Subjective Well-Being of Primary and Secondary School Students During the COVID-19 Pandemic: A Latent Profile Analysis

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Abstract
This study employs a person-oriented approach to examine the heterogeneity of samples of primary school students (N = 2,333; 56.5% girls) and secondary school students (N = 2,329; 62.9% girls) in terms of levels of subjective well-being (SWB) in five domains: family, friends, school experience, body, and the local area. The study was conducted in Poland during the second wave of the COVID-19 pandemic. The latent profile analysis revealed five profiles among primary school students and six profiles among secondary school students. The profiles identified among primary school students had their counterparts among secondary school students and included “highly satisfied,” “moderately satisfied,” “highly dissatisfied,” “satisfied with their family life and local area and dissatisfied with their friends,” and “satisfied with their family life and friends and dissatisfied with their local area” profiles. In both samples, the profile with high levels of satisfaction in all domains was the most numerous. Moreover, in secondary school students, we identified the sixth profile, which was highly satisfied with their friends.

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and dissatisfied in other domains. We also noted that gender, age, type of school and positive relationships with others predicted the latent profile membership. The results of this study indicate the need to utilize the person-oriented approach to gain insight into various patterns of children’s SWB. Moreover, the study provides some practical recommendations for preparing tailored interventions aimed at improving children’s SWB.

**Keywords**  Children’s subjective well-being · Life satisfaction · COVID-19 pandemic · Person-oriented approach · Latent profile analysis · Positive relationships

## 1 Introduction

Over the past few decades, terms such as “children’s subjective well-being” (children’s SWB) or “child well-being” have been growing in popularity in many scientific disciplines, particularly in the health and social sciences, but they are also increasingly used in the media, business, management, education, and politics (Carrillo et al., 2021; Tomyn & Cummins, 2011). One of the factors influencing this direction of change is the stronger empowerment of children as citizens and rights holders (Jans, 2004; Kjorholt, 2008) and the implementation of their participatory, civic, social and political rights in different areas of life (Casas, 2011; Kosher & Ben-Arieh, 2017). Consequently, when investigating and monitoring children’s situations, more attention is paid to the need and significance of factoring in children’s subjective assessments that well reflect their perspectives (Ben-Arieh, 2008; Ben-Arieh et al., 2017; Casas, 2011; Casas et al., 2013; Kosher & Ben-Arieh, 2017; Yoo & Ahn, 2017). There is empirical justification for this approach, as numerous studies indicate the critical significance of children’s SWB for their development and individual life course, health, life possibilities and perspectives, as well as possible risks and vulnerabilities (Ben-Arieh, 2008; Ben-Arieh et al., 2017; Casas et al., 2013; Newland et al., 2019).

### 1.1 Children’s SWB and Its Domains

The concept of SWB is usually situated close to such categories as perceived happiness, pleasure, and satisfaction, with their roots in hedonistic and eudaimonic conceptions of a happy life (Emery, 2020). In general, SWB refers to an individual’s assessment of personal satisfaction and contentment with their life (Ben-Arieh et al., 2014; Kosher & Ben-Arieh, 2017). In reality, however, the concept of SWB encompasses a range of more specific judgments an individual makes about various aspects of their own life situation and various domains of their own life (Emery, 2020). Many scholars researching this issue emphasize that SWB is indeed a heterogeneous and multidimensional construct (see Ben-Arieh et al., 2014).

Just as with SWB, many researchers take the position that children’s SWB depends on multiple domains of children’s everyday life (Ben-Arieh et al., 2014, 2017; Bradshaw & Richardson, 2009). The areas that make up children’s SWB are often mentioned in relevant literature (e.g., family, school, peers, or community), and there are various proposals for systematizing them (Ben-Arieh et al., 2014, 2017; Emery, 2020).
The choice of the explored areas of children’s SWB—their development, determinants, and consequences—varies across studies and depends primarily on the specifics of the discipline, the purpose of the study, and the preferences of the researchers.

1.2 Children’s SWB During the COVID-19 Pandemic

In the wake of the COVID-19 pandemic, addressing the topic of children’s SWB seems especially important given the challenging new circumstances facing people of all ages around the world. The confrontation with an unknown disease, the lack of full access to medical care, education, or the risk of loss of employment has led to a heightened sense of vulnerability in families, mainly in the health and economic dimensions (Spinelli et al., 2020). This, in turn, has had adverse effects on the functioning of younger family members, who are particularly vulnerable due to their still developing and maturing nervous systems. The pandemic has affected children’s SWB both directly (e.g., through the need to learn online, lack of direct interactions or considerably reduced interactions with peers and teachers, and restrictions on their ability to enjoy leisure and extracurricular activities), and indirectly – through the reduced well-being of their caregivers facing numerous adversities (Halldorsdottir et al., 2021; Jiao et al., 2020; Mantovani et al., 2021; Martiny et al., 2021). This is supported by research findings showing that the COVID-19 pandemic has brought health, educational, and social disruptions to children worldwide, including objective and subjective mental and physical health, school performance, peer relationships, and daily life (Kapetanovic et al., 2021; Schwartz et al., 2021; Spinelli et al., 2020; Thorisdottir et al., 2021).

1.3 Person-Oriented Approach in Children’s SWB Research

Although quantitative studies on children’s SWB make use of a variety of methodological and statistical approaches, research following a variable-oriented approach still dominates. This approach assumes that the sample is drawn from a single homogeneous population for which a single set of “averaged” parameters can be estimated (Meyer & Morin, 2016). In other words, relationships between the variables are believed to be the same across all members of the population.

Although many studies apply a variable-oriented approach, and their results are unquestionably valuable, this approach suggests—metaphorically speaking—that variables are more important than people. This is particularly striking in the field of SWB research, in which individual experiences and personal perspectives are brought to the fore (Park et al., 2022). The remedy for this shortcoming is provided by a person-oriented approach, which can be regarded as complementary to a variable-oriented approach (Bergman & Trost, 2006). A person-oriented approach assumes that the population might be heterogeneous in terms of indicators (e.g., the levels of SWB in various domains). Its main purpose is thus to identify subpopulations that group people with similar configurations of indicators (i.e., internally homogenous; Berlin et al., 2014).

Despite the growing popularity of a person-oriented approach in studies on children’s mental health disorders, behavioral problems, risky behaviors, and other
areas of malfunctioning (see, e.g., Demol et al., 2021; Fonseca-Pedrero et al., 2020), empirical investigations of children’s SWB using this approach are still scarce. In consequence, most studies on children’s SWB omit the fact that the SWB is a multidimensional construct itself and thus needs holistic examination and understanding. One of the exceptions is a study conducted by Yoo and Ahn (2017) among 11,176 12-year-old children from 10 countries, which utilized the data from the first wave of the International Survey of Children’s Well-Being (Dinisman et al., 2015). In this study, the latent profile analysis revealed six well-distinguished clusters that grouped children with similar levels of SWB indicators across seven life domains: satisfaction with material possession, health, achievements, relationships, safety, community connectedness, and future security. Moreover, the identified profiles significantly differed in terms of children’s overall satisfaction and happiness.

1.4 Current Study

The current study aimed to examine the various configurations of the cognitive component of children’s SWB (i.e., life satisfaction) in various domains by applying a person-oriented approach. We preferred the former approach over a variable-oriented approach because it might be a source of valuable information that would not be obtained by the latter. For example, many studies noted that, on average, children have a high level of satisfaction in the family domain (Strózik et al., 2016; Tian et al., 2015). However, this result does not mean that all children are satisfied with their family life – a variable-oriented approach shows just the general picture, putting aside the individual experiences. A person-oriented approach fulfills this gap by assuming that the sample may include children from heterogeneous populations, which may differ in terms of SWB levels depending on the domain (Berlin et al., 2014). Moreover, a person-oriented approach allows the researcher to explore the relationships between covariates and cluster membership. As a result, a researcher can, for example, observe that a high level of a given predictor (e.g., a high level of positive relationships with friends) predisposes children to belong to the subpopulation with a particular pattern of SWB indicators.

We conducted analyses separately for the samples of primary and secondary school students due to many psychological, emotional, and social changes related to the transition from primary school to secondary school (Hanewald, 2013; Jindal-Snape et al., 2021). Our study was exploratory in nature, and thus we did not formulate specific hypotheses about the number of profiles of children’s SWB in each sample. Nevertheless, we expected that we would identify two kinds of profiles: those grouping children with similar levels of SWB in all domains (i.e., having low/medium/high overall levels of SWB), and those with differentiated levels of SWB, depending on its domain (e.g., with a high level of SWB in one domain and low in others). We thus hypothesized that we would identify at least four profiles in each sample.

The secondary aim of our study was to test the potential predictors of latent profile membership. Regarding gender, we expected that the profile with low levels of SWB in all domains would have a higher proportion of girls to boys than other profiles, whereas the profile with high levels of SWB in all domains would have a higher proportion of boys to girls than other profiles. We based our expectations on
the results of studies suggesting that boys may have a more positive self-image and higher levels of self-perceived competencies, self-esteem and self-efficacy than girls (Céspedes et al., 2021; Esteban-Gonzalo et al., 2020), which are all the correlates of well-being (Céspedes et al., 2021; Du et al., 2017). Moreover, girls are more prone to depression and anxiety (Van Droogenbroeck et al., 2018), which are negatively related to well-being (Gigantesco et al., 2019). Our expectations were also based on the results of recent studies, which showed that during the COVID-19 pandemic, girls were particularly at risk for decreased well-being (Halldorsdottir et al., 2021), onset of depressive and anxiety symptoms (Kapetanovic et al., 2021) and increased sense of tension, anger and confusion (Kang et al., 2020).

Since there is substantial evidence that the children’s SWB decreases with age (Casas, 2011; Casas & González-Carrasco, 2019; Strózik et al., 2016), we expected that younger children would belong to the profile with higher levels of SWB in all domains more often than older children (see also Goldbeck et al., 2007). Regarding the type of secondary school, we expected that having the opportunity of face-to-face interactions with peers and teachers during vocational placements, students attending professional technical schools and vocational schools would belong to profiles with high levels of SWB in all domains more often than high school students, whose interpersonal contacts were more limited due to fully remote learning.

Besides demographics, we tested positive relationships with family, peers, and teachers during the COVID-19 pandemic as potential predictors of latent profile membership. Taking into account the crucial role played by the quality of social relationships in children’s SWB (Guess & McCane-Bowling, 2013; Marquez & Main, 2021), we expected that children who belong to the profile with high levels of SWB in all domains would evaluate their relationships with others more positively than children in other profiles. By contrast, we hypothesized that children who belong to the profile with low levels of SWB in all domains would declare having the least positive relationships with others; members of the remaining profiles were expected to report the average levels of positive relationships with others.

2 Methods

2.1 Sample

The study involved two samples: primary school students and secondary school students. Table 1 presents the sociodemographic characteristics of both samples. The first sample consisted of 2,333 pupils (56.5% girls). The mean age of the participants was 12.59 years ($SD = 1.29$). Most children (96.2%) lived with their immediate family members, had one sibling (53.0%), and attended primary schools situated in cities/towns with a population over 100,000 (63.7%).

The second sample was composed of 2,329 secondary school students (62.9% girls). The mean age of the participants was 16.65 years ($SD = 1.12$). The majority of participants (94.7%) lived with their immediate family members and had one or two siblings (70.2%). The participants attended various types of secondary schools: high schools (44.1%), professional technical schools (38.9%) and vocational schools (17.0%). A similar number of students attended schools located in cities/towns with 20,000–100,000 (50.4%) inhabitants and schools located in cities/towns with a population over 100,000 (46.1%).
2.2 Measures

2.2.1 Children’s SWB

To measure the level of children’s SWB in various domains, we used an adapted version of the Brief Multidimensional Student Life Satisfaction Scale (BMSLSS; Seligson et al., 2003). The BMSLSS consists of five items measuring life satisfaction in five domains: family (people children live with), friends (peers), school experience (life as a student), body (the way the children look), and the local area (the place where children live). The reliability and validity of the BMSLSS were supported in several studies (Huebner et al., 2006; Seligson et al., 2003; Tian et al., 2015). In the current study, the stem for all questions was modified to adjust it to the aim of the study, and it was...
as follows: “During the COVID-19 pandemic, how much are you satisfied with…?” Participants were asked to respond using a 10-point unipolar scale ranging from “Not at all satisfied” (1) to “Totally/Completely satisfied” (10).

2.2.2 Positive Relationships

Positive relationships during the COVID-19 pandemic were measured using a self-designed questionnaire encompassing three groups of people with which primary and secondary students usually have extensive personal interactions: family, peers, and teachers (Bokhorst et al., 2010). Positive relationships were measured with four items for each group, e.g., “During the COVID-19 pandemic, I can share my problems and worries with … (my family / my peers / my teachers).” The participants assessed each item using a 5-point Likert scale ranging from 1 (“not at all”) to 5 (“very much”). A higher score for each scale indicates more positive relationships with others. Cronbach’s alpha for positive relationships with family was 0.89 for primary school students and 0.90 for secondary school students; for positive relationships with peers, 0.79 and 0.80, respectively; and for positive relationships with teachers, 0.85 and 0.87, respectively.

2.3 Procedure

The study was part of a larger project entitled: “Education under the threat of the COVID-19 pandemic in selected municipalities of the Silesian Province from the perspective of teachers, parents and students.” It was conducted in eight Silesian municipalities from December 15, 2020 to February 23, 2021, during the second wave of the COVID-19 pandemic in Poland. At the time of the study, all classes in Polish primary and secondary schools were carried out remotely, except for vocational placements at professional technical schools and vocational schools, which had the form of face-to-face classes.

The study was carried out in accordance with the Declaration of Helsinki. The ethical approval was received from the Ethics Committee at the University of Silesia in Katowice, Poland (KEUS.51/09.2020). For both samples, the study was conducted online, using the LimeSurvey system. Through the local education authorities overseeing the Silesian municipalities, letters of intent with an attached link to the survey were sent to the headteachers with a request to disseminate the information about the study among the teachers. This information was communicated through the electronic communication system used in each school. After obtaining parental consent for their child to participate in the study, the teachers provided students with a link to the anonymous survey and asked them to complete the questionnaires during online classes.

Before joining the study, all students were informed, through an introductory note, about the aim of the study and its subject, anonymous and voluntary participation in the study, the course of the study, the time it would take to complete the questionnaires, the way the obtained information would be used, and the possibility of withdrawing from the study at any time, without any consequences. The students and their parents were also informed that it was possible for the students to receive psychological support if such a need arose due to their participation in the study; for this purpose, e-mails and telephone numbers for two psychologists involved in the project were provided. After
reading the description of the study, the students gave informed consent to participate in the study. No incentives or compensation for participation were offered.

2.4 Statistical Analysis

In the first step of the analysis, we calculated the percentage of missing data for each variable in both samples. Then, we performed Little’s Missing Completely at Random test (Little & Rubin, 1987) to examine whether the data were missing completely at random (MCAR). Next, we calculated the means and standard deviations for the study variables. Then, we performed the t-test for the independent samples to compare levels of the domains of SWB between primary and secondary school students. We also performed the repeated measures ANOVA with a Greenhouse–Geisser correction to examine the differences between the levels of domains of SWB, separately for primary school students and secondary school students. We then calculated the bivariate correlations between the study variables. Moreover, to get a full picture of the relationships between the variables, we conducted multiple hierarchical regression to test demographic (step 1) and psychological variables (i.e., positive relationships with others; step 2) as predictors of children’s SWB in various domains.

After these preliminary analyses, we performed the latent profile analysis (LPA) to classify a population into mutually exclusive and exhaustive subgroups (i.e., profiles) based on their SWB indicators in various domains. LPA belongs to the family of the person-oriented approach, being an extension of latent class analysis that is appropriate for continuous indicators (i.e., levels of SWB in various domains in the current study).

Models containing from one to seven profiles were tested in Mplus version 8 (Muthén & Muthén, 2017), using a robust Maximum Likelihood (MLR) estimator (Vermunt & Magidson, 2002). All models used 3000 random sets of start values, 100 iterations for each random start, and the 200 best solutions retained for final stage optimization. Models were compared using the following information criteria: Bayesian Information Criterion (BIC), Akaike Information Criterion (AIC), and sample-adjusted BIC (SABIC). Lower values of information criteria indicate better model fit. Using the Mplus TECH14 option, we performed the bootstrap likelihood ratio test (BLRT) to compare model fit between $k$-1 and $k$ cluster models (McLachlan & Peel, 2000). A statistically significant result of the BLRT supports the $k$-cluster model over $k$-1 clusters. Besides these criteria, when choosing the best solution, we took into account the size of the profiles (no less than 5% of the total sample to exclude artificial and non-replicable profiles), model parsimony (favoring less complex models) and the interpretability and substantive meaning of each solution (Bauer & Curran, 2003). We also examined how well the profiles were differentiated in each solution. To do this, we calculated entropy, which is an omnibus index that assesses the overall accuracy of classification, with values $\geq 0.80$ indicating “good” classification of individual cases into profiles (Berlin et al., 2014). Second, we assessed classification accuracy for each profile by calculating the average posterior probability. Average
posterior probabilities > 0.70 for all profiles indicate that the classification accuracy is adequate (Nagin, 2005).

In the final step of the analysis, we examined the relationships between demographic and psychological variables and the latent profile membership using multinomial logistic regression. Demographics included gender and age for both samples and the type of school for secondary school students; psychological variables covered positive relationships with family, peers, and teachers. The analyses were performed using the three-step method implemented by Mplus through the “auxiliary” (R3STEP) command. This method was chosen since it does not allow potential predictors to affect latent profile formation (Asparouhov & Muthén, 2014).

3 Results

3.1 Preliminary Analysis

3.1.1 Missing Data

The analysis of the missing data showed that, in both samples, there were no variables with missing values exceeding 5%. The results of Little’s test suggested the data were MCAR in both datasets (primary school students: $\chi^2(628) = 668.94; p = 0.13$; secondary school students: $\chi^2(401) = 418.14; p = 0.27$). To impute the missing values, we used the Expectation–Maximization (EM) algorithm, which is unbiased and efficient when the missing mechanism is ignorable (Dong & Peng, 2013).

3.1.2 Descriptive Statistics

Table S1 presents the means and standard deviations for the study variables, separately for primary and secondary school students. The results of the $t$-test for independent samples showed that secondary school students had lower levels of SWB in all domains than primary school students.

A repeated measures ANOVA showed that levels of SWB in various domains differed significantly, both in primary school students ($F_{3.70, 8629.49} = 398.44, p < 0.001$; partial $\eta^2 = 0.15$) and secondary school students ($F_{3.83, 8921.59} = 375.29, p < 0.001$; partial $\eta^2 = 0.14$). Post hoc analysis with a Bonferroni adjustment revealed that among primary school students, the level of satisfaction in the family domain was higher than in the other domains ($p < 0.001$). The second-highest level in SWB domains in this sample was observed for the local area ($p < 0.001$). The next was the level of satisfaction with friends ($p < 0.001$). The level of satisfaction from school experience and own body did not differ significantly from each other ($p = 1.00$), being lower than for other SWB domains ($p < 0.001$).

In the sample of secondary school students, the highest level of satisfaction was noted in the domains of friends and family ($p < 0.001$); these two domains did not differ
significantly from each other ($p=0.20$). The next was the level of satisfaction from the local area ($p<0.001$), followed by the satisfaction with own body ($p<0.001$). The lowest level of satisfaction was noted for school experience ($p<0.001$).

### 3.1.3 Correlations and Multiple Regression

Table S2 shows the bivariate correlations between the variables. In both samples, the domains of SWB were moderately related to each other. For primary school students, there was no significant relationship between gender and SWB. In this group, being older correlated with lower SWB in all domains. For secondary school students, being a man was positively related to SWB in all domains. Moreover, in this sample, being older was related to lower SWB in the domains of friends, school experience, and the local area. Moreover, for both samples, SWB was related to positive relationships with family, peers, and teachers.

The results of multiple hierarchical regression are presented in Tables S3 and S4. For primary school students, younger age was related to higher SWB in all domains. For secondary school students, the predictive role of demographics varied and depended on the domain of SWB. Positive relationships with family predicted SWB above and beyond the effect of demographics in all domains for both samples. The significant predictive role in children’s SWB was also supported for positive relationships with peers and teachers for most domains of SWB.

### 3.2 Latent Profile Analysis: Primary School Students

#### 3.2.1 Latent Profiles

Table 2 presents the comparison of LPA models for the domains of SWB in primary school students. The BLRT did not help much in choosing among the models since its $p$-values were significant for every model comparison (at $\alpha=0.001$). Similarly, BIC, AIC, and SABIC values decreased with the addition of latent profiles. This is a common issue in large samples, and in such situations preparing and analyzing the graphical presentation (“elbow plot”) of information criteria has been recommended (Petras & Masyn, 2010). The elbow plot of the information criteria is presented in Fig. S1. The inspection of the curve did not suggest the optimal number of clusters unambiguously: after the rapid decrease between the one-profile and two-profile solutions, the values of information criteria began to decrease more slowly but gradually, reaching a plateau at the seven profile. Considering these observations, we compared the solutions containing from two to six profiles, relying primarily on their interpretability and meaningfulness, the size of the profiles, and model parsimony.

The inspection of models suggested that adding the next profile to two-, three-, and four-profile solutions provided new information and allowed for identification of meaningful and interpretable profiles. On the other hand, adding the sixth profile to the five-profile solution did not bring new information: Profile 1 and Profile 5 in the six-profile solution emerged following the break-up
of Profile 1 in the five-profile solution, and thus these two profiles were similar in terms of the configuration of SWB indicators (i.e., qualitatively) and only marginally differed in levels of SWB (i.e., quantitatively; see Fig. S2). Moreover, the least numerous Profile 1 in the six-profile solution included only 3.3% of the participants, which was far below the 5% threshold for establishing meaningful and non-artificial solutions (Bauer & Curran, 2003). Considering all the above, we decided to retain the five-profile solution as best-fitting data and adopt it to further analysis. The overall classification accuracy and classification accuracy for each of the five profiles were adequate, which was indicated by high entropy (0.902) and the value of average posterior probability for each profile (for details, see Table S5).

Figure 1 and Table S6 presents five latent profiles identified by LPA. Profile 1 (6.9%) was labeled as “highly dissatisfied” since the members of this profile had low levels of SWB in all domains. Profile 2 (8.5%) was composed of students with high levels of satisfaction with family life and local area, average levels of satisfaction with school and body, and a low level of satisfaction with friends (“satisfied with their family life and local area and dissatisfied with their friends.”). Members of the least numerous (5.3%) Profile 3 had a high level of satisfaction with friends, an above-average level of satisfaction with school and body, and a very low level of satisfaction with the local area (“satisfied with their family life and friends and dissatisfied with their local area”). Profile 4 (18.3%) was characterized by average or above-average levels of SWB in all domains (“moderately satisfied”). The most numerous (61%) Profile 5 grouped students with high levels of SWB in all domains (“highly satisfied”).

3.2.2 Predictors of Latent Profile Membership

Table 3 presents the results of multinomial regression analysis, in which gender, age, and positive relationships with others were tested as the predictors of

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Table 2 Summary of the model selection criteria (Primary school students)

| Model | LL       | #p | BIC     | AIC     | SABIC   | Entropy | Smallest profile | BLRT (p-value) |
|-------|----------|----|---------|---------|---------|---------|------------------|----------------|
| 1-Profile | -27,029.01 | 10 | 54,135.57 | 54,078.02 | 54,103.80 | –       | –                | –              |
| 2-Profile | -25,242.27 | 16 | 50,608.62 | 50,516.54 | 50,557.78 | .921    | 20.0%            | < .001         |
| 3-Profile | -24,806.87 | 22 | 49,784.34 | 49,657.74 | 49,714.44 | .842    | 12.3%            | < .001         |
| 4-Profile | -24,539.48 | 28 | 49,296.09 | 49,134.95 | 49,207.13 | .865    | 6.9%             | < .001         |
| 5-Profile | -24,299.95 | 34 | 48,863.56 | 48,667.89 | 48,755.54 | .902    | 5.3%             | < .001         |
| 6-Profile | -24,118.39 | 40 | 48,546.97 | 48,316.78 | 48,419.89 | .916    | 3.3%             | < .001         |
| 7-Profile | -23,984.44 | 46 | 48,325.61 | 48,060.89 | 48,179.46 | .889    | 3.1%             | < .001         |

LL: model log-likelihood; #p: number of parameters; BIC: Bayesian Information Criterion; AIC: Akaike Information Criterion; SABIC: sample-size adjusted BIC; BLRT = bootstrap likelihood ratio test. Bold values represent an optimal model based on statistical considerations and interpretability. N = 2,333
latent profile membership. The proportion of girls to boys was higher in Profile 1 (“highly dissatisfied”) than in Profile 2 (“satisfied with their family life and local area and dissatisfied with their friends”), Profile 3 (“satisfied with their friends and family and dissatisfied with their local area”), and Profile 5 (“highly satisfied”). By contrast, the proportion of boys to girls was higher in Profile 5 (“highly satisfied”) than in other profiles. Moreover, children in this profile were younger and had more positive relationships with family and teachers than children in other profiles. They also had more positive relationships with peers compared to children in Profile 1 (“highly dissatisfied”) and Profile 2 (“satisfied with their family life and local area and dissatisfied with their friends”). Pupils in Profile 1 (“highly dissatisfied”) declared less positive relationships with family than pupils in Profile 2 (“satisfied with their family life and local area and dissatisfied with their friends”), Profile 4 (“moderately satisfied”), and Profile 5 (“highly satisfied”). Moreover, pupils in Profile 1 (“highly dissatisfied”) and Profile 2 (“satisfied with their family life and local area and dissatisfied with their friends”) had less positive relationships with their peers than pupils in Profiles 3–5. In addition, members of Profile 2 (“satisfied with their family life and local area and dissatisfied with their friends”) had more positive relationships with family than members of Profile 3 (“satisfied with their family life and friends and dissatisfied with their local area”) and Profile 4 (“moderately satisfied”). Finally, children from Profile 4 (“moderately satisfied”) had more positive relationships with family than children from Profile 3 (“satisfied with their family life and friends and dissatisfied with their local area”).

Fig. 1 Five-Profile Model of Domains of Children’s SWB (Primary School Students). SWB = subject well-being. $N=2,333$
Table 3  Results of the multinomial logistic regression analysis (Primary school students)

| Predictors | Ref.: Profile 1 | Ref.: Profile 2 | Ref.: Profile 3 | Ref.: Profile 4 | Ref.: Profile 5 |
|------------|----------------|----------------|----------------|----------------|----------------|
|            | Profile 2     | Profile 3     | Profile 4     | Profile 5     | Profile 2     | Profile 3     | Profile 4     | Profile 5     | Profile 5     |
| Gender     | 0.59 (0.28)*  | 0.71 (0.30)** | 0.40 (0.25)   | 1.17 (0.25)** | 0.12 (0.27)   | -0.20 (0.23)  | 0.57 (0.19)** | -0.32 (0.24)  | 0.45 (0.23)*  | 0.77 (0.16)** |
| Age        | -0.12 (0.10)  | -0.05 (0.11)  | -0.05 (0.09)  | -0.50 (0.09)**| 0.07 (0.11)  | 0.07 (0.08)   | -0.35 (0.07)**| 0.00 (0.09)   | -0.42 (0.09)**| -0.42 (0.06)**|
| Family     | 1.25 (0.16)** | 0.21 (0.15)   | 0.50 (0.11)** | 1.90 (0.14)**| -1.04 (0.17)**| -0.75 (0.14)**| 0.65 (0.14)** | 0.29 (0.12)*  | 1.69 (0.15)** | 1.40 (0.10)** |
| Peers      | -0.19 (0.15)  | 0.72 (0.16)** | 0.78 (0.12)** | 0.81 (0.13)**| 0.91 (0.15)** | 0.97 (0.12)** | 1.00 (0.11)** | 0.06 (0.12)   | 0.10 (0.12)   | 0.04 (0.08)   |
| Teachers   | 0.16 (0.16)   | -0.11 (0.17)  | 0.12 (0.13)   | 0.40 (0.14)**| -0.05 (0.16)  | -0.04 (0.12)  | 0.25 (0.11)*  | 0.02 (0.14)   | 0.30 (0.13)*  | 0.28 (0.08)** |

Values are estimates from the R3STEP multinomial logistic regression analysis with standard errors in parentheses. Ref. = reference profile; *p < .05, **p < .01, ***p < .001. Positive values indicate greater likelihood of membership in the given profile compared to the reference profile, and negative values indicate greater likelihood of membership in the reference profile compared to the given profile. All significant estimates are bolded. Gender was dummy coded (0 = women, 1 = men). Profile 1: “highly dissatisfied,” Profile 2: “satisfied with their family life and local area and dissatisfied with their friends,” Profile 3: “satisfied with their family life and friends and dissatisfied with their local area,” Profile 4: “moderately satisfied,” Profile 5: “highly satisfied.” Family = positive relationships with family; peers = positive relationships with peers; teachers = positive relationships with teachers. N = 2,333
3.3 Latent Profile Analysis: Secondary School Students

3.3.1 Latent Profiles

Table 4 presents the results of model fit comparison for one- to seven-profile solutions for secondary school students. The BLRT $p$-values suggested that each successive model above a one-class model provided statistical improvement. Similarly, the BIC, AIC, and SABIC values decreased with adding new profiles. Therefore, in the next step, we decided to inspect the elbow plot for the BIC, AIC, and SABIC values (see Fig. S3). The graphical representation of the information criteria did not bring conclusive results. Although the point of inflection of the curve was placed near the fourth profile, substantial decreases in the values of information criteria were noted for the consecutive solutions. We thus decided to take a closer look at the models containing from four to seven profiles. Adding the next profile to four- and five-profile solutions resulted in the identification of well-defined, qualitatively distinct profiles. By contrast, including the seventh profile to the six-profile solution brought no new information to the model. More specifically, Profiles 1 and 6 were not qualitatively distinct since they had similar shapes and only slightly differed quantitatively (i.e., in terms of levels of SWB in various domains; see Fig. S4). Moreover, Profile 5 in the seven-profile solution included only 4.7% of all participants, which was below the 5% threshold. Thus, taking all these findings together, the six-profile solution was retained and adopted for further analysis. The adequate separation of the profiles in this solution was indicated by the entropy value (0.839) and the value of average posterior probability for each of the six profiles (see Table S7).

Figure 2 and Table S8 present six latent profiles identified by LPA. Profile 1 (10.5%) grouped those secondary school students who had a high level of satisfaction with family and local area, average levels of satisfaction with body and school, and a low level of satisfaction with friends (“satisfied with their family life and local area and dissatisfied with their friends”). Members of Profile 2 (7.2%)

Table 4 Summary of the model selection criteria (Secondary school students)

| Model | LL   | #p  | BIC            | AIC            | SABIC          | Entropy | Smallest profile | BLRT (p-value) |
|-------|------|-----|----------------|----------------|----------------|---------|------------------|----------------|
| 1-Profile | -27,785.20 | 10  | 55,647.938     | 55,590.406     | 55,616.166     | –       | –                | .811 < .001    |
| 2-Profile | -26,579.65 | 16  | 53,283.359     | 53,191.308     | 53,232.524     | .811    | 31.3%            | < .001         |
| 3-Profile | -26,348.15 | 22  | 52,866.872     | 52,740.302     | 52,796.974     | .750    | 14.2%            | < .001         |
| 4-Profile | -26,096.98 | 28  | 52,411.043     | 52,249.954     | 52,322.082     | .837    | 8.7%             | < .001         |
| 5-Profile | -25,997.64 | 34  | 52,258.897     | 52,063.288     | 52,150.872     | .784    | 7.5%             | < .001         |
| 6-Profile | -25,862.86 | 40  | 52,035.848     | 51,805.720     | 51,908.760     | .839    | 6.3%             | < .001         |
| 7-Profile | -25,732.57 | 46  | 51,821.791     | 51,557.144     | 51,675.640     | .846    | 4.7%             | < .001         |

LL: model log-likelihood; #p: number of parameters; BIC: Bayesian Information Criterion; AIC: Akaike Information Criterion; SABIC: sample-size adjusted BIC; BLRT = bootstrap likelihood ratio test. Bold values represent an optimal model based on statistical considerations and interpretability. $N$ = 2,329
had low levels of life satisfaction in all domains (“highly dissatisfied”). Profile 3 (18.3%) was characterized by average or relatively high levels of life satisfaction in all domains (“moderately satisfied”). Students who belonged to Profile 4 (6.3%) had a high level of satisfaction with friends and low levels of satisfaction in other domains (“satisfied only with their friends”). Profile 5 (7.5%) was composed of students having high levels of satisfaction with family life and friends, average levels of satisfaction with school and body, and a low level of satisfaction with the local area (“satisfied with their family life and friends and dissatisfied with their local area”). Students in the most numerous Profile 6 (50.2%) had high levels of satisfaction in all domains (“highly satisfied”).

### 3.3.2 Predictors of Latent Profile Membership

The results of multinomial regression analysis (see Table 5) showed that gender, age, type of school, and positive relationships with others had many significant relationships with latent profile membership. Specifically, the proportion of girls to boys was higher in Profile 2 (“highly dissatisfied”) compared to Profile 3 (“moderately satisfied”), Profile 5 (“satisfied with their family life and friends and dissatisfied with their local area”), and Profile 6 (“highly satisfied”). The proportion of girls to boys was also higher in Profile 4 (“satisfied only with their friends”) than in Profile 1 (“satisfied with their family life and local area and dissatisfied with their friends”), Profile 3 (“moderately satisfied”), Profile 5 (“satisfied with their family life and friends and dissatisfied...
### Table 5 Results of the multinomial logistic regression (Secondary school students)

| Predictors | Ref.: Profile 1 | Ref.: Profile 2 | Ref.: Profile 3 | Ref.: Profile 4 | Ref.: Profile 5 | Ref.: Profile 6 |
|------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Gender     | 0.51 (0.33)    | 0.07 (0.25)    | 0.23 (0.27)    | 0.22 (0.22)    | 0.58 (0.28)*   | 0.74 (0.34)    |
|            | (0.36)*        | (0.35)         | (0.35)         | (0.35)         | (0.35)         | (0.35)         |
| Age        | −0.19 (0.12)   | −0.11 (0.10)   | −0.14 (0.13)   | −0.23 (0.08)**| 0.08 (0.10)    | 0.09 (0.13)    |
|            | (0.13)         | (0.13)         | (0.13)         | (0.13)         | (0.10)         | (0.10)         |
| School     | −0.12 (0.28)   | −0.04 (0.23)   | 0.27 (0.30)    | −0.40 (0.19)   | 0.09 (0.24)    | 0.39 (0.29)    |
|            | (0.28)         | (0.28)         | (0.28)         | (0.28)         | (0.24)         | (0.24)         |
| Family     | −1.93 (0.20)** | −1.28 (0.15)** | 0.55 (0.13)*** | −0.12 (0.19)   | 0.55 (0.16)**  | 1.81 (0.13)*** |
|            | (0.20)**       | (0.20)**       | (0.13)**       | (0.19)         | (0.16)**       | (0.13)**       |
| Peers      | 0.40 (0.15)**  | 0.96 (0.12)**  | 0.99 (0.14)**  | 1.05 (0.14)*** | 0.98 (0.10)**  | 0.60 (0.12)**  |
|            | (0.15)         | (0.15)         | (0.15)         | (0.15)         | (0.10)**       | (0.12)**       |
| Teachers   | 0.13 (0.15)    | 0.16 (0.12)    | −0.04 (0.16)   | −0.26 (0.15)   | 0.16 (0.10)    | −0.17 (0.15)   |
|            | (0.16)         | (0.16)         | (0.16)         | (0.16)         | (0.16)         | (0.15)         |

Values are estimates from the R3STEP multinomial logistic regression analysis with standard errors in parentheses. Ref. = reference profile; *p < .05, **p < .01, ***p < .001. Positive values indicate greater likelihood of membership in the given profile compared to the reference profile, and negative values indicate greater likelihood of membership in the reference profile compared to the given profile. All significant estimates are bolded. Gender (0 = women, 1 = men) and the type of secondary school (0 = professional technical schools and vocational schools; 1 = high schools) were dummy-coded. Profile 1: "satisfied with their family life and local area and dissatisfied with their friends," Profile 2: "highly dissatisfied," Profile 3: "moderately satisfied," Profile 4: "satisfied only with their friends," Profile 5: "satisfied with their family life and friends and dissatisfied with their local area," and Profile 6: "highly satisfied." Family = positive relationships with family; peers = positive relationships with peers; teachers = positive relationships with teachers. N = 2,329
with their local area”), and Profile 6 (“highly satisfied”). Regarding age, students who belonged to Profile 6 (“highly satisfied”) were younger than students who belonged to Profile 1 (“satisfied with their family life and local area and dissatisfied with their friends”). Moreover, the proportion of students attending professional technical schools and lower secondary schools to students attending high schools was higher in Profile 6 (“highly satisfied”) than in Profile 1 (“satisfied with their family life and local area and dissatisfied with their friends”), Profile 3 (“moderately satisfied”), and Profile 4 (“satisfied only with their friends”). This profile also had more positive relationships with family members than other profiles. By contrast, students in Profile 4 (“satisfied only with their friends”) had less positive relationships with family than students in other profiles. Moreover, students in Profile 1 (“satisfied with their family life and local area and dissatisfied with their friends”) and Profile 5 (“satisfied with their family life and friends and dissatisfied with their local area”) had more positive relationships with family members than students in Profile 2 (“highly dissatisfied”), Profile 3 (“moderately satisfied”), and Profile 4 (“satisfied only with their friends”). In addition, students in Profile 3 (“moderately satisfied”) had more positive relationships with family than students in Profile 2 (“highly dissatisfied”). Regarding relationships with peers, students who belonged to Profile 1 (“satisfied with their family life and local area and dissatisfied with their friends”) declared to have less positive relationships with peers than students who belonged to other profiles. Moreover, students in Profile 2 (“highly dissatisfied”), Profile 4 (“satisfied only with their friends”), Profile 5 (“satisfied with their family life and friends and dissatisfied with their local area”), and Profile 6 (“highly satisfied”). Finally, students in Profile 5 (“satisfied with their family life and friends and dissatisfied with their local area”) had less positive relationships with teachers compared to Profile 2 (“highly dissatisfied”), Profile 3 (“moderately satisfied”), and Profile 6 (“highly satisfied”).

The summary of the characteristics of the children’s SWB profiles and their predictors for both samples is presented in Tables S9 and S10.

4 Discussion

4.1 Latent Profiles of Children’s SWB and Their Predictors

The purpose of the current study was to identify the latent subgroups of Polish primary and secondary students with similar levels of SWB during the COVID-19 pandemic. As expected, qualitatively distinct profiles were found in both samples, supporting the notion that the person-oriented approach is a valuable methodological solution in studies on children’s SWB that makes it possible to simultaneously consider levels of several SWB domains. Moreover, the identified profiles differed in terms of demographics and positive relationships with others during the COVID-19 pandemic, which, on the one hand, supports the good separation of SWB profiles, and on the other hand, provides knowledge that can be used to prepare practical recommendations for developing interventions aimed at improving children’s SWB.
For primary school students, we identified five latent profiles of SWB, whereas, for secondary school students, six latent profiles were distinguished. The greater number of profiles found among secondary school students compared to primary school students may indicate that the former have a deeper understanding of the construct of SWB and thus a greater ability to differentiate between various domains of SWB, which is consistent with the cognitive development in children progressing with age. All profiles identified in the sample of primary school students had their counterparts in the sample of secondary school students. As hypothesized, both samples included children with uniform levels of SWB in all domains (i.e., with high/moderate/low levels of SWB) and children varying in the levels of SWB, depending on its domain. These results are roughly consistent with the findings of Yoo and Ahn’s (2017) study. Although these researchers investigated other domains of children’s SWB than we did, they also identified three profiles with uniform levels of SWB in all domains, and they observed profiles with varying levels of SWB in different domains.

Research done over the past two years in many countries around the world shows that the pandemic and the lockdowns associated therewith have had a significant impact on children (Mantovani et al., 2021; Sancho et al., 2021) and adolescents’ functioning (Halldorsdottir et al., 2021; Schwartz et al., 2021). However, the present study shows that despite the ongoing pandemic, the profiles with high and moderate levels of SWB in all domains were predominant among both primary school students (61% and 18.3%, respectively) and secondary school students (50.2% and 18.3%, respectively). This result indicates that most students had high or medium levels of SWB in all domains, which suggests that many of the examined children had sufficient individual and community resources to maintain relatively high levels of SWB despite the extraordinary circumstances and many changes and challenges caused by the pandemic. This finding also corresponds with the conceptualization of life satisfaction as a relatively stable construct, which is less sensitive to changes than affective components of SWB (Rees, 2018).

Consistent with our hypotheses and the findings of previous studies (Casas & González-Carrasco, 2019; Halldorsdottir et al., 2021; Park et al., 2022), in primary school students, younger children and boys were more likely to belong to the “highly satisfied” profile than to other profiles (see Table 3). Similar patterns were also observed for secondary school students, although in this sample fewer significant gender and age differences were noted between the profiles (see Table 5). Moreover, in line with our expectations, the “highly satisfied” profile was more likely to include students attending professional technical schools and vocational schools than students attending high schools, which may be explained by the highly limited face-to-face social relationships among the latter, resulting from exclusively online learning. In general, children who belonged to the “highly satisfied” profile rated their relationships with family, peers, and teachers more positively than children who belonged to most remaining profiles, which confirms the great importance of having deep and stable interpersonal relationships to maintain high SWB in difficult and stressful situations.

Some students (6.9% of the primary school students and 7.2% of the secondary school students) belonged to the profile with the overall low SWB, regardless of
the domain. The identification of this profile corroborates the findings of a large-scale study by Park et al. (2022), which revealed that deficiencies across various domains of child well-being often co-occur. As expected, this profile had a higher proportion of girls to boys compared to most remaining profiles. This is consistent with research indicating higher levels of depression and anxiety among girls (Van Droogenbroeck et al., 2018) and with studies conducted during the COVID-19 pandemic (Engel de Abreu et al., 2021; Kapetanovic et al., 2021), which showed that girls were more likely than boys to experience the negative effects of the pandemic on their SWB. Additionally, the results of our study show that individuals belonging to the “highly dissatisfied” profiles rated their relationships with family and friends less positively than most other profiles. Children belonging to this profile may display a strong sense of unmet needs by family members, insecurity in the family environment, and poor relationships with peers, which may translate into low levels of SWB in all domains. Girls in particular, having a greater need than boys for emotional closeness, intimacy, and sharing of feelings (Brannon, 2002), may be susceptible to feelings of rejection from family and peers and social isolation, resulting in overall low SWB.

In both samples, we identified a profile with high levels of SWB in the domains of family and local area but a low level in the domain of friends (8.5% of the primary school students and 10.5% of the secondary school students). This profile included children who were more positive about their relationships with their families during the pandemic than those included in most of the other profiles. At the same time, however, these children had fewer positive relationships with peers during the pandemic compared to most other profiles. Low levels of SWB in the domain of friends may be related to the pandemic and the many restrictions resulting in limited interactions between children, and thus may be temporary. However, the fact that this profile has a medium level of SWB in the domain of school experience, even though direct interactions with teachers—like in the case of peers—were strongly limited during this time, makes this interpretation less likely. Another interpretation is that the low level of satisfaction with friends reported in this group may indicate long-term difficulties in peer relationships, resulting in peer neglect or peer rejection. It is also plausible that poor peer relationships foster the child’s deepening bonds with their own family and strong identification with the place where they live.

Another profile identified in both samples reported high or medium levels of SWB in the domains of family and friends and a low level of SWB in the domain of the local area. This profile may include those children whose real place of residence is very different from their ideal. Dissatisfaction with the local area may have its roots in factors such as the unattractiveness of buildings, poor infrastructure, not enough places to play in the neighborhood, low safety or high air pollution levels (see UNICEF Innocenti, 2020), and may be related to low family social status (Casas et al., 2013; Park et al., 2022). Qualitative research is recommended to explain dissatisfaction with the local area observed in this profile.

Among the secondary school students, we identified the sixth profile, which we did not observe among the primary school students: “satisfied only with their friends.” In this profile, a high level of satisfaction with friends seems to be a means to compensate for the lack of satisfaction in other domains, by seeking to satisfy the
needs for belonging, security, or self-esteem. Interestingly, this profile had a higher proportion of girls to boys compared to most profiles. As research shows, girls pay particular attention to communication, closeness, and intimacy in interpersonal relationships (Brannon, 2002; Sánchez-Queija & Oliva, 2015). When these needs cannot be met within the family, girls may turn to their friends in an attempt to protect their SWB. This corresponds with the results of studies showing that girls, compared to boys, use more strategies to seek social support, attach more importance to social support from others, and report more social support seeking (see Li et al., 2021). Our findings are also consistent with the results of a study conducted on a sample of 765 young adults that considered different targets of gratitude and their associations with well-being (Charzyńska, 2020). One of the profiles identified in this study using the LPA grouped persons who were primarily grateful to their partner and friend(s) and had a low level of gratitude toward the family members. Similarly to the results of our study, the proportion of women to men was higher in this profile than in most other profiles. It is worth noting that despite high levels of gratitude toward a partner and friend(s), members of this profile had relatively low levels of well-being compared to members of the profile highly grateful to all targets and, to a lesser extent, the profile grateful primarily to parents. This finding suggests that attempts to compensate for deficits in the family domain have only limited benefits. Similarly, in the profile identified in our study that grouped children who were only satisfied with their friends, there is a risk of a sudden deterioration in SWB if any serious problems occur with their relationship with friends because, in such a situation, these children will lose their main source of SWB.

4.2 Practical Implications

As argued by the founder of positive psychology, Martin Seligman, and his colleagues (Seligman et al., 2009), taking care of our children’s well-being is no less important than taking care of their achievements and acquisition of knowledge. Our study contributes to the literature on children’s SWB, having not only scientific value but also providing some important practical implications. First, the identified profiles indicate the need to simultaneously monitor different domains of children’s SWB. A general question about life satisfaction may be inadequate in many cases because it does not reveal any information about the SWB domains with which the child is not satisfied, or the domains on which the child bases their own satisfaction. Second, the results of our study also point out some demographic characteristics predisposing children to membership in a particular SWB profile, which is consistent with other evidence suggesting that indirect effects of the pandemic are likely to fall disproportionately on some groups (Engel de Abreu et al., 2021; Van Lancker & Parolin, 2020). Accordingly, educational and therapeutic interventions aimed at improving children’s SWB during the coronavirus pandemic and similar future events should consider the gender of the subjects, their age, and the type of school they attend. This will make it possible to prepare tailored-made interventions that are better adapted to the specificity of a particular group, considering its typical difficulties, potentials and developmental processes.
Our study also confirms that low levels of positive relationships with others, especially with family members, predispose children to low well-being during difficult circumstances (see Mondragon et al., 2021). This points to the need to strengthen family systems, which should include teaching parents through parent training programs how to communicate effectively with their children (Homem et al., 2015) and how to engage children in decision-making (Park et al., 2022). Schools should also model and promote establishing and maintaining strong and stable relationships with others by creating an environment that fosters cooperation and mutual kindness between students and between students and teachers, and by improving school connectedness to build their resources for tough times (Marquez & Main, 2021; Matthews et al., 2015; Newland et al., 2019; UNICEF Innocenti, 2020).

4.3 Limitations of the Study and Directions for Future Research

This study has some limitations that should be listed and discussed. Although the study was conducted among large samples of primary and secondary school students who were relatively well-diversified in terms of demographic characteristics, it included students living in just one province in Poland, and the schools in which the study was conducted were located only in urban areas. For these reasons, the generalizability of the study is limited, and further research is required to replicate our findings in other societies and cultures (see Park et al., 2022).

One objective of the study was to test positive relationships with others as the potential predictors of profile membership. However, as this was a cross-sectional study, the direction of the relationships studied cannot be inferred unambiguously. Nevertheless, an abundance of research demonstrates that positive relationships with others are one of the most salient factors influencing people’s health, well-being, and happiness (Guess & McCane-Bowling, 2013; Marquez & Main, 2021; Matthews et al., 2015; Moore et al., 2018). Moreover, future studies may include potential consequences of latent profile membership to respond to such research questions as: Are the children who are satisfied with their family life and local area and dissatisfied with their friends susceptible to emotional problems or educational under-achievement?

Another limitation of our study stems from the use of self-report measures. Our choice is well justified for the domains of well-being, which are subjective, and a person is considered to be an expert in estimating own well-being. However, future studies may include the multiple informants’ reports to measure relationships with family, peers, and teachers. In addition, we considered five domains of children’s SWB. Other aspects of life satisfaction, like safety or material possessions, can also be included in future research using a person-oriented approach. Additionally, other predictors of latent profile membership are worth considering. Some suggestions are provided by a recent study by Engel de Abreu et al. (2021), which shows the predictive role of gender, socioeconomic status, satisfaction with freedom during the pandemic, quantity and type of schoolwork, and relationships with adults in adolescent SWB during the COVID-19 pandemic. Moreover, the current study was conducted during the second wave of the
pandemic. More studies are needed to examine if the results of our study are replicable in the next waves of the pandemic. Finally, further investigation is warranted to examine if our findings are situation-specific, strictly related to the pandemic, or, rather, that they reflect more general patterns in the SWB of primary and secondary school students.

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**Data Availability Statement** The data that support the findings of this study are available from the corresponding author [E.C.] upon request.

**Declarations**

**Ethics Approval** Ethical principles were carried out in accordance with the Declaration of Helsinki. The project was approved by the Ethics Committee at the University of Silesia in Katowice, Poland (KEUS.51/09.2020). Participation in the study was anonymous and voluntary.

**Informed Consent** Informed consent was obtained from all individual participants included in the study.

**Conflict of Interest** All authors declare that they have no conflict of interest regarding this manuscript.

**References**

Asparouhov, T., & Muthén, B. (2014). Auxiliary variables in mixture modeling: Three-step approaches using Mplus. *Structural Equation Modeling, 21*(3), 329–341. [https://doi.org/10.1080/10705511.2014.915181]

Bauer, D. J., & Curran, P. J. (2003). Distributional assumptions of growth mixture models: Implications for overextraction of latent trajectory classes. *Psychological Methods, 8*(3), 338–363. [https://doi.org/10.1037/1082-989x.8.3.338]

Ben-Arieh, A. (2008). The child indicators movement: Past, present, and future. *Child Indicators Research, 1*(1), 3–16. [https://doi.org/10.1007/s12187-007-9003-1]

Ben-Arieh, A., Casas, F., Frønes, I., & Korbin, J. E. (2014). Multifaceted concept of child well-being. In A. Ben-Arieh, F. Casas, I. Frønes, & J. E. Korbin (Eds.), *Handbook of child well-being* (pp. 1–27). Springer.

Ben-Arieh, A., Dinisman, T., & Rees, G. (2017). A comparative view of children’s subjective well-being: Findings from the second wave of the ISCWeB project. *Children and Youth Services Review, 80*, 1–2. [https://doi.org/10.1016/j.childyouth.2017.06.068]

Bergman, L. R., & Trost, K. (2006). The person-oriented versus the variable-oriented approach: Are they complementary, opposites, or exploring different worlds? *Merrill-Palmer Quarterly, 52*(3), 601–632. [https://doi.org/10.1353/mpq.2006.0023]
Berlin, K. S., Williams, N. A., & Parra, G. R. (2014). An introduction to latent variable mixture modeling (part 1): Overview and cross-sectional latent class and latent profile analyses. Journal of Pediatric Psychology, 39(2), 174–187. https://doi.org/10.1093/jpepsy/jst084

Bokhorst, C. L., Sunter, S. R., & Westenberg, P. M. (2010). Social support from parents, friends, classmates, and teachers in children and adolescents aged 9 to 18 years: Who is perceived as most supportive? Social Development, 19(2), 417–426. https://doi.org/10.1111/j.1467-9507.2009.00540.x

Bradshaw, J., & Richardson, D. (2009). An index of child well-being in Europe. Child Indicators Research, 2(3), 319–351. https://doi.org/10.1007/s12187-009-9037-7

Brannon, L. (2002). Gender: Psychological perspectives. Routledge.

Carrillo, G., Alfaro, J., Aspillaga, C., Ramírez-Casas del valle, L., Inostroza, C., & Villarroel, A. (2021). Well-being from the understanding of children and adolescents: A qualitative metasynthesis. Child Indicators Research, 14(4), 1677–1701. https://doi.org/10.1007/s12187-021-09816-1

Casas, F. (2011). Subjective social indicators and child and adolescent well-being. Child Indicators Research, 4(4), 555–575. https://doi.org/10.1007/s12187-010-9093-z

Casas, F., & González-Carrasco, M. (2019). Subjective well-being decreasing with age: New research on children over 8. Child Development, 90(2), 375–394. https://doi.org/10.1111/cdev.13133

Casas, F., Bello, A., González, M., & Aliqué, M. (2013). Children’s subjective well-being measured using a composite index: What impacts Spanish first-year secondary education students’ subjective well-being? Child Indicators Research, 6(3), 433–460. https://doi.org/10.1007/s12187-013-9182-x

Céspedes, C., Rubio, A., Viñas, F., Cerrato, S. M., Lara-Órdenes, E., & Ríos, J. (2021). Relationship between self-concept, self-efficacy, and subjective well-being of native and migrant adolescents. Frontiers in Psychology, 11, 3821. https://doi.org/10.3389/fpsyg.2020.620782

Charzyńska, E. (2020). It does matter who we are grateful to: A latent profile analysis. Current Psychology, 39(1), 1–12. https://doi.org/10.1007/s12144-019-00361-3

Demol, K., Verschueren, K., ten Boskkel, I. M., van Gils, F. E., & Colpin, H. (2021). Trajectory classes of relational and physical bullying victimization: Links with peer and teacher-student relationships and social-emotional outcomes. Journal of Youth and Adolescence. Advance online publication. https://doi.org/10.1007/s10964-021-01544-7

Dinizman, T., Fernandes, L., & Main, G. (2015). Findings from the first wave of the ISCWeB project: International perspectives on child subjective well-being. Child Indicators Research, 8(1), 1–4. https://doi.org/10.1007/s12187-015-9305-7

Dong, Y., & Peng, C. Y. (2013). Principled missing data methods for researchers. SpringerPlus, 2(1), 222. https://doi.org/10.1186/2193-1801-2-222

Du, H., King, R. B., & Chi, P. (2017). Self-esteem and subjective well-being revisited: The roles of personal, relational, and collective self-esteem. PLoS ONE, 12(8), e0183958. https://doi.org/10.1371/journal.pone.0183958

Emery, C. (2020). Subjective well-being. In D. T. Cook (Ed.), The SAGE encyclopedia of children and childhood studies (pp. 1518–1521). Sage.

Engel de Abreu, P., Neumann, S., Wealer, C., Abreu, N., CoutinhoMacedo, E., & Kirsch, C. (2021). Subjective well-being of adolescents in Luxembourg, Germany, and Brazil during the COVID-19 pandemic. The Journal of Adolescent Health, 69(2), 211–218. https://doi.org/10.1016/j.jadohealth.2021.04.028

Esteban-Gonzalo, S., Esteban-Gonzalo, L., Cabanas-Sánchez, V., Miret, M., & Veiga, O. L. (2020). The investigation of gender differences in subjective wellbeing in children and adolescents: The up & down study. International Journal of Environmental Research and Public Health, 17(8), 2732. https://doi.org/10.3390/ijerph17082732

Fonseca-Pedrero, E., Ortúñio-Sierra, J., & Pérez-Albéniz, A. (2020). Emotional and behavioural difficulties and prosocial behaviour in adolescents: A latent profile analysis. Revista De Psiquiatría y Salud Mental (English Edition), 13(4), 202–212. https://doi.org/10.1016/j.rpsmen.2020.01.003

Gigantesco, A., Fagnani, C., Toccaceli, V., Stazi, M. A., Lucidi, F., Violani, C., & Picardi, A. (2019). The relationship between satisfaction with life and depression symptoms by gender. Social Psychiatry, 69(2), 419–419. https://doi.org/10.3389/fpsyt.2019.00419

Goldbeck, L., Schmitz, T. G., Besier, T., Herschbach, P., & Henrich, G. (2007). Life satisfaction decreases during adolescence. Quality of Life Research, 16(6), 969–979. https://doi.org/10.1007/s11136-007-9205-5

Guess, P. E., & McCane-Bowling, S. J. (2013). Teacher support and life satisfaction: An investigation with urban, middle school students. Education and Urban Society, 48(1), 30–47. https://doi.org/10.1177/0013124513514604
Halldorsdottir, T., Thorisdottir, I. E., Meyers, C. C. A., Asgeirsdottir, B. B., Kristjansson, A. L., Valdimarsdottir, H. B., Allegrante, J. P., & Sigfusdottir, I. D. (2021). Adolescent well-being amid the COVID-19 pandemic: Are girls struggling more than boys? *JCPP Advances, 1*(2), e12027. https://doi.org/10.1002/jcva.12027

Hanewald, R. (2013). Transition between primary and secondary school: Why it is important and how it can be supported. *Australian Journal of Teacher Education, 38*(1). https://doi.org/10.14221/ajte.2013v38n1.7

Homem, T. C., Gaspar, M. F., Santos, M. J. S., Azevedo, A. F., & Canavarro, M. C. (2015). Incredible years parent training: Does it improve positive relationships in Portuguese families of preschoolers with oppositional/defiant symptoms? *Journal of Child and Family Studies, 24*(7), 1861–1875. https://doi.org/10.1007/s10826-014-9988-2

Huebner, E. S., Seligson, J. L., Valois, R. F., & Suldo, S. M. (2006). A review of the brief multidimensional students’ life satisfaction scale. *Social Indicators Research, 79*(3), 477–484. https://doi.org/10.1007/s11205-005-5395-9

Jans, M. (2004). Children as citizens: Towards a contemporary notion of child participation. *Childhood, 11*(1), 27–44. https://doi.org/10.1177/0907568204040182

Jiao, W. Y., Wang, L. N., Liu, J., Fang, S. F., Jiao, F. Y., Pettoello-Mantovani, M., & Somekh, E. (2020). Behavioral and emotional disorders in children during the COVID-19 epidemic. *The Journal of Pediatrics, 221*, 264-266.e1. https://doi.org/10.1016/j.jpeds.2020.03.013

Jindal-Snape, D., Symonds, J. E., Hannah, E. F. S., & Barlow, W. (2021). Conceptualising primary-secondary school transitions: A systematic mapping review of worldviews, theories and frameworks. *Frontiers in Education, 6*, 540027. https://doi.org/10.3389/feduc.2021.540027

Kang, S., Sun, Y., Zhang, X., Sun, F., Wang, B., & Zhu, W. (2020). Is physical activity associated with mental health among Chinese adolescents during isolation in COVID-19 pandemic? *Journal of Epidemiology and Global Health, 11*(1), 26–33. https://doi.org/10.2991/jegh.k.200908.001

Kapetanovic, S., Gurdal, S., Ander, B., & Sorbring, E. (2021). Reported changes in adolescent psychosocial functioning during the COVID-19 outbreak. *Adolescents, 1*(1), 10–20. https://doi.org/10.3390/adolescents1010002

Kjorholt, A. T. (2008). Children as new citizens: In the best interests of the child? In A. James & A. L. James (Eds.), *European childhoods: Cultures, politics and childhoods in Europe* (pp. 14–37). Palgrave Macmillan.

Kosher, H., & Ben-Arieh, A. (2017). Religion and subjective well-being among children: A comparison of six religion groups. *Children and Youth Services Review, 80*, 63–77. https://doi.org/10.1016/j.childyouth.2017.06.049

Li, J., Yao, M., & Liu, H. (2021). From social support to adolescents’ subjective well-being: The mediating role of emotion regulation and prosocial behavior and gender difference. *Child Indicators Research, 14*, 77–93. https://doi.org/10.1007/s12187-020-09755-3

Little, R. J. A., & Rubin, D. B. (1987). *Statistical analysis with missing data*. John Wiley & Sons Inc.

Martiny, S. E., Thorsteinsen, K., Parks-Stamm, E. J., Olsen, M., & Kvalø, M. (2021). Children ‘under lockdown’: Voices, experiences, and resources during and after the COVID-19 emergency. Insights from a survey with children and families in the Lombardy region of Italy. *European Early Childhood Education Research Journal, 29*(1), 35–50. https://doi.org/10.1080/1350293X.2021.1872673

Marquez, J., & Main, G. (2021). Can schools and education policy make children happier? A comparative study in 33 countries. *Child Indicators Research, 14*(1), 283–339. https://doi.org/10.1007/s12187-020-09758-0

Martiny, S. E., Thorsteinsen, K., Parks-Stamm, E. J., Olsen, M., & Kvalø, M. (2021). Children’s well-being during the COVID-19 pandemic: Relationships with attitudes, family structure, and mothers’ well-being. *European Journal of Developmental Psychology*. Advance online publication. https://doi.org/10.1080/17405629.2021.1948398

Matthews, N., Kilgour, L., Christian, P., Mori, K., & Hill, D. M. (2015). Understanding, evidencing, and promoting adolescent well-being: An emerging agenda for schools. *Youth & Society, 47*(5), 659–683. https://doi.org/10.1177/0044118X13513590

McLachlan, G., & Peel, D. (2000). *Finite mixture models*. John Wiley & Sons Inc.

Meyer, J. P., & Morin, A. J. S. (2016). A person-centered approach to commitment research: Theory, research, and methodology. *Journal of Organizational Behavior, 37*(4), 584–612. https://doi.org/10.1002/job.2085
Mondragon, N. I., Sancho, N. B., Santamaria, M. D., & Munitis, A. E. (2021). Struggling to breathe: A qualitative study of children’s wellbeing during lockdown in Spain. Psychology & Health, 36(2), 179–194. https://doi.org/10.1080/08870446.2020.1804570

Moore, G. F., Cox, R., Evans, R. E., Hallingberg, B., Hawkins, J., Littlecott, H. J., Long, S. J., & Murphy, S. (2018). School, peer and family relationships and adolescent substance use, subjective wellbeing and mental health symptoms in Wales: A cross sectional study. Child Indicators Research, 11(6), 1951–1965. https://doi.org/10.1007/s12187-017-9524-1

Muthén, L. K., & Muthén, B. O. (2017). Mplus: Statistical analysis with latent variables. User’s guide (version 8). Authors.

Nagin, D. S. (2005). Group-based modeling of development. Harvard University Press.

Newland, L. A., Giger, J. T., Lawler, M. J., Roh, S., Brockevelt, B. L., & Schweinle, A. (2019). Multilevel analysis of child and adolescent subjective well-being across 14 countries: Child- and country-level predictors. Child Development, 90(2), 395–413. https://doi.org/10.1111/cdev.13134

Park, J., Jung, H. & Han, Y. (2022). Latent profile analysis of associations among children’s risk profiles, rights, and subjective well-being across 16 countries. Current Psychology. Advance online publication. https://doi.org/10.1007/s12144-022-02916-3

Petras, H., & Masyn, K. (2010). General growth mixture analysis with antecedents and consequences of change. In A. R. Piquero & D. Weisburd (Eds.), Handbook of quantitative criminology (pp. 69–100). Springer.

Rees, G. (2018). The association of childhood factors with children’s subjective well-being and emotional and behavioural difficulties at 11 years old. Child Indicators Research, 11, 1107–1129. https://doi.org/10.1007/s12187-017-9479-2

Sánchez-Queija, I., & Oliva, A. (2015). A longitudinal view of peer-friendship relations and their association with parental attachment bonds. International Journal of Psychology and Psychological Therapy, 15, 259–272.

Sancho, N. B., Mondragon, N. I., Santamaria, M. D., & Munitis, A. E. (2021). The well-being of children in lock-down: Physical, emotional, social and academic impact. Children and Youth Services Review, 127, 106085. https://doi.org/10.1016/j.childyouth.2021.106085

Schwartz, K. D., Exner-Cortens, D., McMorris, C. A., Makarenko, E., Arnold, P., Van Bavel, M., Williams, S., & Canfield, R. (2021). COVID-19 and student well-being: Stress and mental health during return-to-school. Canadian Journal of School Psychology, 36(2), 166–185. https://doi.org/10.1177/08295735211001653

Seligman, M. E. P., Ernst, R. M., Gillham, J., Reivich, K., & Linkins, M. (2009). Positive education: Positive psychology and classroom interventions. Oxford Review of Education, 35(3), 293–311. https://doi.org/10.1080/03054980902934563

Seligson, J. L., Huebner, E. S., & Valois, R. F. (2003). Preliminary validation of the Brief Multidimensional Students’ Life Satisfaction Scale (BMSLSS). Social Indicators Research, 61(2), 121–145.

Spinelli, M., Lionetti, F., Pastore, M., & Fasolo, M. (2020). Parents’ stress and children’s psychological problems in families facing the COVID-19 outbreak in Italy. Frontiers in Psychology, 11, 1713. https://doi.org/10.3389/fpsyg.2020.01713

Strózik, D., Strózik, T., & Szwarc, K. (2016). The subjective well-being of school children. The first findings from the children’s worlds study in Poland. Child Indicators Research, 9(1), 39–50. https://doi.org/10.1007/s12187-015-9312-8

Thorisdottir, I. E., Asgeirsdottr, B. B., Kristjansson, A. L., Valdimarsdottir, H. B., Tolgyes, E. M. J., Sigfusson, J., Allegrante, J. P., Sigfusdottir, I. D., & Halldorsdottir, T. (2021). Depressive symptoms, mental wellbeing, and substance use among adolescents before and during the COVID-19 pandemic in Iceland: A longitudinal, population-based study. The Lancet Psychiatry, 8(8), 663–672. https://doi.org/10.1016/S2215-0366(21)00156-5

Tian, L., Zhang, J., & Huebner, E. S. (2015). Preliminary validation of the Brief Multidimensional Students’ Life Satisfaction Scale (BMSLSS) among Chinese elementary school students. Child Indicators Research, 8(4), 907–923. https://doi.org/10.1007/s12187-014-9295-x

Tomyn, A. J., & Cummins, R. A. (2011). The subjective wellbeing of high-school students: Validating the personal wellbeing index—school children. Social Indicators Research, 101(3), 405–418. https://doi.org/10.1007/s11205-010-9668-6

UNICEF Innocenti (2020). Worlds of influence: Understanding what shapes child well-being in rich countries. Innocenti Report Card 16. UNICEF Office of Research – Innocenti.
Van Lancker, W., & Parolin, Z. (2020). COVID-19, school closures, and child poverty: A social crisis in the making. *The Lancet. Public Health, 5*(5), e243–e244. https://doi.org/10.1016/S2468-2667(20)30084-0

Van Droogenbroeck, F., Spruyt, B., & Keppens, G. (2018). Gender differences in mental health problems among adolescents and the role of social support: Results from the Belgian health interview surveys 2008 and 2013. *BMC Psychiatry, 18*, 6. https://doi.org/10.1186/s12888-018-1591-4

Vermunt, J. K., & Magidson, J. (2002). Latent class cluster analysis. In J. Hagenaars & A. McCutcheon (Eds.), *Applied latent class analysis* (pp. 89–106). Cambridge University Press.

Yoo, J., & Ahn, J. (2017). Understanding the typologies of child subjective well-being: A cross-country comparison. *Children and Youth Services Review, 80*, 22–30. https://doi.org/10.1016/j.childyouth.2017.06.061

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