



# Child's Illness and Social Support for Parents: An Empirical Analysis in an Eastern European Context

Krzysztof Czaderny<sup>1</sup> · Joosu Soosalu<sup>2</sup>

Received: 16 October 2024 / Accepted: 24 August 2025  
© The Author(s) 2025

## Abstract

In the past two decades, Eastern Europe – particularly Poland, the Czech Republic, and Bulgaria – witnessed numerous protests by parents of severely ill children and children with disabilities. The low levels of formal social support these families receive suggest that informal social support is particularly important in these countries compared with countries providing greater formal social support. Quantitative studies on the determinants of access to social support remain scarce, with studies mainly focusing on sociodemographic variables. Our study used data on 1,970 children aged five years or less and their parents, drawn from the 2019 Polish Health Interview Survey, and employed partial least squares path modelling to investigate the relationship between a child's illness and the informal social support that parents perceive and to test the so-called network quality hypothesis. The analysis showed a strong negative relationship between a child's illness and informal social support for parents in households with low socioeconomic status. The moderating (amplifying) effects of low equivalised household income and low educational attainment were significant for both fathers and mothers. The generally negative relationship between a child's illness and informal social support for parents remained following the omission of the moderating effects and adjustment for parental health issues, age, educational attainment, and equivalised household income. The only significant difference between fathers and mothers was the non-positive association between age and informal social support, which was stronger for fathers and was likely attributable to men under-reporting their health issues.

## Highlights

- The relationship between a child's illness and the informal social support perceived by parents was negatively moderated by low equivalised household income and low educational attainment, which is consistent with the network quality hypothesis.
- The generally negative relationship between a child's illness and informal social support perceived by parents remained following the omission of the moderating effects and adjustment for parental health issues, age, educational attainment, and equivalised household income.
- The findings can be placed within a broader context. First, while this has rarely been generalised, empirical research has shown that groups experiencing disadvantage are more likely to report low informal social support. Second, the interchangeability of informal and formal social support suggests that recently proposed initiatives, such as mobile social inclusion advisory services, could alleviate the observed disadvantages experienced by parents of children with medical conditions.

**Keywords** Social support · Child's illness · Socioeconomic status · Health · Parents

---

✉ Krzysztof Czaderny  
krzysztof.czaderny@uek.krakow.pl  
Joosu Soosalu  
joosu.m.soosalu@utu.fi

<sup>1</sup> Department of Statistics, Cracow University of Economics, Cracow, Poland

<sup>2</sup> INVEST Research Flagship Centre, University of Turku, Turku, Finland

## Introduction

Empirical research has shown that the parents of children with a disability, illness, or poor health rely extensively on social support (Baker & Claridge, 2023; Ha et al., 2011; Pelletier et al., 1994). Multiple studies have consistently demonstrated that social support provides a significant protective factor for such parents against depression (Cantwell et al., 2015; Falk et al., 2014), decreased quality of life (Cho & Hong, 2013; Drageset, 2021; Savari et al., 2023), and distress (Cho & Hong, 2013; Ha et al., 2011; Kissel & Nelson, 2016) among other issues. Despite a high awareness of the importance of social support in many contexts, few attempts have been made to identify the determinants of perceived or received social support (which has been frequently noted in the literature; for example, see Almeida et al., 2009; Joo et al., 2020; Smyth et al., 2015). Furthermore, as noted by Almeida et al. (2009), most of the research effort has focused on identifying differences in access to social support across gender, marital status, and age, and, less frequently, across racial or ethnic groups, immigrant status, and socioeconomic status.

Social support is defined as the material and non-material (e.g. emotional) resources accessible from someone's interpersonal contacts and social networks (Moak & Agrawal, 2010). Social support can be instrumental support, appraisal and informational support, and emotional support (Cohen, 2004). When considering social support, most applied researchers have limited their understanding of this term to informal social support and thus have excluded formal social support from their analyses (Kocalevent et al., 2018; Meltzer, 2003; Sharp et al., 2023). This limitation also applies to our study as it uses the Oslo Social Support Scale (Meltzer, 2003), which measures informal social support only. Informal social support is the assistance provided by unofficial organisations or individuals and is often characterised by uncertainty. In contrast, formal social support is the assistance provided by official organisations following relevant policies or laws and is characterised by relatively greater consistency and stability (Shiba et al., 2016).

Consistent results are difficult to identify within the relatively modest body of quantitative research on the relationships between a child's illness and parental access to social support. For example, Florian and Krulik (1991) showed that the parents of children with chronic diseases reported greater perceived social support than parents of healthy children. Kissel and Nelson (2016) did not identify significant differences in the levels of perceived social support between parents of children with severe or mild autism and parents with neurotypical children. Shi et al. (2021) found that the average social support score of caregivers of children with chronic kidney disease was lower than that of caregivers of

healthy children. Despite these inconsistencies, there is consistent evidence showing that among parents of chronically ill children, income and educational attainment are factors influencing the levels of perceived and received social support (Cho & Hong, 2013; Geweniger et al., 2024; Pelletier et al., 1994).

Few qualitative studies have compared levels of social support either perceived or received between parents of healthy children and those of children with disabilities, illnesses, or poor health; however, many qualitative studies have shown that the consequences of a child's illness were amplified in households with limited socioeconomic resources. Hogan (2012a, 2012b: para. 3) showed in 'the first comprehensive account of families of children with disabilities' that the parents of such children relied on their friends more – even for exceptional forms of support – than the parents of healthy children and that these parents were less likely to feel that they had neighbours they could trust to help if their child was in difficulty. Hogan (2012a) concluded that low economic status and low educational attainment amplified the consequences of a child's illness owing to reduced access to healthcare and a limited understanding of a child's diagnosis. Boshoff et al. (2016) reviewed the qualitative research on the experiences of parents of children with autism spectrum disorder and showed that some parents reported feelings of isolation while others had a strong support network of friends, family, and community. Boshoff et al. (2016) concluded that parents with higher economic and educational status were stronger advocates and more successful at accessing services for their children. A literature review by Lumsden et al. (2019) showed that both close and extended family members formed the primary support systems for parents of children with congenital heart defects. Their review noted that the greatest social support from non-family members was from people in similar situations that these parents had met online as 'nobody that hasn't gone through it will understand what you are going through' (Sira et al., 2014, p. 615). Lumsden et al. (2019) concluded that a child's illness increased the social vulnerabilities of a household.

The empirical evidence for the moderating effects of low income and low educational attainment on the relationship between a child's illness and the social support for parents aligns with multiple theoretical perspectives. The network quality hypothesis shows that the networks of people with high socioeconomic status contain larger amounts of material and non-material resources that can be exchanged between members than the networks of people with low socioeconomic status (Aartsen et al., 2017; Brandt & Hagge, 2020; Green & Rodgers, 2001). A similar mechanism operates in the 'Matthew effect' in which 'the rich get richer'. This occurs as people with a high number of social

connections and a central position in a network can form more connections over time (Growiec, 2023; Słomczyński & Janicka, 2008; van Lancker, 2023). According to Bourdieu's capital theory, one form of capital can be converted into another; for example, economic capital can be transformed into cultural capital (Bourdieu, 1986; Pret et al., 2016). It is important to note that health is not only an intrinsic value pursued for its own sake (Richardson, 2012) and to promote well-being (Duncan, 2010), but can also be considered a form of capital that people invest their time, energy, and resources to obtain (Grossman, 1972). The logic of these theories can be demonstrated through simple examples. First, wealthy parents of children with disabilities can leverage their financial resources to foster trust and goodwill within their neighbourhoods; for example, by contributing to local causes. This can then encourage neighbours to offer emotional support or advice. Second, neighbours with higher levels of education – particularly in the medical sciences – are more likely to understand the specific forms of support a child with a disability may require. Third, neighbours who do not own a large car or do not own a car at all are less able to support families with a child who uses a wheelchair.

### Social Support in an Eastern European Context

In Poland, parents of children with medical conditions receive limited formal social support (Zdrodowska, 2023) and often face economic hardship (Godawa, 2018). Consequently, Polish parents of children with medical conditions often take on the roles of caregivers and physiotherapists. This implies that these parents have a greater need for informal social support than parents in countries with higher levels of formal social support (Tanskanen et al., 2022). Multiple studies have hypothesised that in Poland, a child's illness increases the risk of social isolation for their parents (Bakalarczyk, 2015; Godawa, 2018; Kędziora, 2007), with a household's economic situation potentially acting as a moderating factor (Bakalarczyk, 2015). Notably, while liberal trends have emerged in Poland, traditional gender roles remain influential, with women more likely to assume childcare responsibilities than men (Fanelli & Profeta, 2021; Suwada & Plantin, 2014; Walkowiak et al., 2023).

A conspicuous backdrop to this study is the protests by the parents of children with severe illnesses and disabilities in Eastern Europe – particularly in Poland, the Czech Republic, and Bulgaria – in the past two decades (Dimitrova & Goncharova, 2023; Szczygieł, 2020; Zdrodowska, 2023). Two of the most notable episodes of protest in Poland occurred when parents demonstrated in front of the presidential palace in 2015 because their severely ill children had

been refused public funding for specialised treatment and when the parents of children with disabilities occupied the Polish parliament in 2018 (Zdrodowska, 2023).

### Study Hypotheses

Our study investigates the relationship between a child's illness and social support for their parents using data from a country-wide survey. It represents the inaugural quantitative study within this field in this region of Europe. First, we hypothesise that a child's illness is related to reduced social support for their parents. While non-Polish empirical research on this lacks clarity, Polish assessments support this hypothesis (Bakalarczyk, 2015; Godawa, 2018; Kędziora, 2007). Second, low household income and low educational attainment are thought to amplify the negative association between a child's illness and social support perceived by their parents, reflecting the network quality hypothesis (Aartsen et al., 2017; Brandt & Hagge, 2020; Green & Rodgers, 2001) and the studies by Bakalarczyk (2015); Boshoff et al. (2016); Cho and Hong (2013); Hogan, 2012a); Pelletier et al. (1994).

### Data and Method

#### Participants

Data were derived from the Polish edition of the third wave of the European Health Interview Survey. The European Health Interview Survey targets people in the European Union aged 15 years and older. Unlike in other European countries, Statistics Poland (2021) has extended the survey's target population to include children from birth. In our study, the social support for parents (including step-parents) of children aged up to five years was analysed as children in early childhood typically have the highest time input requirement. In addition, the relationship between social support for parents and illness or disability in very young children is least likely to be bidirectional. Furthermore, the sample was limited to individuals from households containing both parents (including step-parents) living with their child/children, meaning that the results cannot be extrapolated, for example, to the relationship between a child's illness and the social support for a parent living separately from their child. The child–mother model was based on data on 1,207 children aged up to five years and their mothers, while the child–father model was based on data on 763 children aged up to five years and their fathers.

Within the analytical sample used for the mother–child model, 213 children had been hospitalised in the previous 12 months (excluding birth hospitalisation), with a mean

stay of 6.41 days and a standard deviation of 11.32 days; 103 children had a chronic illness; and 41 children had a certified disability. Within the analytical sample used for the father–child model, 138 children had been hospitalised in the previous 12 months (excluding birth hospitalisation), with a mean stay of 5.43 days and a standard deviation of 5.38 days; 68 children had a chronic illness; and 30 children had a certified disability. According to Eurostat's (2018) degree of urbanisation classification, 957 children lived in cities, 502 in towns and suburbs, and 508 in rural areas. However, mirroring Poland's demographics, only 256 children lived in cities with a population exceeding 500,000 inhabitants. Among the children included in the study, almost two-thirds had parents in their 30s (1,212 children). Most children had parents with higher (ISCED 5–8: 950 children) or secondary education (ISCED 3–4: 933 children), while relatively few had parents with lower levels of education (ISCED 0–2: 79 children). Adhering to the European Commission's (2023) general policy regarding the publication of data from the European Health Interview Survey and our agreement with Statistics Poland, cell sizes below 20 observations were not disclosed when summarising the sample characteristics.

## Procedure

The households were selected using two-stage stratified random sampling. The primary sampling units were census tracts while the secondary sampling units were dwellings, with the selection based on the Polish Social Research Sampling Frame. For dwellings containing multiple households, all households were eligible for inclusion in the survey. Before the first interviewer visit, households were sent an advance letter outlining the study's purpose, encouraging participation, and stressing the voluntary nature of participation (Statistics Poland, 2021). Informed consent was obtained verbally by Statistics Poland before participation. At least three callbacks were made before a household or individual was considered a non-respondent (unless a conclusive reason was identified). The stratified oversampling method was used and it was recommended that non-respondents were not substituted. An interviewer-administered questionnaire was the preferred method of data collection (Eurostat, 2018), with data collected between September and December 2019. As reported by Statistics Poland (2021), 49% of the selected households disagreed to participate in the survey.

Proxy respondents – the individuals most familiar with a child's situation – answered the survey questions for children aged up to five years. The proxy respondent was the child's mother for 82% of these children and the father for 14% of these children. The survey design has previously been described in detail in Statistics Poland (2021).

The survey was conducted by Statistics Poland in line with the Regulation of the Council of Ministers of 14 September 2018 on the Programme of Statistical Surveys for 2019 (2018), and with Commission Regulation (EU) 2018/255 (2018). Ethical approval was not required for this study as the microdata provided by Statistics Poland were anonymised and only aggregated results are reported.

## Analysis

Partial least squares path modelling was used to test the study hypotheses. The use of latent variable models has been recognised as 'quite common' in public health research (Gunzler et al., 2021, p. 47). In partial least squares path modelling, linear compounds are constructed to act as proxies or stand-ins for the latent variables. Compound weights are estimated using a variety of alternating least squares algorithms, which update natural subsets of weights in turn and stop when consecutive estimates no longer change significantly (Dijkstra, 2010). The estimation algorithm corresponds to the maximisation of the sum of the absolute values of the covariances of the proxies for the latent variables, where the sum excludes the terms corresponding to the latent variables that are not directly related (McDonald, 1996). Unlike covariance-based structural equation modelling, partial least squares path modelling can tolerate the non-independence of observations in terms of measurement error (Garson, 2016), which was important because some of the sampled households included siblings. The reduced sample size demands of variance-based structural equation modelling, relative to covariance-based approach, are noteworthy as well (Hair & Alamer, 2022). The estimation of the path models was performed using the R package 'plsmp' (Sanchez et al., 2022).

The analysis of the relationship between a child's illness and the social support perceived by parents was adjusted for parental health status, age, educational attainment (according to ISCED), and equivalised (Statistics Poland, 2021) household income. Notably, the relationship between poor parental health and perceived social support may be bidirectional (del Pozo Cruz et al., 2021); this bidirectionality is likely more pronounced than that observed in the association between a child's illness and the social support perceived by the parent. In previous studies, socioeconomic status has been identified as the primary predictor of access to social support (Almeida et al., 2009; Bedaso et al., 2021; Cho & Hong, 2013). Most studies have shown a negative association between age and social support (Chan et al., 2020; Hellman & Stewart, 1994; Klinger et al., 2023). In our study, parental age, educational attainment, and equivalised household income were measured using single-indicator models, while social support for parents, child's illness, and

poor parental health were measured using common factor models.

The nearest neighbour method was used to impute missing values (5.09%) on the indicators. This method selects the  $k$  observations for imputation that are the most similar to the observations with missing values. Typically between three and seven neighbours are considered (denoted as  $k$ ) with five often the default (Mehmetoglu & Venturini, 2021), as applied in this study.

## Measures

Methodologists have suggested that both social support and health status should be modelled as common factors, reflecting the difficulty in measuring these aspects using single indicators (Gunzler et al., 2021). In our study, rather than simply modelling the presence or absence of social support, child's illness, and poor parental health, these characteristics were treated as common factors. Notably, in the partial least squares modelling approach, all observed indicators are mean-centred and standardised to unit variance prior to estimation, resulting in latent variable scores with unit variance. The level of (informal) social support was measured using the Oslo Social Support Scale (Meltzer, 2003), which has been used extensively in recent psychiatric research to measure social support (Faris et al., 2023; Li et al., 2023; Sharp et al., 2023). The scale includes the following indicators: (1) the number of close people who can be relied on if there is a serious personal problem (none, 1–2 people, 3–5 people, 6 or more people); (2) the degree of positive concern shown by other people towards what a person is doing and how well they are doing (no concern and interest, little concern and interest, neither a large extent nor a small extent, some concern and interest, a lot of concern and interest); and (3) the ease of obtaining practical help from neighbours if required (very difficult, difficult, neither easy nor difficult, easy, very easy).

Conceptualising illness as a common factor aligns with the illness-wellness continuum concept developed by Travis and Ryan (1988). In our study, illness in children aged up to five years was represented by three objective measures reported by parents: (1) presence of chronic illness (i.e. a health condition lasting 6 months or more) (binary variable); (2) disability determined by a Disability Adjudication Unit (binary variable); and (3) total hospitalisation time in days in the previous 12 months (excluding birth hospitalisations). In addition, poor health in parents of children aged up to five years was represented by three measures: (1) self-perceived long-standing limitation in activities that people typically do because of health problems (severely limited, limited but not severely, not limited); (2) degree of disability determined by a Disability Adjudication Unit or Social Insurance Institution (third

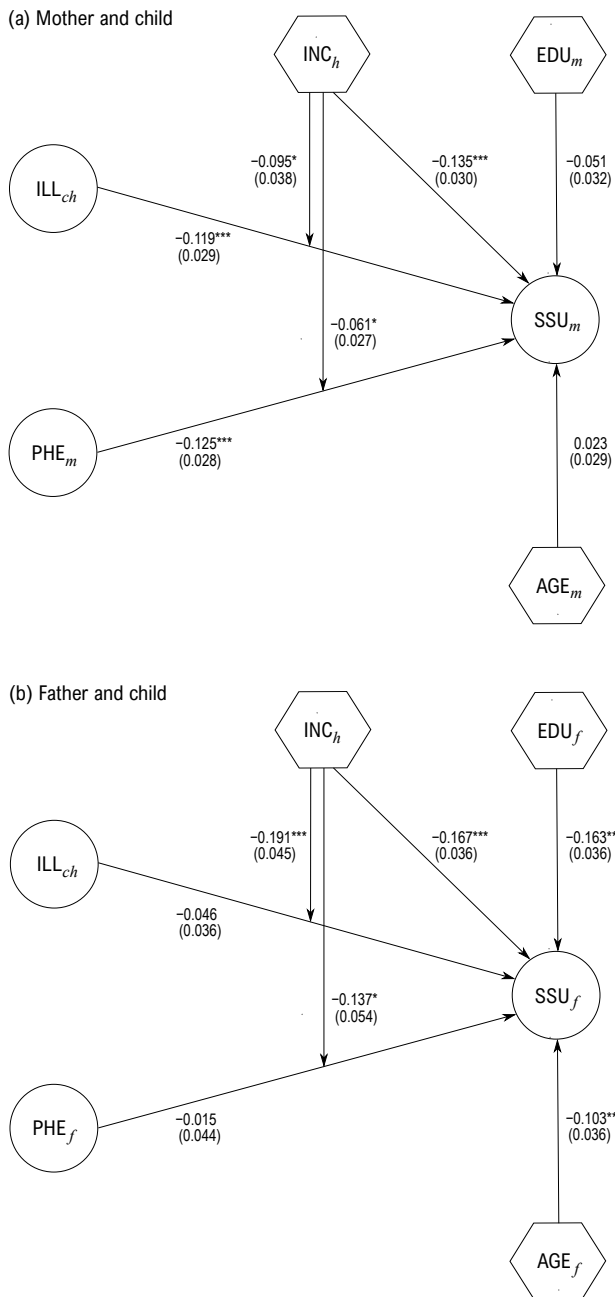
group, second group, first group, none); and (3) difficulty walking 500 m on level ground or walking up and down 12 steps without aid or assistance (binary variable). Initially, the same indicators were used to determine the health status of parents and their children; however, this rendered the paternal health status measurement scale unacceptable according to the criteria defined by Mehmetoglu and Venturini (2021), although it did not change the observed pattern of relationships between latent variables. The differences in measuring disability in parents and children reflect Polish law, which stipulates that individuals under the age of 16 may receive a disability certificate, while older people may be issued a certificate indicating their degree of disability. However, the adjudication criteria used are similar, with a strong emphasis on functional considerations (Kłos, 2015).

The criteria defined by Mehmetoglu and Venturini (2021) were applied to assess the proposed measurement models. The items of each dimension were explained by a single construct, indicating unidimensionality (child's illness:  $\lambda_{f.1} = 1.876$ ,  $\lambda_{f.2} = 0.762$ ,  $\lambda_{m.1} = 1.781$ ,  $\lambda_{m.2} = 0.835$ ; poor parental health:  $\lambda_{f.1} = 1.663$ ,  $\lambda_{f.2} = 0.764$ ,  $\lambda_{m.1} = 1.492$ ,  $\lambda_{m.2} = 0.941$ ; social support:  $\lambda_{f.1} = 1.453$ ,  $\lambda_{f.2} = 0.791$ ,  $\lambda_{m.1} = 1.426$ ,  $\lambda_{m.2} = 0.850$ ). Dillon-Goldstein's rho indicated homogeneity (child's illness:  $\rho_f = 0.831$ ,  $\rho_m = 0.809$ ; poor parental health:  $\rho_f = 0.788$ ,  $\rho_m = 0.744$ ; social support:  $\rho_f = 0.738$ ,  $\rho_m = 0.730$ ). Indicator loadings were mostly higher than the reference value of 0.700 (Mehmetoglu & Venturini, 2021), and all were higher than the threshold value of 0.400 (Hair et al., 2017), as shown in Table 2. Average variance extracted (child's illness:  $AVE_f = 0.595$ ,  $AVE_m = 0.583$ ; poor parental health:  $AVE_f = 0.517$ ,  $AVE_m = 0.482$ ; social support:  $AVE_f = 0.451$ ,  $AVE_m = 0.451$ ) was greater than squared correlations, indicating discriminant validity. As the aforementioned guidelines for measurement model assessment have been criticised (Schubert, 2021) – for example, owing to the inverse relationship between estimated reliability and average variance extracted – the model diagnostics were extended by a bootstrap-based test proposed by Beran and Srivastava (1985). The test results are summarised in the following section.

## Results

Discrepancies between the empirical and model-implied covariance matrices of the observed variables were assessed using the following measures: (1) standardised root mean square residual (SRMR), (2) geodesic discrepancy  $d_G$ , (3) squared Euclidean distance  $d_L$ , and (4) maximum likelihood-based distance function  $d_{ML}$ . All resulting values

were lower than the corresponding 95th quantiles for both fathers ( $SRMR: 0.018 < 0.032$ ;  $d_G: 0.003 < 0.008$ ;  $d_L: 0.014 < 0.046$ ;  $d_{ML}: 0.014 < 0.040$ ) and mothers ( $SRMR: 0.020 < 0.021$ ;  $d_G: 0.003 < 0.004$ ;  $d_L: 0.017 < 0.020$ ;  $d_{ML}: 0.018 < 0.021$ ); therefore, the



**Fig. 1** Path diagram of the relationship between a child's illness and social support perceived by parents, with a moderating effect of low equivalised household income

$SSU_m$ ,  $SSU_f$  = social support for the mother and father;  $ILL_{ch}$  = child's illness;  $PHE_m$ ,  $PHE_f$  = poor health of the mother and father;  $INC_h$  = low equivalised household income;  $EDU_m$ ,  $EDU_f$  = low educational attainment of the mother and father;  $AGE_m$ ,  $AGE_f$  = age of the mother and father. Statistical significance is indicated by asterisks: \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ .

hypothesis of equality regarding the empirical and the model-implied indicator covariance matrices could not be rejected (Beran & Srivastava, 1985). The SRMR scores were around 0.020, indicating a very good overall fit considering that an SRMR value of 0 indicates a perfect fit and values lower than 0.080 indicate an acceptable fit (Henseler et al., 2016a).

The inner model estimates shown in Fig. 1 indicate a strong, negative relationship between a child's illness and the social support perceived by parents in households with low equivalised income. The lower part of the figure shows the modelling results for fathers of children aged up to five years, and the upper part of the figure displays the results for mothers of children aged up to five years. The moderating effect of low equivalised household income on the relationship between a child's illness and social support was consistently significant for both fathers ( $\gamma = -0.191$ ,  $p < 0.001$ ) and mothers ( $\gamma = -0.095$ ,  $p = 0.013$ ). A similar pattern was identified in the relationship between poor parental health and social support; namely, the interaction term of poor parental health and low equivalised household income was significantly associated with social support for both fathers ( $\gamma = -0.137$ ,  $p = 0.012$ ) and mothers ( $\gamma = -0.061$ ,  $p = 0.026$ ). The full estimation results and confidence interval bounds are shown in Table 1. While interpretation of the estimates may appear difficult owing to referring to abstract concepts, the results were readily comparable because the outer weights were scaled to ensure that each latent variable had equal unit variance and a zero mean.

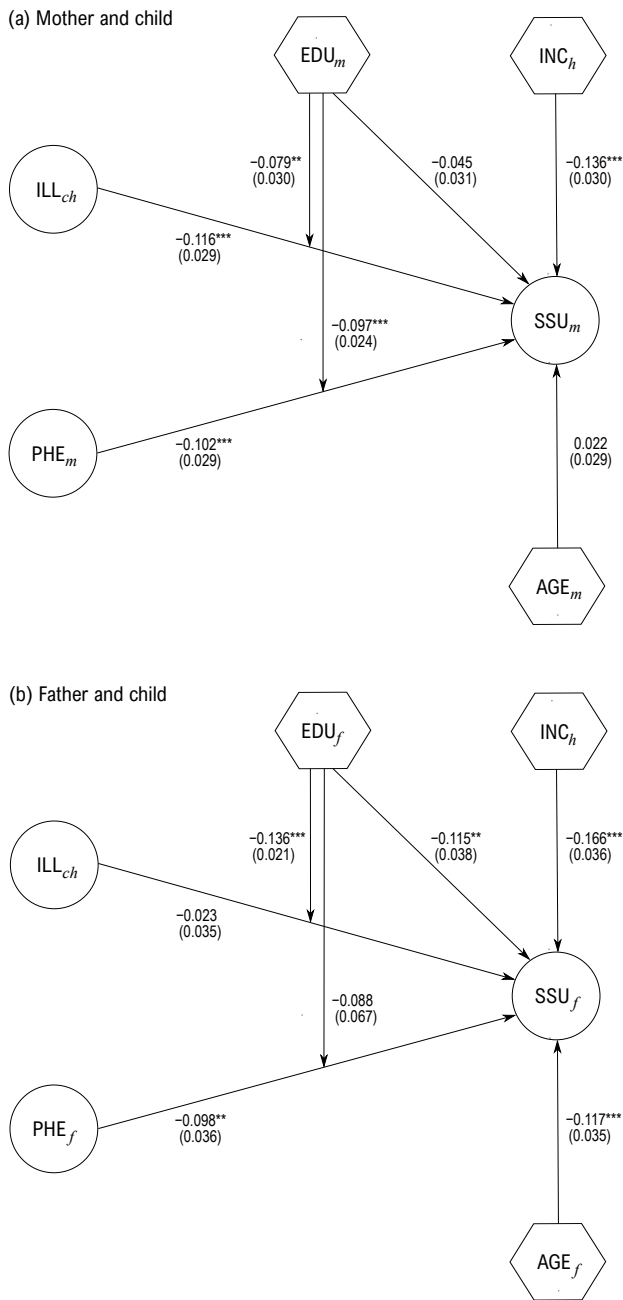
As shown in Fig. 2, the relationship between a child's illness and the social support perceived by parents was moderated by the educational attainment of both fathers ( $\gamma = -0.136$ ,  $p < 0.001$ ) and mothers ( $\gamma = -0.079$ ,  $p = 0.009$ ). If no moderating effect was considered, then both a child's illness and poor parental health were significantly related to the social support perceived by fathers ( $\gamma = -0.097$ ,  $p = 0.005$ ;  $\gamma = -0.084$ ,  $p = 0.016$ ) and mothers ( $\gamma = -0.137$ ,  $p < 0.001$ ;  $\gamma = -0.132$ ,  $p < 0.001$ ).

The investigation was extended using a floodlight analysis to compare the simple effect of a child's illness on the social support perceived by fathers and mothers across the full ranges of parental educational attainment and equivalised household income. This analysis is summarised in Appendix A and presents the Johnson–Neyman values, which mark the transition from a non-significant to a significant simple effect of a child's illness on perceived social support ( $\alpha = 0.05$ ). At low levels of parental educational attainment or equivalised household income, a child's illness was consistently significantly associated with reduced perceived social support.

**Table 1** Path estimates of the models of endogenous social support perceived by parents

(a) Moderating effect of low equivalised household income		Mother and child				Father and child			
Exogenous variable	$\gamma$	95% CI		$p$	$\gamma$	95% CI		$p$	$p$
		LB	UB			LB	UB		
Child's illness	-0.119	-0.175	-0.063	<0.001	-0.046	-0.117	0.025	0.202	
Child's illness $\times$ Low household income	-0.095	-0.170	-0.020	0.013	-0.191	-0.280	-0.102	<0.001	
Poor parental health	-0.125	-0.179	-0.070	<0.001	-0.015	-0.102	0.071	0.728	
Poor parental health $\times$ Low household income	-0.061	-0.115	-0.007	0.026	-0.137	-0.244	-0.030	0.012	
Low household income	-0.135	-0.195	-0.075	<0.001	-0.167	-0.239	-0.096	<0.001	
Low parental education	-0.051	-0.112	0.011	0.110	-0.163	-0.234	-0.092	<0.001	
Parental age	0.023	-0.034	0.081	0.423	-0.103	-0.173	-0.033	0.004	
(b) Moderating effect of low parental educational attainment		Mother and child				Father and child			
Exogenous variable	$\gamma$	95% CI		$p$	$\gamma$	95% CI		$p$	$p$
		LB	UB			LB	UB		
Child's illness	-0.116	-0.173	-0.059	<0.001	-0.023	-0.093	0.047	0.514	
Child's illness $\times$ Low parental education	-0.079	-0.138	-0.020	0.009	-0.136	-0.177	-0.095	<0.001	
Poor parental health	-0.102	-0.158	-0.046	<0.001	-0.098	-0.168	-0.028	0.006	
Poor parental health $\times$ Low parental education	-0.097	-0.144	-0.050	<0.001	-0.088	-0.219	0.043	0.188	
Low household income	-0.136	-0.195	-0.076	<0.001	-0.166	-0.237	-0.096	<0.001	
Low parental education	-0.045	-0.107	0.017	0.152	-0.115	-0.189	-0.040	0.003	
Parental age	0.022	-0.035	0.079	0.443	-0.117	-0.185	-0.049	<0.001	

$\gamma$  = estimate; 95% CI = 95% confidence interval; LB = lower bound; UB = upper bound;  $p$  = significance.



**Fig. 2** Path diagram of the relationship between a child's illness and social support perceived by parents, with a moderating effect of low parental educational attainment

$SSU_m$ ,  $SSU_f$  = social support for the mother and father;  $ILL_{ch}$  = child's illness;  $PHE_m$ ,  $PHE_f$  = poor health of the mother and father;  $INC_h$  = low equivalised household income;  $EDU_m$ ,  $EDU_f$  = low educational attainment of the mother and father;  $AGE_m$ ,  $AGE_f$  = age of the mother and father. Statistical significance is indicated by asterisks: \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ .

In general, the main effects of low educational attainment and low equivalised household income on the social support for parents were negative, which is consistent with most existing research. Although investigating this was

not the primary objective of our analysis, we observed that the only significant difference between fathers and mothers was the association between age and perceived social support. As shown in Table 1 – and confirmed using the bootstrap  $t$ -test with 1,000 resamples (Sanchez et al., 2022) – this relationship was stronger for fathers than mothers ( $t = 2.077$ ,  $p = 0.019$ ). This comparison is meaningful because the test for measurement invariance based on Henseler et al. (2016b) demonstrated partial measurement invariance (social support:  $c = 0.981$ ,  $p = 0.500$ ; child's illness:  $c = 0.841$ ,  $p = 0.375$ ; poor parental health:  $c = 0.988$ ,  $p = 0.906$ ). Since some aspects of testing measurement invariance of latent variables remain an open research question (J. Henseler, personal communication, 21 June 2025), scalar measurement invariance was also tested as a robustness check and was supported (Chen, 2007), with a  $\Delta CFI$  of 0.001 and a  $\Delta RMSEA$  of 0.002.

Table 2 shows the outer structures of the path models. It depicts the relationships between indicators and the latent variables of social support, a child's illness, and poor parental health. The loadings for the indicators had consistent signs for both fathers and mothers, suggesting content validity.

## Discussion

Our study investigated the link between a child's illness and the social support perceived by parents. It revealed a strong, negative relationship between a child's illness and the social support for parents among households with low socioeconomic status. The negative (amplifying) moderating effects of low equivalised household income and low educational attainment were significant for both fathers and mothers. That is, the negative relationship between a child's illness and the level of social support for parents was disproportionately strong in households with low equivalised income. Similarly, this negative relationship was disproportionately strong in households with parents with lower education levels. The only difference identified between fathers and mothers was the association between age and social support – when adjusted for health status among other factors – which was stronger for fathers than mothers and was likely attributable to men under-reporting their health issues (Novak et al., 2019). The negative relationship between age and social support has primarily been explained by chronic disease processes and role losses and changes associated with ageing (Hellman & Stewart, 1994). For our analysis, the latter explanation appears less likely given the ages of the surveyed parents but remains possible.

**Table 2** Loadings in the outer model

Latent variables and their indicators	Mother and child	Father and child
Social support		
Number of close people relied on in the event of a serious personal problem	0.733	0.742
Degree of positive concern shown by other people	0.792	0.763
Available help from neighbours if required	0.437	0.469
Child's illness		
Presence of a chronic illness	0.866	0.845
Disability determined by a Disability Adjudication Unit	0.909	0.943
Total hospitalisation time in the previous 12 months	0.417	0.427
Poor parental health		
Long-standing limitation of typical activities owing to health issues	0.801	0.797
Degree of disability determined by a Disability Adjudication Unit or Social Insurance Institution	0.546	0.674
Difficulty walking 500 m on flat ground or walking up and down 12 steps unaided	0.712	0.680

Path modelling showed that the parents of children with illnesses were generally more likely to report low social support. While this pattern has rarely been generalised, it is also common in other disadvantaged social groups. Reduced perceived social support is associated with economic hardship (Almeida et al., 2009; Bedaso et al., 2021; Harknett & Hartnett, 2011; Mansfield et al., 2013; Weyers et al., 2008), low educational attainment (Almeida et al., 2009; Brandt & Hagge, 2020; Harknett & Hartnett, 2011; Joo et al., 2020; Weyers et al., 2008), low socioeconomic status (Aartsen et al., 2017), unemployment (Harknett & Hartnett, 2011), immigrant status (Brandt & Hagge, 2020), and teenage motherhood (Wahn & Nissen, 2008). In this context, it is important to note that social support is crucial for disadvantaged groups and can provide a protective effect for the parents of children with medical conditions (as described in the Introduction).

The modelling results indicate that the parents of children with disabilities, illnesses, or poor health – particularly those with low socioeconomic status – should receive greater attention when developing social support policies. In most cases, formal and informal social support tend to substitute each other (Franca et al., 2008; Zhang et al., 2021; Zigante et al., 2021). Governing bodies should offer more than just financial aid and should focus on the effective implementation of social security systems. Thus, policies should require governing bodies to actively deliver social support rather than simply making it available. Social security officers should take a proactive approach and ensure that the parents of such children receive the support they need. Specifically, when a parent applies for formal assistance, it should be the social support officer's responsibility to enquire whether the recipient is eligible for other forms of support. The aforementioned challenges experienced by people with illnesses when seeking formal social support are recognised by policymakers in Poland (Bugaj et al., 2023). However, potential solutions remain in the pilot phase. The primary support tool in Poland for

people with disabilities is personal assistance, which is limited to individuals with an officially recognised disability. In 2022, a pilot programme for a new solution – mobile social inclusion advisory services – was launched. These services are not restricted to people with a disability certificate. Instead, it aims to adopt a proactive approach to individuals who need assistance. The pilot programme shows that some people only applied for support (including personal assistant services) after speaking with a mobile social inclusion adviser (Korczyńska et al., 2023).

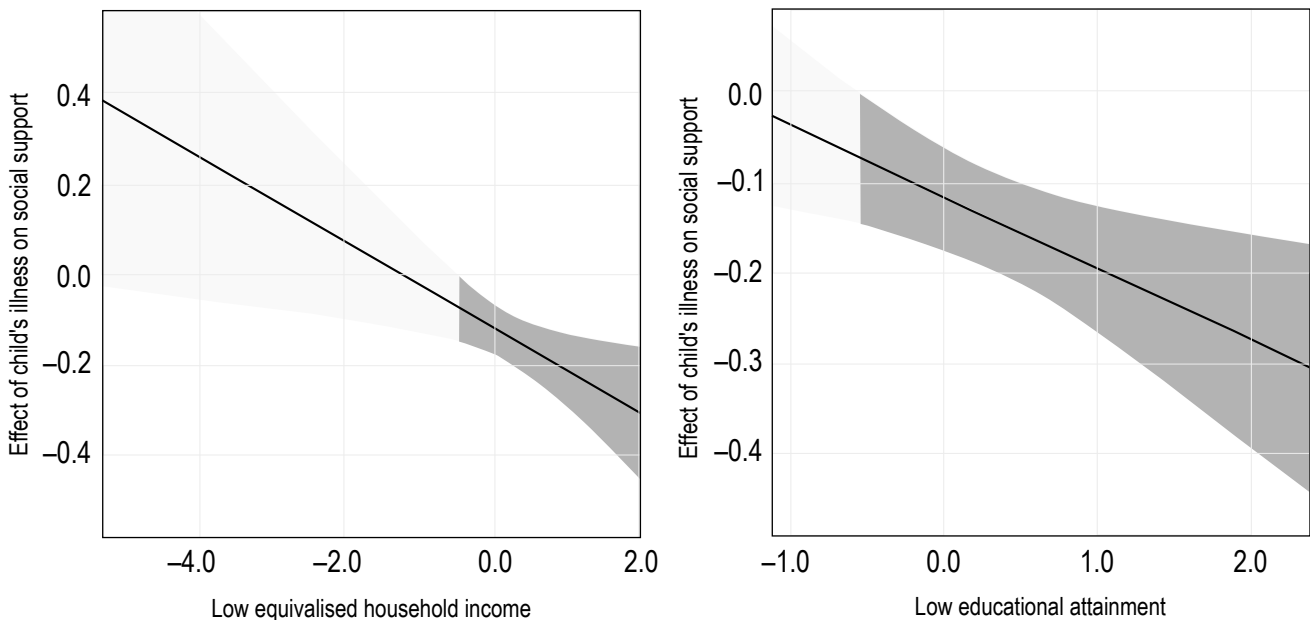
This study has several limitations that must be acknowledged. First, partial least squares path modelling, like most statistical methods, cannot establish causal relationships in a cross-sectional, non-experimental design (Gunzler et al., 2021; Mehmetoglu & Venturini, 2021) – even though early generations of structural equation modelling were referred to as 'causal modelling' (Bullock et al., 1994). In our study, the term 'moderating effect' accords with the conventions of path modelling. Regardless of these methodology limitations in establishing causality, perceived social support was lowest among parents (of children with illnesses) with low socioeconomic status. Second, the data collected were self-reported rather than registry-based. However, to enhance the credibility of the analysis, health status was measured as a common factor, in line with recommendations in the literature (Gunzler et al., 2021), thereby avoiding the use of single-indicator measurement. Third, future research should examine the relationships identified in this study across different health conditions, which would support more targeted public policy actions. However, in Poland – as in most Eastern European countries – there is no single unified registry of people with disabilities; furthermore, the current Act on Official Statistics (2023) limits the government's ability to share identifiable personal data with third parties. Fourth, when interpreting the results, it is important to note that the Oslo Social Support Scale is limited to perceived social support. Life hardships potentially influence how people perceive the

social support they receive. In addition, perceived social support may reflect a person's belief that they are reliably connected to others rather than the amount of support they receive (Barrera, 1986; Eagle et al., 2019; Patil et al., 2014). For comparison, future studies could use a scale that measures received social support.

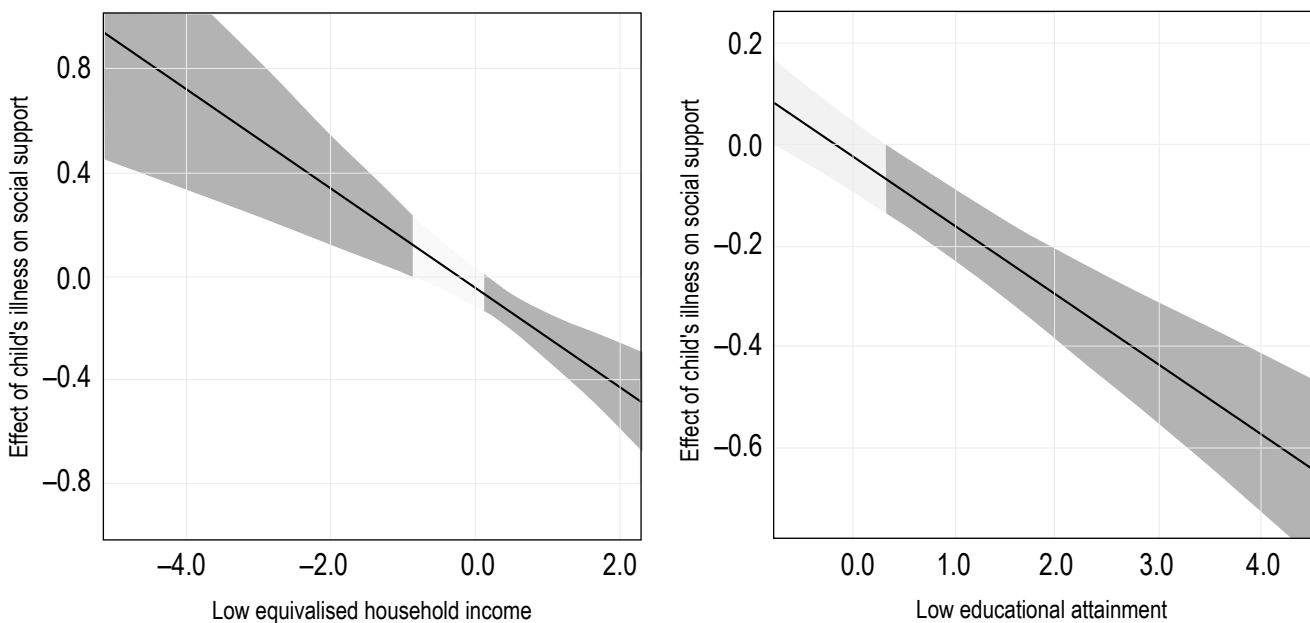
## Appendix A

Estimated simple effect of a child's illness on the social support perceived by parents, with the Johnson–Neyman values and the confidence band conditional on parental educational attainment and equivalised household income.

(a) Mother and child



(b) Father and child



■ Significant simple effect    □ Non-significant simple effect

**Author contributions** Conceptualisation: K.C.; Methodology: K.C.; Statistical analysis and investigation: K.C.; Discussion: J.S.; Writing: K.C., J.S.

**Funding** This research was funded by the National Science Centre, Poland, within the grant project 'Intergenerational Transmission of Health' (2023/48/C/HS6/00040).

**Data availability** The microdata can be obtained from Statistics Poland.

## Declarations

**Ethics, consent and permissions** The survey was conducted by Statistics Poland in line with the Regulation of the Council of Ministers of 14 September 2018 on the Programme of Statistical Surveys for 2019 (2018), and with Commission Regulation (EU) 2018/255 (2018). Ethical approval was not required for this study as the microdata provided by Statistics Poland were anonymised and only aggregated results are reported.

**Consent to participate** Informed consent was obtained verbally by Statistics Poland before participation.

**Conflict of interest** The authors declare no competing interests.

**Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

## References

- Aartsen, M., Veenstra, M., & Hansen, T. (2017). Social pathways to health: On the mediating role of the social network in the relation between socio-economic position and health. *SSM – Population Health*, 3, 419–426. <https://doi.org/10.1016/j.ssmph.2017.05.006>
- Act on Official Statistics. (2023). *Journal of Laws of the Republic of Poland*, item 773. <https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20230000773>
- Almeida, J., Molnar, B. E., Kawachi, I., & Subramanian, S. V. (2009). Ethnicity and nativity status as determinants of perceived social support: Testing the concept of familism. *Social Science & Medicine*, 68(10), 1852–1858. <https://doi.org/10.1016/j.socscimed.2009.02.029>
- Bakalarczyk, R. (2015). Polityka wsparcia rodzin z osobami niepełnosprawnymi. W cieniu wyroków Trybunału Konstytucyjnego RP i protestów społecznych [Public support policy aimed at the disabled and their families. In the aftermath of the rulings of the Constitutional Tribunal and social protests]. *Studia z Polityki Publicznej*, 1(5), 63–80. <https://doi.org/10.33119/KSzPP.2015.1.4>
- Baker, K., & Claridge, A. M. (2023). "I have a Ph.D. in my daughter": Mother and child experiences of living with childhood chronic illness. *Journal of Child and Family Studies*, 32, 2625–2636. <http://doi.org/10.1007/s10826-022-02506-8>
- Barrera, M. (1986). Distinctions between social support concepts, measures, and models. *American Journal of Community Psychology*, 14(4), 413–445. <https://doi.org/10.1007/BF00922627>
- Bedaso, A., Adams, J., Peng, W., & Sibbritt, D. (2021). Prevalence and determinants of low social support during pregnancy among Australian women: A community-based cross-sectional study. *Reproductive Health*, 18(1), 158. <https://doi.org/10.1186/s12978-021-01210-y>
- Beran, R., & Srivastava, M. S. (1985). Bootstrap tests and confidence regions for functions of a covariance matrix. *The Annals of Statistics*, 13(1), 95–115. <https://doi.org/10.1214/aos/1176346579>
- Boshoff, K., Gibbs, D., Phillips, R. L., Wiles, L., & Porter, L. (2016). Parents' voices: 'why and how we advocate'. A meta-synthesis of parents' experiences of advocating for their child with autism spectrum disorder. *Child: Care Health and Development*, 42(6), 784–797. <https://doi.org/10.1111/cch.12383>
- Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241–258). Greenwood.
- Brandt, J., & Hagege, K. (2020). Education and social support: Do migrants benefit as much as natives? *Comparative Migration Studies*, 8, 41. <https://doi.org/10.1186/s40878-020-00199-w>
- Bugaj, R., Kaczmarek, B., Kowalska, M., & Szveda, A. (2023). *Mobilny doradca włączenia społecznego [Mobile social inclusion advisory services]*. Ministry of Family and Social Policy.
- Bullock, H. E., Harlow, L. L., & Mulaik, S. A. (1994). Causation issues in structural equation modeling research. *Structural Equation Modeling: A Multidisciplinary Journal*, 1(3), 253–267. <https://doi.org/10.1080/10705519409539977>
- Cantwell, J., Muldoon, O., & Gallagher, S. (2015). The influence of self-esteem and social support on the relationship between stigma and depressive symptomology in parents caring for children with intellectual disabilities. *Journal of Intellectual Disability Research*, 59(10), 948–957. <https://doi.org/10.1111/jir.12205>
- Chan, E., Procter-Gray, E., Churchill, L., Cheng, J., Siden, R., Aguirre, A., & Li, W. (2020). Associations among living alone, social support and social activity in older adults. *AIMS Public Health*, 7(3), 521–534. <https://doi.org/10.3934/publichealth.2020042>
- Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal*, 14(3), 464–504. <https://doi.org/10.1080/10705510701301834>
- Cho, K. S., & Hong, E. J. (2013). A path analysis of the variables related to the quality of life of mothers with disabled children in Korea. *Stress and Health*, 29(3), 229–239. <https://doi.org/10.1002/smi.2457>
- Cohen, S. (2004). Social relationships and health. *American Psychologist*, 59(8), 676–684. <https://doi.org/10.1037/0003-066X.59.8.676>
- Commission Regulation (EU) 2018/255 of 19 February 2018 implementing Regulation (EC) No. 1338/2008 of the European Parliament and of the Council as regards statistics based on the European Health Interview Survey (EHIS). (2018). *Official Journal of the European Union*, L 48, 12–38. <http://data.europa.eu/eli/reg/2018/255/oj>
- del Pozo Cruz, P., Perales, B., Alfonso-Rosa, F., R. M., & del Pozo-Cruz, J. (2021). Bidirectional and dynamic relationships between social isolation and physical functioning among older adults: A cross-lagged panel model of US national survey data. *The Journals of Gerontology Series A Biological Sciences and Medical Sciences*, 76(11), 1977–1980. <https://doi.org/10.1093/geron/a/gla110>
- Dijkstra, T. K. (2010). Latent variables and indices: Herman Wold's basic design and partial least squares. In V. Esposito Vinzi, W.

- Chin, J., Henseler, & H. Wang (Eds.), *Handbook of partial least squares* (pp. 23–46). Springer.
- Dimitrova, I., & Goncharova, G. (2023). Who will take better care of him than me?! Perpetuating institutional culture in families of children with disabilities in Bulgaria. *Societies*, 13(7), 166. <https://doi.org/10.3390/soc13070166>
- Drageset, J. (2021). Social support. In G. Haugan, & M. Eriksson (Eds.), *Health promotion in health care – Vital theories and research*. Springer. [https://doi.org/10.1007/978-3-030-63135-2\\_11](https://doi.org/10.1007/978-3-030-63135-2_11)
- Duncan, P. (2010). Health, health care and the problem of intrinsic value. *Journal of Evaluation in Clinical Practice*, 16(2), 318–322. <https://doi.org/10.1111/j.1365-2753.2010.01392.x>
- Eagle, D. E., Hybels, C. F., & Proeschold-Bell, R. J. (2019). Perceived social support, received social support, and depression among clergy. *Journal of Social and Personal Relationships*, 36(7), 2055–2073. <https://doi.org/10.1177/0265407518776134>
- European Commission. (2023). *Access to confidential data for scientific purposes (scientific use files): Guidelines for publication*. European Commission, Eurostat.
- Eurostat. (2018). *European Health Interview Survey (EHIS wave 3). Methodological manual*. Publications Office of the European Union.
- Falk, N. H., Norris, K., & Quinn, M. G. (2014). The factors predicting stress, anxiety and depression in the parents of children with autism. *Journal of Autism and Developmental Disorders*, 44(12), 3185–3203. <https://doi.org/10.1007/s10803-014-2189-4>
- Fanelli, E., & Profeta, P. (2021). Fathers' involvement in the family, fertility, and maternal employment: Evidence from Central and Eastern Europe. *Demography*, 58(5), 1931–1954. <https://doi.org/10.1215/00703370-9411306>
- Faris, L. H., Gabarrell-Pascuet, A., Felez-Nobrega, M., Cristóbal-Narváez, P., Mortier, P., Vilagut, G., Olaya, B., Alonso, J., Haro, J. M., López-Carrilero, R., & Doménech-Abella, J. (2023). The association between substance use disorder and depression during the COVID-19 lockdown in Spain and the moderating role of social support: A cross-sectional study. *International Journal of Mental Health and Addiction*, 21(2), 1157–1167. <https://doi.org/10.1007/s11469-021-00651-7>
- Florian, V., & Krulik, T. (1991). Loneliness and social support of mothers of chronically ill children. *Social Science & Medicine*, 32(11), 1291–1296. [https://doi.org/10.1016/0277-9536\(91\)90045-e](https://doi.org/10.1016/0277-9536(91)90045-e)
- Franca, A., Guilley, E., & Lalive d'Épinay, C. J. (2008). The interface between formal and informal support in advanced old age: A 10-year study. *International Journal of Ageing and Later Life*, 3(1), 5–19. <https://doi.org/10.3384/ijal.1652-8670.08315>
- Garson, G. D. (2016). *Partial least squares: Regression and structural equation models*. Statistical Associates.
- Geweniger, A., Barth, M., Haddad, A., Högl, H., Insan, S., Mund, A., & Langer, T. (2024). Perceived social support and characteristics of social networks of families with children with special health-care needs following the COVID-19 pandemic. *Frontiers in Public Health*, 12, 1322185. <https://doi.org/10.3389/fpubh.2024.1322185>
- Godawa, G. (2018). *Rodzina wobec nieuleczalnej choroby dziecka [Family in the face of a child's incurable illness]*. Impuls.
- Green, B. L., & Rodgers, A. (2001). Determinants of social support among low-income mothers: A longitudinal analysis. *American Journal of Community Psychology*, 29(3), 419–441. <https://doi.org/10.1023/A:1010371830131>
- Grossman, M. (1972). On the concept of health capital and the demand for health. *Journal of Political Economy*, 80(2), 223–255.
- Growiec, K. (2023). Social network dynamics in the context of age: An empirical investigation. *Social Indicators Research*, 170(2), 675–711. <https://doi.org/10.1007/s11205-023-03210-w>
- Gunzler, D. D., Perzynski, A. T., & Carle, A. C. (2021). *Structural equation modeling for health and medicine*. Chapman and Hall/CRC.
- Ha, J. H., Greenberg, J. S., & Seltzer, M. M. (2011). Parenting a child with a disability: The role of social support for African American parents. *Families in Society: the Journal of Contemporary Human Services*, 92(4), 405–411. <https://doi.org/10.1606/1044-3894.4150>
- Hair, J., & Alamer, A. (2022). Partial least squares structural equation modeling (PLS-SEM) in second language and education research: Guidelines using an applied example. *Research Methods in Applied Linguistics*, 1(3), 100027. <https://doi.org/10.1016/j.rmal.2022.100027>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling*. Sage.
- Harknett, K. S., & Hartnett, C. S. (2011). Who lacks support and why? An examination of mothers' personal safety nets. *Journal of Marriage and the Family*, 73(4), 861–875. <https://doi.org/10.1111/j.1741-3737.2011.00852.x>
- Hellman, E. A., & Stewart, C. (1994). Social support and the elderly client. *Home Healthcare Nurse*, 12(5), 51–60. <https://doi.org/10.1097/00004045-199409000-00008>
- Henseler, J., Hubona, G., & Ray, P. A. (2016a). Using PLS path modeling in new technology research: Updated guidelines. *Industrial Management & Data Systems*, 116(1), 2–20. <https://doi.org/10.1108/IMDS-09-2015-0382>
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2016b). Testing measurement invariance of composites using partial least squares. *International Marketing Review*, 33(3), 405–431. <https://doi.org/10.1108/imr-09-2014-0304>
- Hogan, D. (2012a). *Family consequences of children's disabilities*. Russell Sage Foundation.
- Hogan, D. (2012b, April 12). *Dennis Hogan: Understanding families of children with disabilities*. Brown University. <https://news.brown.edu/articles/2012/04/hogan>
- Joo, S., Chai, H. W., Jun, H. J., & Almeida, D. M. (2020). Daily stressors facilitate giving and receiving of emotional support in adulthood. *Stress and Health: Journal of the International Society for the Investigation of Stress*, 36(3), 330–337. <https://doi.org/10.1002/smi.2927>
- Kędziora, S. (2007). Wpływ przewlekłej choroby dziecka na funkcjonowanie rodziny [Impact of child's chronic illness on family functioning]. *Nauczyciel i Szkoła*, 3-4(36-37), 57–66.
- Kissel, S. D., & Nelson, W. M. (2016). Parents' perceptions of the severity of their child's autistic behaviors and differences in parental stress, family functioning, and social support. *Focus on Autism and Other Developmental Disabilities*, 31(2), 152–160. <https://doi.org/10.1177/1088357614537352>
- Klinger, J., Berens, E. M., & Schaeffer, D. (2023). Health literacy and the role of social support in different age groups: Results of a German cross-sectional survey. *BMC Public Health*, 23(1), 2259. <https://doi.org/10.1186/s12889-023-17145-x>
- Kłós, B. (2015). Systemy orzecznictwa o niezdolności do pracy i orzecznictwo o niepełnosprawności w Polsce [Disability certificate and disability assessment in Poland]. *Studia BAS*, 2(42), 9–45.
- Kocalevent, R. D., Berg, L., Beutel, M. E., Hinz, A., Zenger, M., Härter, M., Nater, U., & Brähler, E. (2018). Social support in the general population: Standardization of the Oslo social support scale (OSSS-3). *BMC Psychology*, 6(1), 31. <https://doi.org/10.1186/s40359-018-0249-9>
- Korczyńska, M., Szymańska, E., & Waligóra, A. (2023). *Raport z ewaluacji pilotażu instrumentów wypracowanych w projekcie „Aktywni niepełnosprawni – narzędzia wsparcia samodzielności osób niepełnosprawnych” [Evaluation report of the pilot*

- implementation of tools developed in the project *Active People with Disabilities – Tools to Support the Independence of Persons with Disabilities*. Ministry of Family and Social Policy.
- Li, G., Li, Y., Lam, A. I. F., Tang, W., Seedat, S., Barbui, C., Papola, D., Panter-Brick, C., Waerden, J. V., Bryant, R., Mittendorfer-Rutz, E., Gémes, K., Purba, F. D., Setyowibowo, H., Pinucci, I., Palantza, C., Acarturk, C., Kurt, G., Tarsitani, L., Morina, N., Burchert, S., Patané, M., Quero, S., Campos, D., Huizink, A. C., Fuhr, D. C., Spiller, T., Sijbrandij, M., & Hall, B. J. (2023). Understanding the protective effect of social support on depression symptomatology from a longitudinal network perspective. *BMJ Mental Health*, 26(1), e300802. <https://doi.org/10.1136/bmjment-2023-300802>
- Lumsden, M. R., Smith, D. M., & Wittkowski, A. (2019). Coping in parents of children with congenital heart disease: A systematic review and meta-synthesis. *Journal of Child and Family Studies*, 28(7), 1736–1753. <https://doi.org/10.1007/s10826-019-01406-8>
- Mansfield, A. K., Dealy, J. A., & Keitner, G. I. (2013). Family functioning and income: Does low-income status impact family functioning? *The Family Journal*, 21(3), 297–305. <https://doi.org/10.1177/1066480713476836>
- McDonald, R. P. (1996). Path analysis with composite variables. *Multivariate Behavioral Research*, 31(2), 239–270.
- Mehmetoglu, M., & Venturini, S. (2021). *Structural equation modeling with partial least squares using Stata and R*. Chapman and Hall/CRC.
- Meltzer, H. (2003). Development of a common instrument for mental health. In A. Nosikov, & C. Gudex (Eds.), *Developing common instruments for health surveys* (pp. 35–60). IOS.
- Moak, Z. B., & Agrawal, A. (2010). The association between perceived interpersonal social support and physical and mental health: Results from the national epidemiological survey on alcohol and related conditions. *Journal of Public Health*, 32(2), 191–201. <https://doi.org/10.1093/pubmed/fdp093>
- Novak, J. R., Peak, T., Gast, J., & Arnell, M. (2019). Associations between masculine norms and health-care utilization in highly religious, heterosexual men. *American Journal of Men's Health*, 13(3), 1557988319856739. <https://doi.org/10.1177/1557988319856739>
- Patil, B., Shetty, N., Subramanyam, A., Shah, H., Kamath, R., & Pinto, C. (2014). Study of perceived and received social support in elderly depressed patients. *Journal of Geriatric Mental Health*, 1(1), 28–31. <https://doi.org/10.4103/2348-9995.141921>
- Pelletier, L., Godin, G., Lepage, L., & Dussault, G. (1994). Social support received by mothers of chronically ill children. *Child: Care Health and Development*, 20(2), 115–131. <https://doi.org/10.1111/j.1365-2214.1994.tb00858.x>
- Pret, T., Shaw, E., & Drakopoulou Dodd, S. (2016). Painting the full picture: The conversion of economic, cultural, social and symbolic capital. *International Small Business Journal*, 34(8), 1004–1027. <https://doi.org/10.1177/0266242615595450>
- Regulation of the Council of Ministers of 14 September 2018 on the Programme of Statistical Surveys for 2019 (2018). *Journal of Laws of the Republic of Poland*, item 2103. <https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20180002103>
- Richardson, A. K. (2012). Investing in public health: Barriers and possible solutions. *Journal of Public Health*, 34(3), 322–327. <https://doi.org/10.1093/pubmed/fds039>
- Sanchez, G., Trinchera, L., & Russolillo, G. (2022). *Plspm: Tools for partial least squares path modeling (PLS-PM)*. <https://github.com/gastonstat/plspm>. Accessed 30 October 2023.
- Savari, K., Naseri, M., & Savari, Y. (2023). Evaluating the role of perceived stress, social support, and resilience in predicting the quality of life among the parents of disabled children. *International Journal of Disability Development and Education*, 70(5), 644–658. <https://doi.org/10.1080/1034912X.2021.1901862>
- Schuberth, F. (2021). Confirmatory composite analysis using partial least squares: Setting the record straight. *Review of Managerial Science*, 15, 1311–1345. <https://doi.org/10.1007/s11846-020-00405-0>
- Sharp, P., Olliffe, J. L., Kealy, D., Rice, S. M., Seidler, Z. E., & Ogradniczuk, J. S. (2023). Social support buffers young men's resilient coping to psychological distress. *Early Intervention in Psychiatry*, 17(8), 784–791. <https://doi.org/10.1111/eip.13371>
- Shi, L., Zhang, H., Yang, H., Wu, D., Li, X., Zhang, Y., Chen, X., & Wang, M. (2021). Social support and loneliness among Chinese caregivers of children with chronic kidney disease during the COVID-19 pandemic: A propensity score matching analysis. *Frontiers in Pediatrics*, 8, 570535. <https://doi.org/10.3389/fped.2020.570535>
- Shiba, K., Kondo, N., & Kondo, K. (2016). Informal and formal social support and caregiver burden: The AGES caregiver survey. *Journal of Epidemiology*, 26(12), 622–628. <https://doi.org/10.2188/jea.JE20150263>
- Sira, N., Desai, P. P., Sullivan, K. J., & Hannon, D. W. (2014). Coping strategies in mothers of children with heart defects: A closer look into spirituality and internet utilization. *Journal of Social Service Research*, 40(5), 606–622. <https://doi.org/10.1080/01488376.2014.908808>
- Ślōmczyński, K. M., & Janicka, K. (2008). Polarized social-class structure: On the Matthew effect and increasing inequality. *Polish Sociological Review*, 164(4), 341–358.
- Smyth, N., Siriwardhana, C., Hotopf, M., & Hatch, S. L. (2015). Social networks, social support and psychiatric symptoms: Social determinants and associations within a multicultural community population. *Social Psychiatry and Psychiatric Epidemiology*, 50(7), 1111–1120. <https://doi.org/10.1007/s00127-014-0943-8>
- Statistics Poland. (2021). *Health status of population in Poland in 2019*. Polish Statistical Publishing Establishment.
- Suwada, K., & Plantin, L. (2014). On fatherhood, masculinities, and family policies in Poland and Sweden—A comparative study. *Polish Sociological Review*, 188(4), 509–524.
- Szczygieł, P. (2020). Protesting parents as a significant social and educational phenomenon: Andragogical inspirations. *International Journal about Parents in Education*, 12(1), 26–35. <https://doi.org/10.54195/ijpe.14110>
- Tanskanen, A. O., Hämäläinen, H., Arpino, B., & Danielsbacka, M. (2022). Prosocial activity in later life: Are informal help and care associated with volunteering and charity? *Ageing and Society*, 1–36. <https://doi.org/10.1017/S0144686X22001015>
- Travis, J. W., & Ryan, R. S. (1988). *The wellness workbook*. Ten Speed.
- van Lancker, W. (2023). The Matthew effect in early childhood education and care: How family policies may amplify inequalities. In M. Daly, B. Pfau-Effinger, N. Gilbert, & D. J. Besharov (Eds.), *The Oxford handbook of family policy over the life course* (pp. 758–776). Oxford University Press.
- Wahn, E. H., & Nissen, E. (2008). Sociodemographic background, lifestyle and psychosocial conditions of Swedish teenage mothers and their perception of health and social support during pregnancy and childbirth. *Scandinavian Journal of Public Health*, 36(4), 415–423. <https://doi.org/10.1177/1403494807085315>
- Walkowiak, D., Domaradzki, J., Mozyrmas, R., Korycińska-Chaaban, D., Duś-Zuchowska, M., Didycz, B., Mikołuc, B., & Walkowiak, J. (2023). Professional activity, gender and disease-related emotions: The impact on parents' experiences in caring for children with phenylketonuria. *Molecular Genetics and Metabolism Reports*, 36, 100992. <https://doi.org/10.1016/j.ymgmr.2023.100992>
- Weyers, S., Dragano, N., Möbus, S., Beck, E. M., Stang, A., Möhlenkamp, S., Jöckel, K. H., Erbel, R., & Siegrist, J. (2008). Low socio-economic position is associated with poor social networks and social support: Results from the Heinz Nixdorf Recall Study.

*International Journal for Equity in Health*, 7, 13. <https://doi.org/10.1186/1475-9276-7-13>

Zdrowska, M. (2023). I'm angry! Disability protests in post-communist Poland. *Problems of Post-Communism*. <https://doi.org/10.1080/10758216.2023.2274069>

Zhang, W., Sun, H., & L'Heureux, J. (2021). Substitutes or complements between informal and formal home care in the Canadian longitudinal study on aging: Functional impairment as an effect modifier. *Health Policy*, 125(9), 1267–1275. <https://doi.org/10.1016/j.healthpol.2021.07.004>

Zigante, V., Fernandez, J. L., & Mazzotta, F. (2021). Changes in the balance between formal and informal care supply in England between 2001 and 2011: Evidence from census data. *Health Economics Policy and Law*, 16(2), 232–249. <https://doi.org/10.1017/S1744133120000146>

**Publisher's note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.