that in more unequal societies, adolescents perceive lower levels of support from family, teachers, and peers.

All three sources of social support showed significant positive correlations with educational outcomes. Family support demonstrated the strongest correlation with reading achievement ($r = .31$, $p < .01$) and educational aspirations ($r = .37$, $p < .01$), while teacher support had the strongest association with school engagement ($r = .46$, $p < .01$). These patterns suggest that different sources of social support may play distinctive roles in promoting various aspects of educational success.

To examine differences in social support and educational outcomes across welfare regime types, we conducted a one-way ANOVA followed by post-hoc tests. **Figure 1** illustrates the mean levels of family, teacher, and peer support across the four welfare regime types.

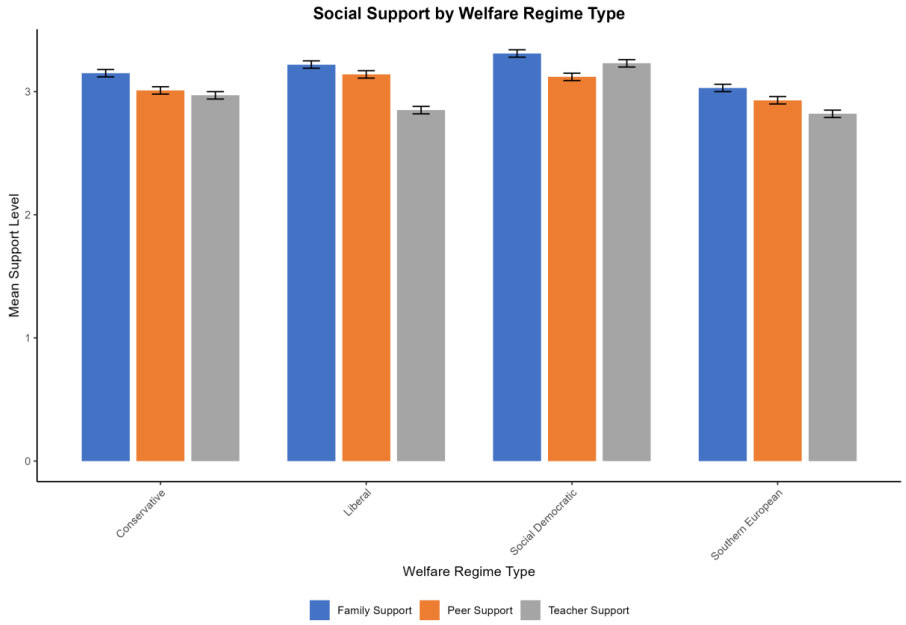

Figure 1. Mean levels of social support by welfare regime type.

As illustrated in **Figure 1**, significant differences in social support emerged across welfare regime types (all $p < .01$). Social democratic countries demonstrated the highest levels of all three forms of support, with particularly pronounced advantages in teacher support. Liberal welfare regimes showed relatively high levels of family support but lower levels of teacher support. Southern European countries exhibited the lowest levels across all three support types. These patterns suggest that welfare regime characteristics may influence the social support infrastructure available to adolescents.

4.2. Direct relationships between social welfare and educational outcomes

To examine the direct relationship between social welfare indicators and educational outcomes before introducing mediating variables, we conducted multi-level analyses controlling for individual- and country-level covariates. **Table 4** presents the standardized coefficients from these analyses.

Table 4. Multi-level regression analyses of direct effects of social welfare on educational outcomes.

Predictor Variables	Reading Achievement	Mathematics Achievement	Science Achievement	School Engagement	Educational Aspirations
Country Level					
Social Expenditure	.24** (.07)	.21** (.06)	.22** (.06)	.27** (.08)	.19** (.06)
Income Inequality	-.18** (.06)	-.17** (.05)	-.19** (.06)	-.22** (.07)	-.15* (.06)
Child Poverty Rate	-.23** (.07)	-.20** (.06)	-.21** (.06)	-.19** (.07)	-.20** (.07)
GDP per Capita	.14* (.06)	.12* (.05)	.13* (.06)	.09 (.05)	.16** (.06)
Individual Level					
ESCS	.38** (.02)	.35** (.02)	.36** (.02)	.22** (.02)	.41** (.02)
Gender (Female)	.15** (.02)	-.05* (.02)	-.02 (.02)	.12** (.02)	.16** (.02)
Immigrant Status	-.09** (.02)	-.06** (.02)	-.08** (.02)	-.04* (.02)	.03 (.02)
School Type (Private)	.07** (.02)	.08** (.02)	.06** (.02)	.03 (.02)	.09** (.02)
R^2					
Within-Level	.18	.16	.17	.08	.22
Between-Level	.31	.28	.29	.25	.27

Note: *Standardized coefficients are reported with standard errors in parentheses. *p < .05, **p < .01.*

As shown in **Table 4**, social welfare indicators demonstrated significant direct relationships with all educational outcomes after controlling for individual and country characteristics. Social expenditure as a percentage of GDP positively predicted all outcomes, with the strongest association observed for school engagement ($\beta = .27$, $p < .01$). Both income inequality and child poverty rates negatively predicted educational outcomes, with particularly strong negative associations between child poverty and reading achievement ($\beta = -.23$, $p < .01$).

At the individual level, socioeconomic status (ESCS) emerged as the strongest predictor of all educational outcomes, highlighting the continued importance of family background for educational success. Gender differences were also evident, with females showing advantages in reading achievement, school engagement, and educational aspirations, but disadvantages in mathematics achievement.

The between-level R^2 values indicate that country-level predictors, including welfare indicators, explained between 25% and 31% of the between-country variance in educational outcomes. This suggests that national contexts, including welfare arrangements, account for a substantial portion of the cross-national differences in adolescent educational success.

To further examine how welfare regime types are associated with educational outcomes, we conducted regression analyses with welfare regime as a categorical predictor, using the Southern European regime as the reference category. **Figure 2** illustrates the predicted educational outcomes by welfare regime type after controlling for individual and country covariates.

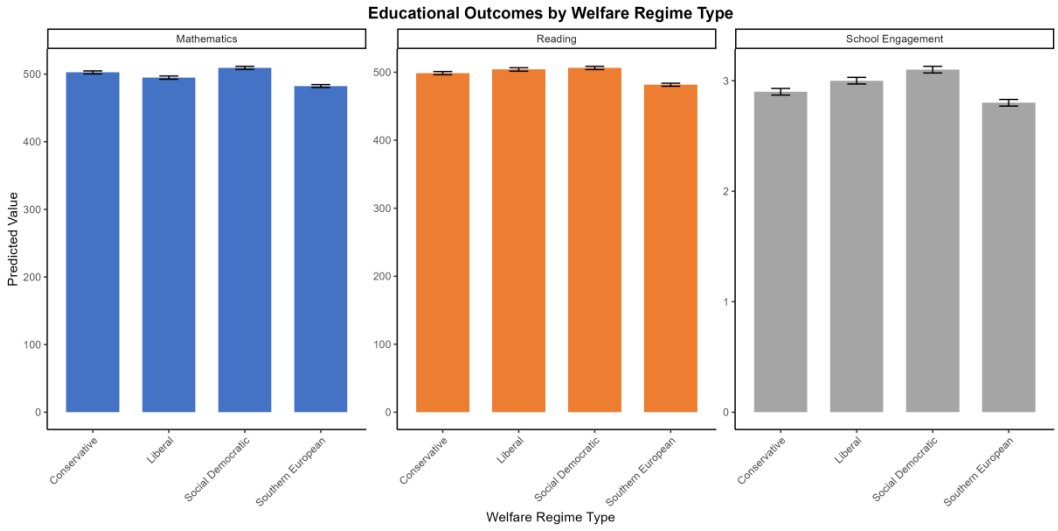

Figure 2. Predicted educational outcomes by welfare regime type.

As shown in **Figure 2**, significant differences in educational outcomes were observed across welfare regime types, even after controlling for GDP per capita and individual-level factors. Social democratic countries demonstrated consistently higher predicted values across all educational outcomes, followed by liberal and conservative regimes, with Southern European countries showing the lowest values. These patterns align with the theoretical expectations that more comprehensive welfare systems provide contexts that better support adolescent educational development.

4.3. Mediating effects of social support

To test the central hypothesis that social support mediates the relationship between social welfare and educational outcomes, we conducted multi-level structural equation modeling (MSEM) analyses. The MSEM approach allows for the simultaneous estimation of direct and indirect effects while accounting for

the nested structure of the data. **Table 5** presents the direct, indirect, and total effects of social welfare indicators on educational outcomes through social support.

Table 5. Direct, indirect, and total effects of social welfare on educational outcomes through social support.

Pathway	Reading Achievement	Mathematics Achievement	School Engagement	Educational Aspirations
Social Expenditure → Outcomes				
Direct Effect	.13** (.04)	.12** (.04)	.14** (.05)	.08* (.04)
Indirect via Family Support	.05** (.01)	.04** (.01)	.07** (.02)	.06** (.01)
Indirect via Teacher Support	.04** (.01)	.03** (.01)	.09** (.02)	.04** (.01)
Indirect via Peer Support	.02* (.01)	.01* (.01)	.04** (.01)	.01* (.01)
Total Indirect Effect	.11** (.02)	.08** (.02)	.20** (.03)	.11** (.02)
Total Effect	.24** (.05)	.20** (.05)	.34** (.06)	.19** (.05)
Income Inequality → Outcomes				
Direct Effect	-.10* (.04)	-.09* (.04)	-.09* (.04)	-.07* (.03)
Indirect via Family Support	-.04** (.01)	-.03** (.01)	-.06** (.01)	-.05** (.01)
Indirect via Teacher Support	-.03** (.01)	-.03** (.01)	-.07** (.02)	-.03** (.01)
Indirect via Peer Support	-.01* (.01)	-.01* (.00)	-.03** (.01)	-.01* (.00)
Total Indirect Effect	-.08** (.02)	-.07** (.02)	-.16** (.03)	-.09** (.02)
Total Effect	-.18** (.05)	-.16** (.04)	-.25** (.05)	-.16** (.04)
Child Poverty Rate → Outcomes				
Direct Effect	-.12** (.04)	-.11** (.04)	-.08* (.04)	-.11** (.04)
Indirect via Family Support	-.06** (.01)	-.05** (.01)	-.08** (.02)	-.07** (.01)
Indirect via Teacher Support	-.02** (.01)	-.02* (.01)	-.05** (.01)	-.02** (.01)
Indirect via Peer Support	-.01* (.00)	-.01* (.00)	-.03** (.01)	-.01* (.00)
Total Indirect Effect	-.09** (.02)	-.08** (.02)	-.16** (.03)	-.10** (.02)
Total Effect	-.21** (.05)	-.19** (.05)	-.24** (.05)	-.21** (.05)

Note: *Standardized coefficients are reported with standard errors in parentheses. *p < .05, **p < .01.*

As shown in **Table 5**, social support significantly mediated the relationships between all social welfare indicators and educational outcomes. For social expenditure, the proportion of the total effect mediated by social support ranged from 40% for mathematics achievement to 59% for school engagement, indicating substantial mediation. Similarly, for income inequality and child poverty rate, social support mediated between 44% and 67% of their total effects on educational outcomes.

Among the three sources of social support, family support consistently demonstrated the strongest mediating effect for the relationship between social welfare indicators and academic achievement and educational aspirations. For school engagement, teacher support emerged as the most important mediator. Peer support showed significant but smaller mediating effects across all outcomes.

The MSEM model demonstrated good fit to the data ($\chi^2/df = 3.82$, CFI = .942, TLI = .925, RMSEA = .043, SRMR within = .032, SRMR between = .068), supporting the hypothesized mediational relationships.

Figure 3 illustrates the standardized path coefficients for the final mediation model focusing on reading achievement as the outcome.

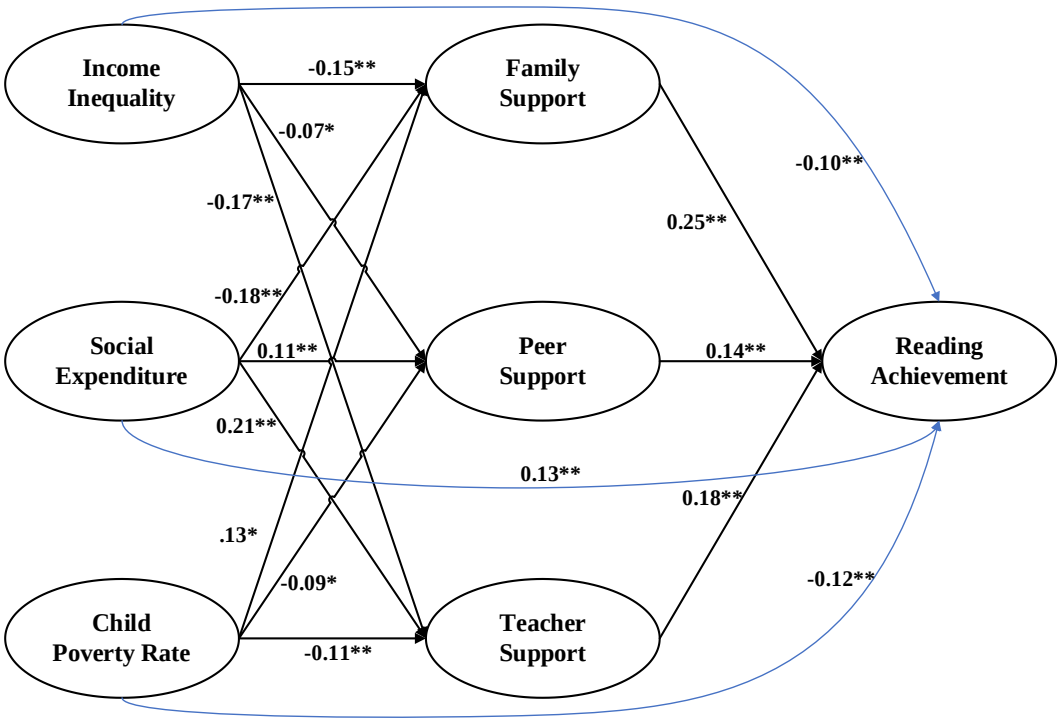

Figure 3. Multi-level structural equation model of social welfare, social support, and reading achievement.

As depicted in **Figure 3**, all social welfare indicators showed significant paths to the three forms of social support, which in turn predicted reading achievement. Social expenditure demonstrated the strongest positive association with teacher support ($\beta = .21$, $p < .01$), while child poverty rate had the strongest negative association with family support ($\beta = -.19$, $p < .01$). Among the three sources of support, family support was most strongly related to reading achievement ($\beta = .25$, $p < .01$), followed by teacher support ($\beta = .18$, $p < .01$) and peer support ($\beta = .14$, $p < .01$).

4.4. Variations across welfare regime types

To examine whether the mediating role of social support varies across welfare regime types, we conducted multi-group analyses comparing the mediation pathways across the four regime categories. **Table 6** presents the indirect effects of social expenditure on reading achievement through social support across welfare regime types.

Table 6. Indirect effects of social expenditure on reading achievement through social support by welfare regime type.

Welfare Regime Type	Via Family Support	Via Teacher Support	Via Peer Support	Total Indirect Effect
Social Democratic	.07** (.02)	.06** (.02)	.02* (.01)	.15** (.03)
Conservative	.05** (.01)	.04** (.01)	.01* (.01)	.10** (.02)
Liberal	.06** (.02)	.03* (.01)	.02* (.01)	.11** (.02)
Southern European	.04** (.01)	.02* (.01)	.01 (.01)	.07** (.02)
$\Delta\chi^2$ Test	8.62*	11.24**	3.18	14.76**

Note: *Standardized coefficients are reported with standard errors in parentheses. $\Delta\chi^2$ Test refers to the chi-square difference test comparing a model with paths constrained to be equal across groups versus a model with paths freely estimated. *p < .05, **p < .01.*

As shown in **Table 6**, the mediating role of social support varied significantly across welfare regime types. The total indirect effect of social expenditure on reading achievement through social support was strongest in social democratic countries ($\beta = .15$, $p < .01$) and weakest in Southern European countries ($\beta = .07$, $p < .01$). The chi-square difference test indicated that constraining the indirect paths to be equal across regime types significantly worsened model fit ($\Delta\chi^2 = 14.76$, $p < .01$), confirming significant moderation by welfare regime type.

The indirect effect through teacher support showed the most substantial variation across regime types ($\Delta\chi^2 = 11.24$, $p < .01$), with social democratic countries demonstrating a significantly stronger mediation effect than other regimes. This suggests that teacher support plays a particularly important role in transmitting the benefits of welfare provisions to educational outcomes in social democratic contexts. The indirect effect through peer support did not vary significantly across regime types ($\Delta\chi^2 = 3.18$, $p > .05$).

To further explore welfare regime differences, we examined whether social support plays a differential role for socioeconomically disadvantaged students across regime types. **Figure 4** illustrates the relationship between family support and reading achievement across different levels of socioeconomic status (ESCS) for each welfare regime type.

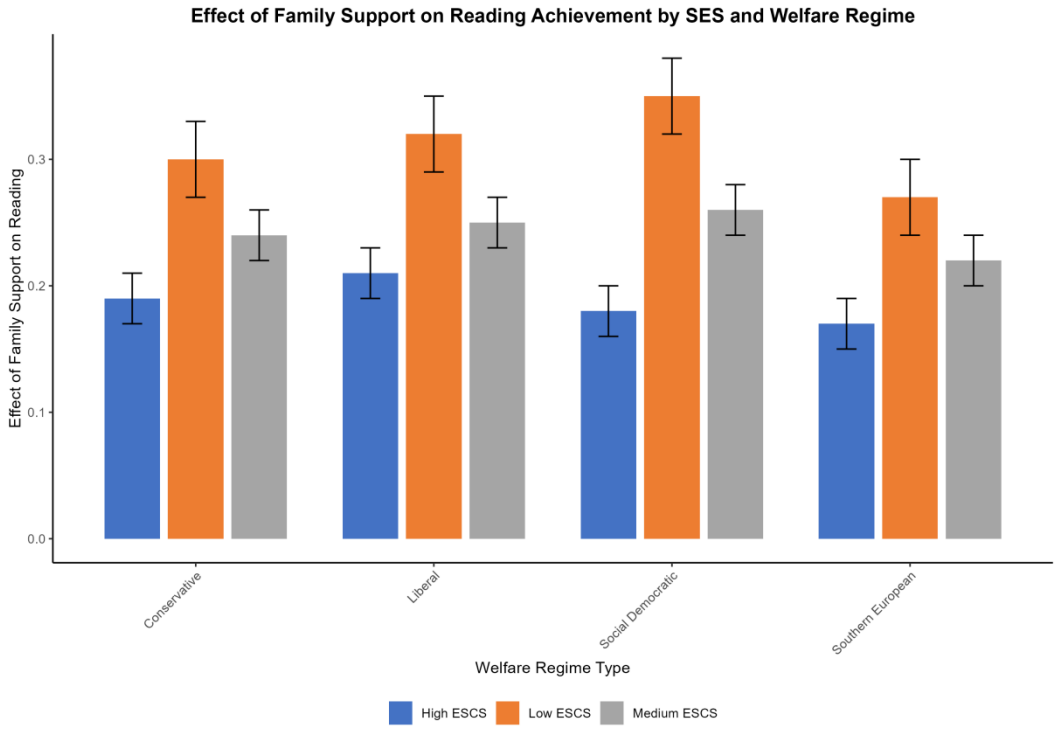

Figure 4. Effect of family support on reading achievement by socioeconomic status and welfare regime type.

As illustrated in **Figure 4**, the relationship between family support and reading achievement varied by both socioeconomic status and welfare regime type. Across all regime types, the effect of family support was stronger for socioeconomically disadvantaged students (Low ESCS) compared to their more advantaged peers (High ESCS), suggesting that supportive relationships may be particularly important for students from disadvantaged backgrounds.

However, this socioeconomic gradient in the importance of family support was most pronounced in social democratic countries, where disadvantaged students showed the strongest benefit from family support

(β = .35 for Low ESCS vs. β = .18 for High ESCS). In contrast, Southern European countries showed both the smallest overall effects of family support and the least variation across socioeconomic groups. These findings suggest that welfare regimes not only influence the availability of social support but also moderate how this support translates into educational advantages for different socioeconomic groups.

5. Discussion

5.1. Main research findings

This study investigated the relationship between social welfare and educational outcomes among 15-year-old adolescents, with a specific focus on the mediating role of social support. The findings provide compelling evidence that social support serves as a crucial pathway through which welfare systems influence educational outcomes across countries. Our first major finding is that social welfare indicators—specifically social expenditure, income inequality, and child poverty rates—demonstrate significant associations with educational outcomes. Social expenditure showed consistent positive relationships with academic achievement, school engagement, and educational aspirations, while income inequality and child poverty rates were negatively associated with these outcomes. These findings align with previous research by Peter et al.[5], who found that welfare regimes were systematically related to educational inequality across nations. Our results extend this work by demonstrating that these relationships hold even after controlling for GDP per capita and individual socioeconomic status.

The second key finding is that social support significantly mediates the relationship between social welfare indicators and educational outcomes. Across all outcomes, social support variables collectively mediated between 40% and 67% of the total effects of welfare indicators, indicating that supportive relationships represent a primary mechanism through which welfare systems influence adolescent education. This finding integrates previous research on welfare systems and educational outcomes[7] with studies on social support and educational success[3], demonstrating how these previously separate lines of inquiry can be synthesized. The mediation effects were particularly pronounced for school engagement, where social support mediated approximately 59% of the effect of social expenditure and 67% of the effect of income inequality.

Our third significant finding is that different sources of social support play distinct roles in mediating the relationship between welfare systems and educational outcomes. Family support emerged as the strongest mediator for academic achievement and educational aspirations, while teacher support showed the strongest mediation effect for school engagement. This differentiated pattern aligns with research by Li and Li[4], who found that teacher and family support influence resilience in disadvantaged students through different pathways. Additionally, we found that the mediating role of social support varies significantly across welfare regime types, with the indirect effects of social expenditure on educational outcomes through social support being strongest in social democratic countries and weakest in Southern European countries. Furthermore, social support plays a particularly important role for socioeconomically disadvantaged students across all welfare regimes, but this compensatory effect is most pronounced in social democratic countries.

5.2. Theoretical implications

Our findings provide empirical support for an integrated ecological model that connects macro-level social policies to micro-level educational processes through mediating relational mechanisms. By demonstrating that social support mediates a substantial portion of the relationship between welfare indicators and educational outcomes, our results highlight the importance of considering cross-level influences in understanding adolescent development. This integrated perspective extends Bronfenbrenner's

ecological systems theory by specifying how macrosystem factors (welfare policies) influence microsystem processes (supportive relationships) to shape individual developmental outcomes (educational success). The significant variation in mediation pathways across welfare regime types further enriches ecological theory by demonstrating that the linkages between system levels are not uniform but are themselves shaped by broader contextual factors.

Our findings contribute to social support theory by demonstrating that different sources of support play distinct roles in mediating welfare effects on various educational outcomes. While previous research has established the importance of differentiating support sources[22], our study extends this work by showing that these sources serve as distinct mediating pathways linking broader social contexts to individual development. The stronger mediating role of family support for academic achievement versus teacher support for school engagement suggests that different support sources may be particularly important for translating welfare benefits into specific domains of educational success. This finding refines social support theory by specifying domain-specific mediation pathways rather than treating social support as a unitary construct with uniform effects.

Additionally, our results have implications for theories of educational inequality, particularly regarding the role of welfare systems in mitigating socioeconomic disparities in education. The finding that social support plays a stronger role for socioeconomically disadvantaged students across all welfare regimes, but particularly in social democratic countries, suggests that welfare systems may influence not only the overall levels of educational achievement but also the mechanisms through which socioeconomic status translates into educational outcomes. This aligns with theoretical perspectives that emphasize the importance of compensatory mechanisms in reducing educational inequality[2] but extends these theories by specifying supportive relationships as a key compensatory mechanism that is enhanced by comprehensive welfare provisions.

5.3. Practical implications

Our results highlight the importance of comprehensive social welfare policies in creating conditions conducive to educational success. The positive association between social expenditure and educational outcomes, partially mediated through enhanced social support, suggests that investments in welfare systems may yield significant educational benefits. Policymakers concerned with improving educational outcomes should consider how broader social policies—not just education-specific initiatives—influence the educational development of young people. Specifically, policies that reduce child poverty and income inequality may enhance educational achievement not only through direct material benefits but also by creating conditions that foster more supportive relationships for adolescents[8].

Our findings underscore the importance of strengthening social support networks within educational contexts. Teacher support emerged as a particularly important mediator for school engagement, suggesting that initiatives to enhance teacher-student relationships could be an effective strategy for improving educational outcomes, especially in contexts with less comprehensive welfare systems. Professional development programs that enhance teachers' capacity to provide emotional and academic support to students, particularly those from disadvantaged backgrounds, could help compensate for limitations in broader social welfare provisions. The strong mediating role of family support for academic achievement and educational aspirations highlights the importance of family-focused interventions, especially for socioeconomically disadvantaged students[4].

The differential mediation patterns across welfare regime types suggest that intervention strategies should be tailored to specific policy contexts. In countries with less comprehensive welfare systems,

interventions might need to focus more explicitly on strengthening multiple sources of support simultaneously, as no single source demonstrated strong mediation effects in these contexts. Conversely, in social democratic countries, interventions might build upon the already strong mediating role of teacher support. Our findings suggest the importance of integrated policy approaches that recognize the interconnections between social welfare and educational systems. Rather than treating educational policy and social welfare policy as separate domains, governments might develop coordinated strategies that leverage welfare provisions to enhance supportive relationships within educational contexts[7].

5.4. Limitations and future directions

While this study provides valuable insights, several limitations should be acknowledged. First, the cross-sectional nature of the PISA data limits our ability to establish causal relationships among the variables studied. Although our theoretical framework and the use of structural equation modeling provide a basis for interpreting the observed associations as causal pathways, longitudinal data would be necessary to more definitively establish the temporal ordering of effects. Future research should employ longitudinal designs that track changes in social support and educational outcomes over time in response to variations or changes in welfare provisions, allowing for stronger causal inferences.

Second, while our measurement of social welfare indicators included multiple dimensions, these country-level indicators may not fully capture the nuanced aspects of welfare systems that influence individual development. Future research could incorporate more detailed measures of specific welfare policies directly relevant to adolescents and families, such as family allowances, parental leave policies, or educational subsidies. Additionally, our measurement of social support relied on self-reported perceptions, which may be influenced by reporting biases or cultural variations in how support is perceived and reported. More detailed measures of supportive interactions, particularly those specifically focused on educational support, could enhance our understanding of the mediating mechanisms identified in this study[21].

Finally, while our sample included 18 countries representing different welfare regime types, this still represents a limited subset of the global diversity in welfare arrangements. Future research should expand to include a broader range of countries, particularly those outside the OECD, to examine whether the relationships identified in this study generalize to different economic and cultural contexts. Additionally, while our study identified social support as an important mediator, other potential mediating mechanisms were not examined. Future research could explore additional pathways, such as material resources, health and nutrition, or cognitive stimulation, which might also link welfare provisions to educational outcomes[15]. Despite these limitations, this study makes a significant contribution to understanding how social welfare influences educational outcomes through supportive relationships.

6. Conclusion

This research evaluated the link between social welfare and educational achievement among 15-year-old adolescents, paying special attention to social support as a mediating factor. Our results show that social welfare features, which include social spending, income inequality, and child poverty, had a notable impact on educational achievement across countries which was partly mediated by family, teacher, and peer support. Various types of social support contributed in different ways, with family support being most influential for academic and educational aspirations and teacher support being most helpful for school engagement. The variance in the mediating role of social support was dependent on the type of welfare regime, being strongest in the social democratic countries and weakest in Southern Europe. In addition, social support was found to be especially important for students from disadvantaged socio-economic backgrounds, indicating its

potential role in reducing educational gaps. These results highlight the need to rethink the linkage between the social welfare system and education policies in order to construct contexts which nurture the relationships needed for positive educational outcomes. This study fills a gap in the literature on how the social context affects educational achievement and success among adolescents, especially in underdeveloped welfare systems, with the aim of contributing to better policy and practice across all welfare systems.

Conflict of interest

The authors declare no conflict of interest.

References

1. Grütter, J., Barth, C., Karki, I., Sims, R. N., & Killen, M. (2024). Children's and adolescents' reasoning about distributive fairness and educational inequalities. International Journal of Behavioral Development, 01650254241308503.
2. Hega, G. M., & Hokenmaier, K. G. (2002). The Welfare State and Education: A Comparison of Social and Educational Policy in Advanced Industrial Societies. German Policy Studies/Politikfeldanalyse, 2(1).
3. Fernández-Lasarte, O., Goñi, E., Camino, I., & Ramos-Díaz, E. (2019). Perceived social support and school engagement in secondary students. Revista Española de Pedagogía, 77(272), 123-141. https://doi.org/10.22550/REP77-1-2019-06
4. Lin, N. (1986). Conceptualizing social support. In N. Lin, A. Dean, & W. Ensel (Eds.), Social support, life events, and depression (pp. 17-30). Academic Press.
5. Lasarte, O. F., Díaz, E. R., Palacios, E. G., & Fernández, A. R. (2020). The role of social support in school adjustment during Secondary Education. Psicothema, 32(1), 100-107.
6. Li, Z., & Li, Q. (2024). How social support affects resilience in disadvantaged students: The chain-mediating roles of school belonging and emotional experience. Behavioral Sciences, 14(2), 114.
7. Peter, T., Edgerton, J. D., & Roberts, L. W. (2010). Welfare regimes and educational inequality: a cross-national exploration. International studies in Sociology of Education, 20(3), 241-264.
8. Esping-Andersen, G. (1990). The three worlds of welfare capitalism. Princeton University Press.
9. Brännström, L., & Stenberg, S. Å. (2021). Primary and secondary effects on long-term educational outcomes of individuals with experience of child welfare interventions. Child Abuse Review, 30(1), 48-61.
10. Reichman, N. E., Corman, H., Dave, D., Kalil, A., & Schwartz-Soicher, O. (2023). Effects of welfare reform on positive health and social behaviors of adolescents. Children, 10(2), 260.
11. Malecki, C. K., & Demaray, M. K. (2003). What type of support do they need? Investigating student adjustment as related to emotional, informational, appraisal, and instrumental support. School Psychology Quarterly, 18(3), 231-252.
12. Bronfenbrenner, U. (1979). The ecology of human development: Experiments by nature and design. Harvard University Press.
13. Rueger, S. Y., Malecki, C. K., Pyun, Y., Aycock, C., & Coyle, S. (2016). A meta-analytic review of the association between perceived social support and depression in childhood and adolescence. Psychological Bulletin, 142(10), 1017-1067. https://doi.org/10.1037/bul0000058
14. Song, J., Bong, M., Lee, K., & Kim, S. (2015). Longitudinal investigation into the role of perceived social support in adolescents' academic motivation and achievement. Journal of Educational Psychology, 107(3), 821-841. https://doi.org/10.1037/edu0000016
15. Cirik, I. (2015). Relationships between social support, motivation, and science achievement: Structural equation modeling. Anthropologist, 20(1-2), 232-242.
16. Glozah, F. N., & Pevalin, D. J. (2014). Social support, stress, health, and academic success in Ghanaian adolescents: A path analysis. Journal of Adolescence, 37(4), 451-460. https://doi.org/10.1016/j.adolescence.2014.03.010
17. Khan, A., Hamdan, A. R., Ahmad, R., Mustaffa, M. S., & Mahalle, S. (2016). Problem-solving coping and social support as mediators of academic stress and suicidal ideation among Malaysian and Indian adolescents. Community Mental Health Journal, 52(2), 245-250. https://doi.org/10.1007/s10597-015-9937-6
18. Ramos-Díaz, E., Rodríguez-Fernández, A., Fernández-Zabala, A., Revuelta, L., & Zuazagoitia, A. (2016). Adolescent students' perceived social support, self-concept and school engagement. Revista de Psicodidáctica, 21(2), 339-356. https://doi.org/10.1387/RevPsicodidact.14848
19. Rodríguez-Fernández, A., Ramos-Díaz, E., Ros, I., & Zuazagoitia, A. (2018). School engagement in students of compulsory secondary education: The influence of resilience, self-concept and perceived social support. Educación XX1, 21(1), 87-108. https://doi.org/10.5944/educXX1.16026

20. Scarf, D., Moradi, S., McGaw, K., Hewitt, J., Hayhurst, J. G., Boyes, M., Ruffman, T., & Hunter, J. A. (2016). Somewhere I belong: Long-term increases in adolescents' resilience are predicted by perceived belonging to the in-group. British Journal of Social Psychology, 55(3), 588-599. https://doi.org/10.1111/bjso.12151
21. Lee, J., & Shute, V. J. (2010). Personal and social-contextual factors in K-12 academic performance: An integrative perspective on student learning. Educational Psychologist, 45(3), 185-202. https://doi.org/10.1080/00461520.2010.493471
22. Azpiazu, L., Antonio-Agirre, I., Fernández-Zabala, A., & Escalante, N. (2023). How does social support and emotional intelligence enhance life satisfaction among adolescents? A mediational analysis study. Psychology research and behavior management, 2341-2351.
23. Cristescu, D. S., & Băban, A. (2022). Exposure to abuse and school adjustment: the moderator and mediator roles of perceived social support from parents, classmates, and teachers. Journal of Education for Students Placed at Risk (JESPAR), 27(3), 181-212.
24. Keller, J., Samuel, R., Bergman, M. M., & Semmer, N. K. (2014). Psychological, educational, and sociological perspectives on success and well-being in career development. Springer.
25. Dinisman, T., Montserrat, C., & Casas, F. (2012). The subjective well-being of Spanish adolescents: Variations according to different living arrangements. Children and Youth Services Review, 34(12), 2374-2380.
26. Diener, E., Heintzelman, S. J., Kushlev, K., Tay, L., Wirtz, D., Lutes, L. D., & Oishi, S. (2017). Findings all psychologists should know from the new science on subjective well-being. Canadian Psychology, 58(2), 87-104. https://doi.org/10.1037/cap0000063
27. Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural equation modeling: a multidisciplinary journal, 6(1), 1-55.