



Parents' perceptions of their child's school adjustment during the COVID-19 pandemic: a person-oriented approach

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Received: 13 September 2023 / Revised: 19 February 2024 / Accepted: 1 April 2024
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Abstract

The present study examined the profiles of parental perceptions of their child's school adjustment in terms of learning loss and school well-being during the COVID-19 pandemic in Finland. Furthermore, the extent to which the profiles differed with respect to the different children and their family characteristics, as well as their parents' stress about their child's schooling, were examined. Parents ($N=26,313$) completed a questionnaire in spring 2021 concerning parental stress and their children's schooling. The five-profile solution was identified using latent profile analysis: (1) slightly-higher-than-average-school-adjustment ($n=8198$, 31.2%); (2) high-school-adjustment ($n=3017$, 11.5%); (3) slightly-lower-than-average-school-adjustment ($n=5025$, 19.1%); (4) low-school-adjustment ($n=6777$, 25.7%); and (5) mixed-school-adjustment ($n=3296$, 12.5%). The low-school-adjustment profile was overrepresented among parents of boys, older children, and children with special education needs as well as among parents with lower education levels, higher numbers of children, and in single-parent households. In addition, the results showed that parental stress about their child's schooling was associated with their perceptions of their child's school adjustment during the COVID-19 pandemic. Overall, the results demonstrate that parents' views of their children's school adjustment varied widely during the COVID-19 pandemic. At schools, particular attention should be given to at-risk families (e.g., families with low education levels and children with special education needs) in which children may be prone to learning loss and low well-being due to the COVID-19 pandemic.

Keywords School adjustment · Learning loss · School well-being · Parental stress · Profile analysis

During the COVID-19 pandemic lockdowns, children in many countries studied mostly at home, their face-to-face leisure activities were shut down, and instruction for social distancing influenced how people were able to interact with their friends and relatives (Hale et al., 2021). However, different types of governmental recommendations, such as staying in self-isolation when having even the slightest symptoms of flu and quarantining the whole family

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when one member had tested positive for COVID-19, restricted daily living of school-aged children far beyond the times of lockdowns. For example, in Finland, where the current study took place, whole school classes were quite systematically set to home quarantines due to a single confirmed exposure in the classroom until August 2021, and the entire family was set to quarantine due to one member's positive COVID-19 test until January 2022 (Ministry of Social Affairs and Health, 2022). Therefore, it is possible that, in addition to national and local school closures, children may have faced several quarantines and other circumstances that kept them from accessing traditional schooling during the years of the pandemic. That is unfortunate, since it has been shown for example in systematic reviews that have collected knowledge from several countries that distance learning may be related to learning loss (Betthäuser et al., 2023) and weakened well-being (Viner et al., 2022).

While an increasing number of studies have focused on pandemic-related learning loss or well-being (e.g., Hammerstein et al., 2021; Lerkkanen et al., 2023; Salmela-Aro et al., 2021), there is a lack of research investigating these two aspects simultaneously. In addition, despite previous research showing that the role of parents in supporting their child's schoolwork increased due to pandemic (e.g., Sorkkila et al., 2023), there are few studies in which parents' perceptions concerning their child's learning loss or well-being have been central. Therefore, the present study aimed to contribute to the existing literature by focusing on parents' perceptions of their child's school adjustment in terms of learning loss and school well-being during the COVID-19 pandemic utilizing a person-oriented approach. The differences between the identified subgroups were subsequently examined with respect to different parent-reported child and family characteristics as well as parental stress about their child's schooling.

Children's school adjustment during the COVID-19 pandemic

School adjustment reflects children's overall resources for schoolwork and how they cope with the challenges and expectations presented by school, or how school is able to answer individuals' developmental needs (Wentzel et al., 2004). During the years of the COVID-19 pandemic, children's school adjustment was challenged in multiple ways as their learning was adversely impacted, for example, by the uncertainty of rapidly changing situations as well as by different national and local recommendations. In the present study, two indicators of children's school adjustment during the COVID-19 pandemic were the focus: learning loss and school well-being. Learning loss refers to parental perceptions of deficiency in their child's learning when compared with potential progress without the changes in the traditional schooling due to the COVID-19 pandemic. School well-being, in turn, refers to parental perceptions of how schooling burdened their child during the pandemic.

The number of studies examining learning loss due to the COVID-19 pandemic has increased (Betthäuser et al., 2023). Previous literature has shown that children who faced school closures due to the pandemic for example in different European countries progressed less in their academic learning in comparison with the progression of same-aged children before the pandemic (e.g., Engzell et al., 2021; Lerkkanen et al., 2023; Molnár & Hermann, 2023). In addition, the existing evidence has shown that the longer the duration of school closures, the greater the learning loss (Schult et al., 2022). However, it seems that there have been individual differences in how children were able to adjust to the exceptional arrangements related to learning during the pandemic. For example, Hofer et al. (2023) examined mathematics learning of Grade 7 students during school closures

in Germany, and they identified four profiles based on adolescents' internal and external conditions to learn at home. They found that up to 35% belonged to profile where students had rather unfavorable resources to learn at home. Those adolescents also had, for instance, the lowest performance in mathematics. Similarly, research focusing on learning loss has described individual differences in learning during pandemics. Prior literature has shown, for example, that the learning loss during the COVID-19 pandemic has been the most significant for initially vulnerable children, such as those with learning difficulties or special needs (e.g., Breaux et al., 2022; Schult et al., 2022).

Systematic reviews have provided growing evidence from several countries that indicates an increase in children's mental health issues during the COVID-19 pandemic (Kauhanen et al., 2023; Viner et al., 2022). While many of the existing studies have focused on distance learning and the lockdown period (e.g., Maximova et al., 2022), increasing evidence has also shown that children were burdened by the pandemic beyond the times of lockdowns (e.g., Dale et al., 2023). For example, Salmela-Aro et al. (2021) examined the well-being of Grade 5–9 students before and after the national lockdown in Finland. By utilizing a person-oriented approach, they discovered that up to 74% of Grade 5–6 students and 84% of Grade 7–9 students showed a decrease in school well-being. Thus, similar to what has been evidenced with respect to children's learning loss, there have been individual differences in how well children were able to cope in terms of school well-being. In fact, it seems that the risk for decreasing well-being during the pandemic may have been the greatest for children with low initial well-being in terms of pre-pandemic psychosocial well-being or different types of disabilities (Tso et al., 2022; Yusuf et al., 2022). This has also raised a concern about increased polarization in children's well-being during the pandemic (e.g., Haelermans et al., 2022; Kassis et al., 2022; Salmela-Aro et al., 2021).

While an increasing number of studies have focused on pandemic-related learning loss or well-being (e.g., Engzell et al., 2021; Salmela-Aro et al., 2021), there is a lack of research investigating these two aspects simultaneously. Very little is known about what kind of subgroups can be identified based on children's learning loss and school well-being during the pandemic. That is unfortunate as studies conducted prior to the pandemic as well as during the pandemic in different countries have shown a relation between the sense of well-being and learning (e.g., Panula et al., 2023; Holzer et al., 2022; Morinaj & Hasher, 2022). Therefore, when examining parents' perceptions of their child's school adjustment during the pandemic, their perceptions concerning school well-being and potential learning loss are worth combining to recognize children and families who need support.

The role of child and family characteristics in children's school adjustment

Various child and family characteristics may have played a role in the diversity of children's school adjustment in terms of learning loss and school well-being during the COVID-19 pandemic. With respect to child characteristics, children's age, gender, and pre-pandemic difficulties have been acknowledged as major factors. Studies focusing on learning loss due to the pandemic in different Western countries have indicated that greater learning loss would be related to, for example, children's younger age (Hammerstein et al., 2021), male gender (Breaux et al., 2022), lower pre-pandemic achievement (Schult et al., 2022), and having a neurodevelopmental disorder (Breaux et al., 2022). Studies examining various aspects of well-being during the pandemic have indicated also that children's older age (Strasser et al., 2022),

female gender (Kassis et al., 2022; Strasser et al., 2022), and the severity of their pre-pandemic difficulties (Tso et al., 2022; Yusuf et al., 2022) have been related to a higher risk for lowered well-being.

With respect to family characteristics, the previous literature has frequently presented lower levels of parental education and lower family socioeconomic status as related to higher learning loss and poorer well-being during the pandemic (e.g., Gazmararian et al., 2021; Haelermans et al., 2022; Molnár & Hermann, 2023). For example, Engzell et al. (2021) showed that learning loss due to the pandemic was up to 60% greater in less-educated households than in the general population in Netherlands, and Tso et al. (2022) demonstrated, based on a parental survey conducted in Hong Kong, that living in a low-income family was one of the risk factors for children's psychosocial problems. In addition, some studies have indicated that family characteristics, such as parental working situation (i.e., working, being unemployed, or laid off) and family structure (e.g., number of children or family's living arrangements) could be related to children's learning loss (Leeuw et al., 2023) or well-being (Tso et al., 2022; Wang et al., 2021). Therefore, since there have been shown to be individual differences in the consequences of the pandemic in terms of learning loss and well-being, it is important to examine the role of these child and family characteristics in children's school adjustment.

Parental stress about child's schooling during the COVID-19 pandemic

Along with examining the role of different child and family characteristics, the role of parental stress should be considered when examining the profiles of parental perceptions of their child's school adjustment during the pandemic. This is because previous literature has shown that different child and family characteristics, such as the younger age of a child or their need for special education as well as the higher number of children and poorer financial situation in the family, have been related to higher parental stress (e.g., van Bakel et al., 2022; Mikolajczak et al., 2018; Sorkkila et al., 2023). For example, a Finnish study by Upadyaya and Salmela-Aro (2021) utilized a person-oriented approach to identify parental burnout profiles during the pandemic. Their results revealed that parents who reported their children to have socioemotional problems were less likely to belong in a low parental burnout profile.

In addition, the existing literature has shown that children's distance learning increases the time that parents have to use for their child's schooling (e.g., Sorkkila et al., 2023). Expanded responsibilities with respect to their child's learning have caused parental stress (van Bakel et al., 2022), and parents have reported difficulties with combining their own work and other responsibilities with their child's needs (Sorkkila et al., 2023). Thus, it is possible that parents' perceptions of their child's learning loss and reduced school well-being are related to their experiences of stress about their child's schooling. Indeed, it has been shown that many parents have been worried about their children's well-being and schooling during the pandemic (Sorkkila et al., 2023).

The present study

The present study was undertaken to reach a more comprehensive understanding of parental perceptions of their child's school adjustment in terms of learning loss and school well-being during the time of the COVID-19 pandemic. As studies conducted prior to the pandemic as well as during the pandemic have shown a relation between children's learning

and their sense of well-being (e.g., Holzer et al., 2022; Morinaj & Hasher, 2022), it was considered that examining these two aspects simultaneously in the present study would be essential to further knowledge. In addition, a person-oriented approach was utilized to acknowledge the previous findings showing that the risk for learning loss and decreasing well-being have not been equal for all children (e.g., Betthäuser et al., 2023; Tso et al., 2022). This approach enabled examining the differences within the populations, which provided more detailed information that can be used, for example, to provide more well-directed support in the future. Along with identifying different subgroups based on parental perceptions of their child's school adjustment in terms of learning loss and school well-being during the time of the COVID-19 pandemic, the aim was to reach a greater understanding about the role of different child and family characteristics on children's school adjustment. Therefore, the subsequent analyses investigated possible differences among the profiles with respect to children's gender, grade level, and support for special needs, level of parental education, parents' working situation, number of children, family structure, and experience of parental stress about their children's schooling.

The following research questions were formulated:

RQ1. What kinds of subgroups of children can be identified based on parents' views on their child's school adjustment (i.e., learning loss and school well-being) during the COVID-19 pandemic?

RQ2. To what extent do the identified subgroups differ with respect to child characteristics (i.e., gender, grade level, and support for special needs)?

RQ3. To what extent do the identified subgroups differ with respect to family characteristics (i.e., level of parental education, parents' working situation, number of children, family structure) and parental stress about their child's schooling during the COVID-19 pandemic?

Method

Participants and procedure

The present study used the data collected with the Parents' barometer 2021 online questionnaire organized by the Finnish Parents' League and the Swedish Parent Association in Finland. Participants were recruited by advertising the questionnaire in the communication channels (e.g., member letters and social media) of the abovementioned associations. In addition, the Finnish National Agency for Education (FNAE) sent information about the questionnaire to all principals working in comprehensive education in Finland and asked them to forward the information and the link to the questionnaire to parents. The questionnaire was targeted only to legal-aged respondents, and it did not include any personal identification questions. Therefore, according to the national guidelines provided by Finnish National Board on Research Integrity (2019), there was no need to obtain written consent for participation nor ask for evaluation of the study from ethical review board before the study. The questionnaire was conducted in spring 2021 (from February 5th to March 8th), and parents were asked to situate their answers in terms of the ongoing academic year of 2020–2021.

The participants in this study were 26,313 parents who answered the questionnaire. A total of 84.1% of the participants reported being female and 13.8% male (0.1% chose the

option “other,” 0.8% chose the option “prefer not to answer,” and for 1.2%, the information was missing). Parents with more than one child were asked to choose one child from the family as the subject when answering the questions.

Measures

Parental perceptions of their child’s school adjustment

Two questions were used to examine parents’ perceptions of their child’s school adjustment. Parents’ perception of their child’s learning loss during the pandemic was measured with the following question: “In my experience, my child has had learning loss during the COVID-19 pandemic”, whereas parents’ perception of their child’s school well-being was measured with the following question: “In my experience, studying has been a great burden to my child during the COVID-19 pandemic.” Parents were asked to answer the questions on the following scale: 0 = does not apply to my child, 1 = completely disagree, 2 = somewhat disagree, 3 = somewhat agree, and 4 = completely agree.

Child characteristics

Parents reported their child’s gender (1 = girl, 2 = boy, 3 = other, 4 = prefer not to answer), grade level (Grade 1–10), and support the child received for their special needs. Parents reported the support the child received for their special needs with options created based on the Finnish three-tiered support system of general, intensified, and special support (Basic Education Act 628/1998): 1 = general support, 2 = intensified support, studies in mainstream education, 3 = intensified support, studies partly in special needs education, 4 = special support, studies in mainstream education, 5 = special support, studies in special needs education, 6 = special support, studies partly integrated in mainstream education, 7 = does not apply to my child, and 8 = do not know. Before the final analyses, options 2 (6.6% of participants) and 3 (3.7% of participants) as well as options 4 (2.6% of participants), 5 (2.4% of participants), and 6 (0.9% of participants) were combined to create one option for intensified support and one option for special support. The analyses were conducted with four categories: no support needed (i.e., parents who chose option “does not apply to my child”; 58.5%), general support (22.5%), intensified support (10.3%), and special support (5.9%). According to Finnish legislation (Basic Education Act 628/1998), all students have right to receive support that they need with their learning. The level of support (i.e., general, intensified, and special support) does not automatically specify the type of the support that student is able to receive, but it does define, for example, the pedagogical documents that are required to be composed (for more information, see e.g., Eklund et al., 2020; Sundqvist et al., 2019). For instance, student may receive support from special education teachers within each level, yet the level of support is decided based on the intensity, or the length of the support needed and documented with specific pedagogical documentation (e.g., Paloniemi et al., 2023). Moreover, as Finland is committed to inclusive education (e.g., Eklund et al., 2020), children learning in special education are quite rarely totally excluded from the mainstream education. Thus, none of the parents were excluded from the present analyses based on the support they reported their child is receiving for special needs.

Family characteristic

Parents were asked to report their level of education (1=basic education, 2=general upper secondary education, 3=vocational education, 4=university or higher education degree, 5=other), working situation (1=working, 2=not working, 3=laid off temporarily, 3=parental leave, 4=studying, 5=prefer not to answer, 6=other), and whether they worked remotely or onsite (1=working outside of home, 2=working remotely from home, and 3=partly outside of home and remotely from home) during fall 2020. In addition, parents were asked to report the number of children in the family and their child's family structure (1=lives in a household with one parent, 2=lives in the same household with two parents, 3=lives in turns with both parents, 4=other). Additionally, parents reported the region and municipality in which their child lived in Finland.

Parental stress about their child's schooling

One single-item question was used to examine parents' stress about their child's schooling during the pandemic: "In my experience, my child's schooling has been a great burden to me as a parent during the COVID-19 pandemic." Parents were asked to answer the question on the following scale: 0=does not apply to my child, 1=completely disagree, 2=somewhat disagree, 3=somewhat agree, and 4=completely agree.

Analytical strategy

Descriptive analysis

Due to the hierarchical structure of the data comprising respondents nested in different regions and municipalities of Finland, intraclass coefficients (ICCs) were calculated to determine the proportion of variances at different levels. As ICCs between regions showed no variation and between municipalities showed only a small variation (ranging from 0.005 to 0.006), the analyses were executed without applying a multilevel approach.

Latent profile analysis

A person-oriented approach with latent profile analysis (LPA; Lubke & Munthen, 2005; Vermunt & Magidson, 2002) was applied. The LPA aims to identify clusters of individuals (i.e., subgroups) based on the variables (Vermunt & Magidson, 2002). The advantage of this kind of analytical approach is that it recognizes that populations are not necessarily heterogeneous in terms of how the measured variables are related to possible outcomes (Bergman & Trost, 2006).

An enumeration process is formed based on a series of LPAs that are performed to examine different solutions with different numbers of subgroups. The best-fitting solution is concluded based on the fit indices as well as theoretical and practical considerations. The fit indices used in the present study were log-likelihood (log L), Akaike information criterion (AIC), Bayesian information criterion (BIC), and adjusted Bayesian information criterion (ABIC), as well as Vuong–Lo–Mendell–Rubin (VLMR) likelihood ratio test and adjusted Lo–Mendell–Rubin (LMR) test. According to Nylund et al. (2007), the LPA with the lowest log L, AIC, BIC, and ABIC values is considered as providing a good fit to the data. With VLMR and LMR tests, $p < 0.05$ indicates that the model with one less profile

should be rejected in favor of the estimated model (Lo et al., 2001). In addition, entropy value and classification probabilities for the average latent class probabilities for likeliest latent class membership were used.

In the present study, LPAs were conducted to identify subgroups based on parents' perceptions of their child's school adjustment in terms of learning loss and school well-being during the COVID-19 pandemic. The LPAs were executed using the Mplus statistical package (version 8.4; Muthén & Muthén, 1998–2022) by estimating variances and covariances set as the same between the profile groups. With the auxiliary function and the three-step procedure, the differences between the identified subgroups were examined in regarding of child characteristics, family characteristics, and parental stress about child's schooling.

Results

The identified subgroups

The results from the series of LPAs are presented in Table 1. Based on the fit indices and classification probabilities for the most likely latent class membership, both the four- and five-profile solutions provided a good fit. Due to practical considerations as well as slightly better log L, AIC, BIC, and ABIC values, the five-profile solution was determined to provide the most optimal fit with the data.

In the five-profile solution, all profiles created a unique pattern of children's school adjustment in terms of parental perceptions of their child's learning loss and school well-being (Fig. 1). The first subgroup was largest ($n=8198$, 31.2%), and it constituted the parents of children with no parental perceived learning loss and slightly lowered school well-being. This subgroup was named as slightly-higher-than-average-school-adjustment profile. The second subgroup was the smallest ($n=3017$, 11.5%), and it constituted parents who viewed that the question on learning loss did not apply to their child and their child's school well-being was not lowered. This subgroup was named as the high-school-adjustment profile. The third subgroup was medium-sized ($n=5025$, 19.1%), and it constituted parents who reported small parental perceived learning loss and somewhat lowered school well-being in their children. The subgroup was named as the slightly-lower-than-average-school-adjustment profile. The fourth subgroup was the second largest ($n=6777$, 25.7%), and it constituted parents of children with notable parental perceived learning loss and highly lowered school well-being. This was named as the low-school-adjustment profile. The fifth subgroup was the second smallest ($n=3296$, 12.5%), and it constituted parents who viewed that the question on learning loss did not apply to their child, yet their child had highly lowered school well-being. This subgroup was named as the mixed-school-adjustment profile.

Differences in child characteristics between the identified subgroups

Further analyses suggested differences between the identified subgroups with respect to the examined child characteristics (Table 2). Pairwise comparisons showed that in the mixed-school-adjustment profile, the proportion of parents of boys was the lowest, and the proportion of parents of girls was the highest. In contrast, in the low-school-adjustment profile, the proportion of parents of boys was the highest, and the proportion of parents of girls was the lowest. In other words, parents of boys were overrepresented among those who

Table 1 Fit indices for the series of latent profile analyses (LPAs)

Number of classes	Log L	AIC	BIC	ABIC	pVLMR	pLMR	Proportions, n(%)	Entropy	Average latent class probabilities for most likely latent class membership ¹
1	-79,420.20	158,850.24	158,891.13	158,875.24			26,313(100%)	0.763	0.973
2	-77,211.44	154,438.87	154,504.30	154,478.87	.000	.000	15,255(58.0%) 11,058(42.0%)	0.694	0.828
3	-76,510.69	153,043.37	153,133.33	153,098.37	.000	.000	5051(9.2%) 10,204(38.8%) 11,058(42.0%)	0.998	0.760 0.911 0.848
4	-70,832.11	141,692.22	141,806.70	141,762.21	.000	.000	6311(24.0%) 8200(31.2%) 5025(19.1%) 6777(25.7%)	0.999	1.000 0.998 1.000 0.998
5	-70,141.32	140,316.63	140,455.65	140,401.63	.000	.000	8198(31.2%) 3017(11.5%) 5025(19.1%) 6777(25.7%) 3296(12.5%)	0.949	0.999 0.912 1.000 0.998 0.814
6	-70,032.17	140,104.33	140,267.89	140,204.33	.000	.000	3296(12.5%) 3017(11.4%) 5025(19.1%) 6443(24.5%) 6777(25.8%) 1755(6.7%)	0.905	0.844 0.929 1.000 0.929 0.998 0.561

The chosen five-profile solution is marked in bold. ¹Values are presented for the diagonal of the matrix

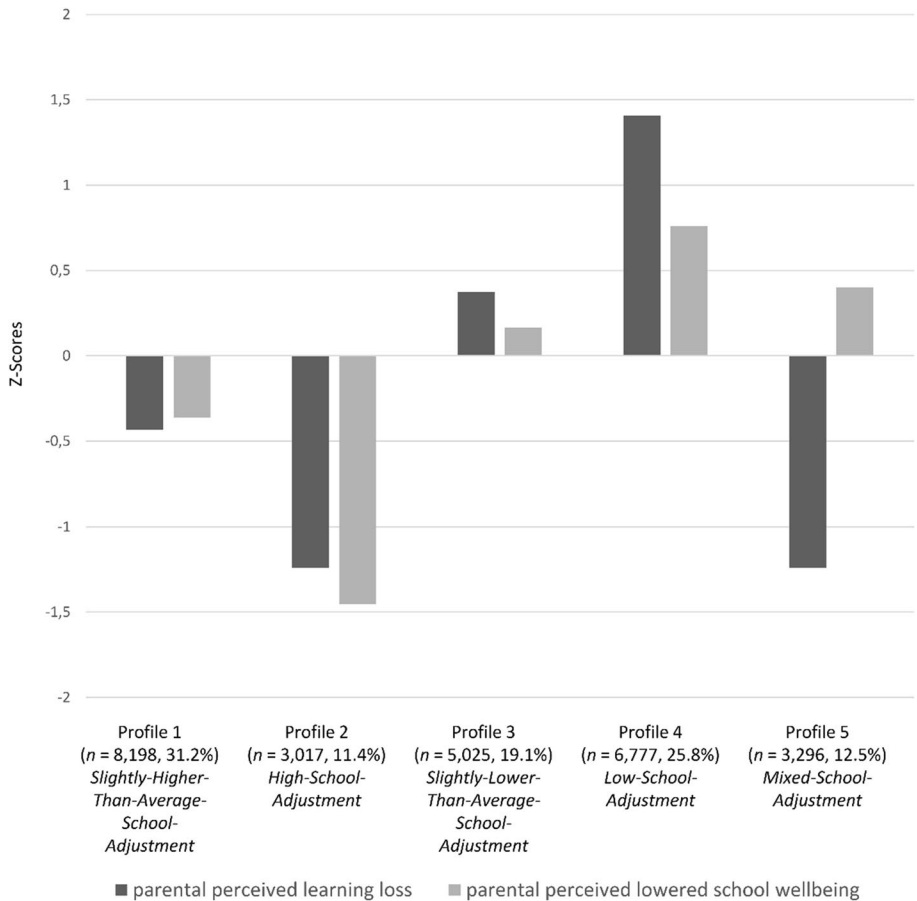


Fig. 1 Patterns of children's school adjustment during the COVID-19 pandemic in five subgroups

viewed that their child had notable learning loss and highly lowered school well-being during the COVID-19 pandemic. Parents of girls, in turn, were overrepresented among those who viewed that the question on learning loss did not apply to their child, yet their child's school well-being was highly lowered.

The pairwise comparisons between the identified subgroups regarding school grade were calculated separately for each grade. The results with respect to the subgroup representing the low-school-adjustment profile showed that parents of children studying in Grades 1–4 were underrepresented in that profile, while parents of children studying in Grades 6–9 were overrepresented. In addition, the results showed that parents of children studying in Grades 8 and 9 were underrepresented in the subgroup representing the slightly-higher-than-average-school-adjustment profile, and parents of children studying in Grade 1 were overrepresented in the subgroup representing the high-school-adjustment profile. Overall, the results indicated that parents of older children were more likely to belong to the profile constituting parents of children with notable parental perceived learning loss and highly lowered school well-being. Parents of younger children, in turn, were more likely to belong to the profile constituting

Table 2 Differences in child characteristics between the identified subgroups

	$\chi^2(4)$	Significant pairwise comparisons between subgroups
Gender		
Girl	117.39***	1 ^a , 2 ^a , 3 ^a , 4 ^a < 5 / 2 ^a , 3 ^c > 4 / 1 > 3 ^a , 4 ^a
Boy	116.65***	1 ^a , 2 ^a , 3 ^a , 4 ^a > 5 / 2 ^a , 3 ^c < 4 / 1 < 3 ^a , 4 ^a
Other	30.03***	1 ^a , 3 ^c , 4 ^b > 2
Grade level		
Grade 1	612.73***	1 ^a , 3 ^a , 4 ^a , 5 ^a < 2 / 1 > 3 ^a , 4 ^a , 5 ^a / 3 ^a > 4 / 4 ^a < 5
Grade 2	56.14***	1 ^a , 2 ^c , 3 ^a , 5 ^c > 4 / 1 > 2 ^c , 5 ^c
Grade 3	39.01***	1 > 2 ^a , 4 ^a , 5 ^c / 2 ^c , 4 ^a < 3
Grade 4	24.00***	1 ^a , 3 ^a , 5 ^c > 4 / 1 ^c , 3 ^c > 2
Grade 6	17.90**	1 ^b , 2 ^a , 5 ^b < 4
Grade 7	27.94***	1 ^a , 2 ^b , 3 ^a < 4 / 1 ^b , 3 ^c < 5
Grade 8	151.48***	1 ^a , 2 ^a , 3 ^a , 5 ^a < 4 / 1 ^a , 2 ^c < 3 / 1 < 2 ^c , 5 ^a
Grade 9	160.12***	1 ^a , 2 ^a , 3 ^a , 5 ^a < 4 / 1 ^a , 2 ^c < 3 / 1 ^c < 5
Support for special needs		
General support	595.57***	1 ^a , 2 ^a , 3 ^a , 5 ^a < 4 / 1 ^a , 2 ^a , 5 ^a < 3 / 1 ^a > 2
Intensified support	712.90***	1 ^a , 2 ^a , 3 ^a , 5 ^a < 4 / 1 ^a , 2 ^a < 3 / 1 > 2 ^a , 5 ^a
Special support	215.55***	1 ^a , 2 ^a , 3 ^a , 5 ^a < 4 / 1 ^a , 2 ^a , 5 ^a < 3 / 1 > 2 ^a , 5 ^a
Does not apply to my child	2388.22***	1 ^a , 2 ^a , 3 ^a , 5 ^a > 4 / 1 ^a , 2 ^a , 5 ^a < 3 / 1 > 2 ^a , 5 ^a

*** $p < .001$; ** $p < .01$; * $p < .05$; In column for pairwise comparisons, the numbers represent the identified subgroups (1 = Slightly-higher-than-average-school-adjustment profile; 2 = High-school-adjustment profile; 3 = Slightly-lower-than-average-school-adjustment profile; 4 = Low-school-adjustment profile; and 5 = Mixed-school-adjustment profile), and the level of significance is presented with letters in upper index (^a = *** $p < .001$; ^b = ** $p < .01$; ^c = * $p < .05$). Only significant results are included in the table. Less-than and greater-than signs are used to show the direction of the difference between the subgroups

parents of children to whom the question on learning loss did not apply and school well-being was not lowered or parents of children with no learning loss and slightly lowered school well-being.

The results of pairwise comparisons showed differences between the identified subgroups with respect to parent-rated support for their children's special education needs. The results showed that parents of children who had special education needs in any one of the levels of the Finnish three-tier system (i.e., general support, intensified support, or special support) were overrepresented in the subgroup representing the low-school-adjustment profile and underrepresented in the subgroup representing the high-school-adjustment profile. Parents who reported that support for special education needs did not apply to their child were, in turn, overrepresented in the subgroups representing the high-school-adjustment and mixed-school-adjustment profiles while underrepresented in the subgroup representing the low-school-adjustment profile. Thus, the results indicated that parents of children who had special education needs were more likely to belong to a profile that constituted parents of children with notable parental perceived learning loss and highly lowered school well-being. Parents of children with no special education needs, in turn, were more likely to belong to one of the two profiles that constituted parents who felt that the question of learning loss did not apply to their child.

Differences in family characteristics between the identified subgroups

The analyses also suggested differences between the identified subgroups with respect to the examined family characteristics (Table 3). The results showed that parents whose highest educational level was a basic or vocational education degree were overrepresented in the subgroup representing the low-school-adjustment profile. In turn, parents whose education was a university or higher education degree were underrepresented in subgroups representing the low-school-adjustment profile and overrepresented in subgroups representing the slightly-higher-than-average-school-adjustment and high-school-adjustment profiles. Thus, the results indicated that parents who had a lower education degree were more likely to belong to the profile constituting parents of children with notable parental perceived learning loss and highly lowered school well-being. Parents who had higher education degrees, in turn, were more likely to belong to profiles constituting parents of children with no parental perceived learning loss and no or only slightly lowered school well-being.

The results of pairwise comparisons showed some minor differences between the identified subgroups regarding parents' working situations and whether they worked remotely or onsite during fall 2020. Parents who were working were somewhat overrepresented in subgroups representing the slightly-higher-than-average-school-adjustment and slightly-lower-than-average-school-adjustment profiles when compared with the subgroups representing the low-school-adjustment and mixed-school-adjustment profiles. Parents who were not working were, in turn, somewhat overrepresented in the subgroup representing the low-school-adjustment profile when compared with the subgroups representing the slightly-higher-than-average-school-adjustment and slightly-lower-than-average-school-adjustment profiles. In addition, the results showed that parents who worked onsite were underrepresented in the subgroup representing the slightly-higher-than-average-school-adjustment profile, while parents who were working full-time or partly remotely were overrepresented in the same profile subgroup.

The results of pairwise comparisons also showed some differences between subgroups with respect to the number of children and family structure. Parents with a higher number of children were overrepresented in the subgroup representing the low-school-adjustment profile and underrepresented in the subgroups representing the slightly-higher-than-average-school-adjustment and high-school-adjustment profiles. In addition, single-parent households were underrepresented in the subgroup representing the slightly-higher-than-average-school-adjustment profile and overrepresented in the subgroup representing the low-school-adjustment profile. Thus, the results indicated that parents with a higher number of children and living in a single-parent household were more likely to belong to the profile constituting parents of children with notable parental perceived learning loss and highly lowered school well-being.

Differences in parental stress about child's schooling between the identified subgroups

Finally, the results showed differences between all subgroups with respect to parents' experiences of parental stress about their child's schooling during the COVID-19 pandemic (Table 3). Parents who reported lowest parental stress ($M=0.91$, $SD=0.03$) were overrepresented in the subgroup representing the high-school-adjustment profile, and parents who reported highest parental stress ($M=3.20$, $SD=0.01$) were overrepresented in the

Table 3 Differences in family characteristics and parental stress about their child's schooling between the identified subgroups

	$\chi^2(4)$	Significant pairwise comparisons between subgroups
Level of education		
Basic education	42.09***	1 ^a , 3 ^a , 5 ^a < 4 / 1 ^a , 3 ^a 5 ^b < 2
Vocational education	148.95***	1 ^a , 3 ^a , 5 ^a < 2 / 1 ^a , 3 ^a < 4 / 1 ^b < 5 / 4 ^a > 5
University or higher education institution	210.10***	1 ^a , 3 ^a , 5 ^a > 4 / 1 ^a , 3 ^a , 5 ^a > 2 / 1 > 3 ^c , 5 ^b
Working situation		
Working	15.25**	1 ^c , 3 ^b > 5 / 4 < 3 ^a
Not working	12.95*	1 ^a , 3 ^b < 4
Parental leave	10.97*	1 ^b , 5 ^c > 3
Working outside of home	92.99***	1 < 2 ^a , 3 ^b , 4 ^a , 5 ^a / 2 > 3 ^a , 4 ^a
Working remotely from home	67.62***	1 > 2 ^a , 3 ^a , 4 ^a , 5 ^a / 3 ^b > 4
Partly outside of home and remotely from home	20.06***	1 < 2 ^a , 4 ^c / 2 ^a < 3 / 3 ^c < 4
Other family characteristics		
Number of children	86.00***	1 ^a , 2 ^a , 3 ^a , 5 ^b < 4 / 1 ^a , 2 ^a < 3 / 1 ^c , 2 ^c < 5
Child lives in household with one parent	130.60***	1 ^a , 2 ^a , 3 ^a , 5 ^a < 4 / 1 ^a < 3
Child lives in same household with two parents	180.52***	1 ^a , 2 ^a , 3 ^a , 5 ^a > 4 / 1 ^a , 2 ^b , 5 ^b > 3
Child lives in turns with both parents	32.85***	1 ^a , 2 ^a , 5 ^b < 4 / 1 ^a , 2 ^a , 5 ^c < 3
Parental stress		
Parental stress about their child's schooling	9626.04***	1 ^a , 2 ^a , 3 ^a , 5 ^a < 4 / 1 < 3 ^a , 5 ^a / 2 < 1 ^a , 3 ^a , 5 ^a / 3 ^a > 5

*** $p < .001$; ** $p < .01$; * $p < .05$; In column for pairwise comparisons, the numbers represent the identified subgroups (1 = Slightly-higher-than-average-school-adjustment profile; 2 = High-school-adjustment profile; 3 = Slightly-lower-than-average-school-adjustment profile; 4 = Low-school-adjustment profile; and 5 = Mixed-school-adjustment profile), and the level of significance is presented with letters in upper index (^a = *** $p < .001$; ^b = ** $p < .01$; ^c = * $p < .05$). Only significant results are included in the table. Less-than and greater-than signs are used to show the direction of the difference between the subgroups

subgroup representing the low-school-adjustment profile. In turn, parents who reported the second highest parental stress ($M=2.81$, $SD=0.10$) were overrepresented in the subgroup representing mixed-school-adjustment; parents who reported the second lowest parental stress ($M=2.02$, $SD=0.01$) were overrepresented in the subgroup representing slightly-higher-than-average-school-adjustment; and parents who reported midmost parental stress ($M=2.61$, $SD=0.01$) were overrepresented in the subgroup representing slightly-lower-than-average-school-adjustment.

Discussion

The present study contributes to the literature by utilizing a person-oriented approach to examine different compositions of parental perceptions of their child's school adjustment in terms of learning loss and school well-being during the time of the COVID-19 pandemic. The findings showed that there were differences in the ways in which parents viewed the influence of the pandemic on their child's learning loss and school well-being. Moreover, the findings showed that the identified subgroups differed to some extent with respect to a variety of child and family characteristics. Therefore, these findings validate the prior literature showing that the consequences of the pandemic in terms of learning and well-being have not been equal for all children (e.g., Bethäuser et al., 2023; Salmela-Aro et al., 2021; Tso et al., 2022).

With respect to the first research question, several distinct subgroups based on parents' perceptions of their child's school adjustment in terms of learning loss and school well-being were identified. The results indicated, first, that with respect to the majority of parents (total of 87.5%) their perceptions of their child's learning loss were at a somewhat similar level to their perception of their child's school well-being. While this finding does not identify the actual relationship between learning loss and school well-being, it complements the pre-pandemic results showing the relation between high school well-being and high academic achievement (e.g., Holzer et al., 2022; Morinaj & Hascher, 2022). Moreover, the presence of the subgroup representing the mixed-school-adjustment profile emphasizes the need to acknowledge the individual differences with respect to different aspects related to children's school adjustment, as there may be children who have no learning loss but are still facing lowered school well-being.

Second, the results regarding to the presence of different profiles concurs with the prior findings showing that during the pandemic, children's learning or well-being has not been the same for all children (Engzell et al., 2021; Tso et al., 2022). Moreover, the present findings underline the need for the concern for those children who are recognized by their parents as having mixed school adjustment. It is possible that those children are somewhat easily missed by their teachers if there is no sign of problems with learning. However, as those children are burdened by schooling, they need attention from their teachers as well as parents in order to find ways to support their school well-being.

Regarding the second research question, the findings revealed differences between the identified subgroups with respect to child characteristics. First, the findings revealed that the proportion of parents of boys was highest in the subgroup where parents viewed their child's pandemic-related learning loss as well as lowering of school well-being as highest, while the proportion of parents of girls was highest in the subgroup where parents did not see any learning loss in their child but lowering of school well-being was remarkably high. These findings are somewhat in line with prior literature showing

that boys have faced greater learning loss due to pandemic (Breux et al., 2022). With respect to school well-being, in turn, many of the previous findings have presented female gender as a risk for lowered well-being during the COVID-19 pandemic (Kassis et al., 2022; Strasser et al., 2022). However, there is also prior evidence showing, for example, that 6- to 12-year-old boys faced more psychosocial problems due to the COVID-19 than girls (Tso et al., 2022). The present findings related to gender differences in school well-being provide two important views. First, the findings showed that based on parents' perceptions, school well-being of boys who faced learning loss due to the COVID-19 pandemic, should have been supported more. Therefore, while prior literature has somewhat repeatedly acknowledged female gender as a potential risk for lowered well-being, it is not advisable to direct support only based on student's gender. Second, the present findings also suggest that girls may have faced higher parental perceived risk of lowered school well-being with no clear sign of problems with learning. Unfortunately, based on the present study, we cannot provide clear remarks on how these girls could be recognized from all girls. However, these types of gendered differences need to be taken into consideration in order to intervene in the path that leads to lowered school well-being of any child.

Second, with respect to grade level, the findings indicated that the parents viewed greater learning loss and lowering of school well-being for their older children than their younger children. This is in contrast with systematic reviews evidencing younger age as being related to greater learning loss (Hammerstein et al., 2021) and showing no notable relation between the grade level and the extent of learning loss (Betthäuser et al., 2023). Yet, this resembles a prior finding suggesting that among upper secondary students in the USA, children's older age has been related to higher rates of worry due to the pandemic (Gazmararian, 2021). However, it should be noted that such results have been reached by having children as informants, while the present study used parental perceptions. The present findings are more in line with the findings by Booth et al. (2021), who discovered that during the lockdown, parents in the UK were more worried about the learning of their older children than of younger children. It is possible that parental perceptions of greater learning loss and lowering of school well-being for older children are linked to, for example, a sense of their children facing increasing difficulty of the studied content as children pass to higher grade levels or parents' worries related to their child's upcoming choices related to education after comprehensive education. Furthermore, parents may have felt that the changes due to pandemic-related restrictions were harsher for older children than younger ones due to children's developmental stages.

Third, with respect to children's special education needs, the present findings showed that the proportion of parents of children with no special education needs was higher in subgroups constituting those parents who viewed that the question of learning loss did not apply to their child. In turn, the proportion of parents of children with some kind of special education need was higher in the subgroup representing the low-school-adjustment profile. These findings are in line with previous ones indicating that a child's need for special education is related to greater learning loss and lower school well-being (e.g., Breux et al., 2022; Tso et al., 2022). Interestingly, the present findings also evidenced that there were no differences between the profiles based on the intensity of special education support that the child received. This can be interpreted from the parental point of view that their child's need for special support increases the risk for poorer school adjustment despite the intensity of the need. Therefore, it is crucially important for schools to give special attention to all children with special education needs and, especially, to provide knowledge to parents on how to support their child's school adjustment.

Regarding the third research question, the findings revealed differences between the identified subgroups with respect to family characteristics and parental stress about the child's schooling. First, the findings showed that in the subgroup representing the low-school-adjustment profile, parents who had lower education levels and who were unemployed and those who had more children and who lived in a single-parent household were overrepresented. In turn, parents who had higher educational levels and who had fewer children were overrepresented in subgroups representing higher than average school adjustment. These findings are in line with the previous literature showing that children in less-educated homes as well as those living in single-parent or low-income households are at higher risk for greater learning loss and lower school well-being (e.g., Engzell et al., 2021; Gazmararian et al., 2021; Haelermans et al., 2022; Tso et al., 2022). Moreover, the present findings showed that parental perceptions are in line with prior evidence received by children as informants through questionnaires or achievement tests (e.g., Engzell et al., 2021; Maximova et al., 2022; Molnár & Hermann, 2023; Salmela-Aro et al., 2021; Schult et al., 2022). In order to reduce polarization in society, it would be crucially important for schools to find ways to provide support for children and parents who do not have sufficient transferable skills and resources due to their background.

Finally, with respect to parental stress about their child's schooling, the results showed that the more parents experienced stress about their child's schooling, the more likely they belonged to the profile representing lower parental perceived school adjustment of their child. While the present data are cross-sectional and do not allow examination of causalities, this finding highlights the association between a higher sense of parental stress and lower parental perceived school adjustment of their child as well as lower sense of parental stress and higher parental perceived school adjustment of their child. This is a particularly important insight as it is known based on previous literature (e.g., Engzell et al., 2021; Tso et al., 2022) and current findings that there are numerous child and family characteristics that can be related to parents' views on their child's school adjustment in terms of learning loss and well-being. These should be acknowledged when considering to whom the support for learning and well-being should be directed at school in order not to burden parents. It should be noted that while the present data were collected months after the national school closures in Finland, parents may have remained stressed about pandemic-related issues for their child's schooling, for example, due to uncertainty followed from quarantine policy according to which the whole school classes were set to home quarantines for single confirmed exposure. Therefore, lessons should be learned from the COVID-19 pandemic so that schools are better prepared for future crises.

Limitations and future research

Some limitations exist within the current study. First, while the data provided a highly valuable opportunity to examine parental perceptions of their child's school adjustment in terms of learning loss and school well-being simultaneously, it is reasonable to note that the data included only single-item questions for both indicators. Consequently, for example, there were not both positively and negatively worded items focusing on same question and the internal consistencies of the measures could not be calculated. Second, the present study used only parental perceptions, and there were no other data sources. Thus, it was not possible to draw conclusions on children's actual learning or well-being. In future studies, combining different sources of data would be worthwhile. Third, only 13.8% of participants reported themselves as male. While sampling was incidental and it is quite common

that females are overrepresented in this kind of samples, the gender perspective should be taken into account when interpreting the findings. To reach more profound understanding of males' experiences, studies could be executed also by concentrating solely on data collected from males.

Conclusions

Overall, the present study offers novel information by addressing parental perceptions of their child's school adjustment in terms of learning loss and school well-being simultaneously. A person-oriented approach was used, which enabled the detection of different subgroups representing different profiles of parental perceived school adjustment. The presence of these profiles confirmed the importance of using an approach that acknowledges the heterogeneity of the population. Moreover, the findings related to different child and family characteristics highlight that it would be important for stakeholders and decision-makers to note that the COVID-19 pandemic may have increased polarization in terms of children's learning and school well-being. For example, it seems that it would be particularly important for schools to pay attention to at-risk families (e.g., families with low education) and children at risk (e.g., children with special education needs). While according to the Convention on the Rights of the Child, children have an equal right to learn and receive support in any circumstances, it is reasonable to question whether these rights have been met, for example, among those participating families in which parents perceived their child's school adjustment lower than average during the COVID-19 pandemic. Therefore, the findings underline the necessity of recognizing the different needs of children and their families.

Acknowledgements Open Access enabled by Open science, research and publishing services of University of Jyväskylä.

Author contribution The manuscript has been seen and reviewed by all authors and all authors have contributed to it in a meaningful way. SP, NK, MS, MKL, and EP designed the study. MP and KP planned and carried out the data collection. JM was responsible for analytical process, and results were discussed by all authors. SP wrote the manuscript with support from NK, JM, MS, MP, KP, MKL, and EP.

Funding Open Access funding provided by University of Jyväskylä (JYU). This study is a part of the project EduRESCUE—the resilient schools and the education system. This study was funded by the Strategic Research Council (SRC) established within the Research Council of Finland (345196), and by a grant from the Research Council of Finland for EDUCA Flagship (#358924, 2024–2028).

Data availability The datasets presented in this article are not readily available because of the ongoing research. Requests to access the datasets should be directed to minna.palmu@vanhempainliitto.fi and katarina.perander@hemochskola.fi.

Declarations

Ethics approval and consent to participate The study involved human participants, and all participants have been treated according to ethical guidelines set out in APA. The electronic questionnaire did not include any personal identification questions, and, thus, according to the national legislation and the institutional requirements, ethical approval provided by the university or written consent for participation was not required. Information was given to participants prior to proceeding to the questionnaire and participation was completely voluntary.

Consent for publication All authors are in accordance with the content of the manuscript and have given their consent for publication.

Competing interests The authors declare no competing interests.

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

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