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Student Adaptation, Loneliness and Mental Health Profiles during the Second Wave of the Pandemic COVID-19

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Abstract: Since the COVID-19 pandemic, adolescent mental health difficulties have increased. To understand adolescent adjustment, it is important to explore both mental health difficulties and indicators of resilience and well-being. The primary aim of this study was to explore the associations among resilience, subjective well-being (SWB), fear of COVID-19, and loneliness among adolescents during the second wave of the pandemic. Additionally, the study aimed to identify student profiles based on these variables. The sample consisted of 469 high school students (61% girls, 29% junior high school). Resilience was positively correlated with SWB and negatively with fear of COVID-19 and loneliness. Three student profiles were identified. The Resilient and Satisfied group (38%) consisted of students with the most positive adaptation, and the Average group (41%) involved students with middle scores in all variables, while the Vulnerable and Distressed group (21%) included those who struggled the most. The need for a tiered approach in providing school-based mental health support is discussed.

Keywords: COVID-19; resilience; adolescent mental health

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1. Introduction

Over the last two years, the COVID-19 pandemic has been posing significant and changing challenges to people and communities worldwide, especially to the most vulnerable groups. In addition to the devastating risk that it poses to physical health, the pandemic has dramatically affected the mental health and well-being of both children and adults [1–4]. Specifically for children and young people, there have been significant increases in symptoms of depression, anxiety, psychological stress, and post-traumatic stress compared to pre-pandemic rates [1,3,5,6].

During the pandemic, preventive measures and restrictions resulted in extended physical isolation and changes in everyday social interactions. Loneliness is conceptualized as a distressing emotional state that occurs due to the discrepancy between a person's desired social relations and their actual social reality [7]. Loneliness is experienced at all ages; however, levels of loneliness seem to peak in adolescents and older adults [8]. Loneliness is associated with various health and mental health difficulties (the latter defined as symptoms that meet the diagnostic criteria for mental disorders, as well as subclinical levels of symptoms that indicate poor mental health, for example, behavioural or emotional difficulties), including depression, anxiety, suicidality, and general perceived well-being [9–12]. In children and young people, the association of loneliness with mental health difficulties, such as depression and anxiety, has been established [13–15]. Specifically, depression has been found to predict levels of loneliness [14,15]. For example, one meta-analysis reported that depression at age seven is linked with higher levels of depression at 15 years old [15]. Similarly, the association between loneliness and social anxiety symptoms is reciprocal, leading to a vicious cycle [13]. Loneliness in childhood predicts poorer emotional and physical health in adolescents; it is associated with depressive symptoms, poorer

self-reported health, and alcohol consumption [16,17]. During the pandemic, increased levels of loneliness were experienced by children and young people [1]. Loneliness was strongly associated with depressive symptoms, while small to moderate associations between loneliness and anxiety have been reported [18]. For youths with pre-existing mental health difficulties, loneliness was associated with symptoms of depression and anxiety; however, the direction of this relationship is undefined [19]. Studies have emphasized the potential mediating role of loneliness in young people's mental health symptomatology. Loneliness might play a mediating role between social distancing and symptoms of anxiety and depression [20]. Longitudinal findings have highlighted the mediating role of the quality of friendships and of attitudes towards being alone with regard to depressive symptomatology in adolescents [21].

The role of fear and worry about the COVID-19 pandemic has also been explored in relation to mental health difficulties. Studies have reported the association between fear of COVID-19 and various mental health outcomes in adults, including anxiety, traumatic stress, depression, insomnia, distress, and loneliness [22,23]. Less robust evidence exists for child and adolescent populations. While different measures have been used amongst studies, common concerns involve worry about oneself and loved ones becoming very ill, social restrictions (not being able to see friends or participate in social activities), academic concerns (e.g., effect on the school year and academic performance), and economic concerns (e.g., concerns about family financial circumstances) [24–26]. Fear of infecting oneself and vulnerable others was the most frequently reported COVID-related fear [27]. Findings indicate that increased fear and worry are related to more negative outcomes for young people, including increased levels of depressive and anxiety symptoms and lower levels of well-being and life satisfaction [24,26–28]. Females and older adolescents were more likely to worry about the impact of the pandemic, while young people with chronic conditions were more likely to worry about the disease [29].

Additionally, various demographic variables are related to child and adolescent adaptation during the pandemic. Limited evidence for the roles of age, biological sex at birth, and socioeconomic status (SES) exists [1]. Regarding age, the findings have been inconclusive, with some studies reporting a more negative impact on the mental health of older adolescents than younger ones [1,30,31] while other studies have reported that younger adolescents are affected more than older ones [32].

The role of sex in adolescent mental health is unclear. However, in most studies that reported significant differences, girls were more negatively affected than boys; studies reported a disproportionate effect on girls with regard to symptoms of anxiety and depression [3,5,33].

Both low prior SES and decline in income during the pandemic have been associated with psychological difficulties during school closures [34]. Children from families of low socioeconomic status were more negatively affected in measures concerning their psychological well-being, emotional problems, and health-related quality of life [30,32,35].

Nonetheless, mental health is not solely the absence of mental illness; rather, mental health is conceptualized as a state of well-being that allows the individual to realize his or her abilities, to cope effectively with life challenges, and to be productive [36]. To understand adolescent mental health during the pandemic, exploring well-being indicators and positive adaptation, alongside symptoms of mental health difficulties, appears essential. Little research has been conducted on adolescent well-being during the pandemic. Subjective well-being (SWB) is defined as "a person's cognitive and affective evaluation of his or her life" [37] (p. 63). SWB is global, as it refers to various aspects of a person's life, and it is subjective, involving personal judgements about one's satisfaction in life [37]. During the first months of the pandemic and the first global lockdown, children and adolescents' physical and psychological well-being declined compared to pre-pandemic levels [35]. A variety of factors are related to adolescent SWB during the pandemic, including insecurity related to the pandemic, levels of hope, coping strategies (e.g., physical activity, engagement in a variety of activities), family circumstances (family climate, difficulty being

at home), school-related factors (worrying about adverse outcomes), and socioeconomic status [35,38,39].

However, most young people manage to cope well during crises. Resilience is defined as "the process and outcome of successfully adapting to difficult or challenging life experiences, especially through mental, emotional, and behavioral flexibility and adjustment to external and internal demands" [40]. In the face of numerous challenges, research on resilience has provided hope about the adaptive outcomes for most young people [41]. Focusing on resilience processes will likely enrich our understanding of how young people respond to crises [42]. Various factors may buffer the impact of the pandemic. Social support and connectedness, helpful coping strategies, and positive parent–child relationships are likely to act as protective factors for young people's psychological well-being during the pandemic [5,25,26,43].

To explore the impact of the pandemic on Greek school communities, the Laboratory of School Psychology, a university-based laboratory, developed a broader research project conducted in different phases of the pandemic, aiming at exploring teachers', parents', adolescents', and psychologists' perceptions related to psychological and educational needs, as well as sources of support [44]. The present study is part of the broader research project aiming mainly to examine the associations among adolescents' resilience, subjective well-being, fear of COVID-19, and loneliness during the second wave of the COVID-19 pandemic in Greece. In particular, the aims of the study were:

1. To explore the associations among resilience, SWB, fear of COVID-19, and loneliness;

It was hypothesized that resilience would be positively related to SWB and negatively related to fear of COVID-19 and loneliness.

2. To identify student profiles based on four mental health measures;
3. To explore the roles of demographic characteristics (age, gender, SES) and experience of COVID-19 (i.e., family member/friend has become ill, loss of loved one due to COVID-19).

2. Materials and Methods

2.1. Participants

The sample consisted of 469 students, of whom 287 (61%) were girls, and 182 (39%) were boys. In relation to educational level, 138 (29%) were junior high school students, and 331 (71%) were senior high school students. Regarding the experience of COVID-19, 141 students reported that a friend/relative tested positive for COVID-19, and 48 responded that this person was hospitalized. Finally, 14 students experienced the loss of a close relative to COVID-19.

2.2. Instruments

The following questionnaires were used for data collection.

UCLA Loneliness Scale (Version 3) [45]. It is a 20-item scale that measures one's subjective feelings of loneliness and social isolation and produces a total score. Participants rate each item based on a 4-point Likert scale, from 1 ("I never feel this way") to 4 ("I often feel this way"). Example items are: "I feel in tune with the people around me", "There is no one I can turn to", and "There are people who really understand me" (Cronbach's $\alpha = 0.89$).

The Fear of COVID-19 Scale [46]. It is a 7-item scale that has a stable unidimensional structure, and it is used to assess people's fear of COVID-19 in the general population (e.g., "I am most afraid of coronavirus-19", "My hands become clammy when I think of coronavirus-19") (Likert scale 1 = strongly disagree to 5 = strongly agree). The scale has been used in Greek surveys with adult participants. It was adjusted for the present study following the suggestion from the ethics review board, and six items were finally used (Cronbach's $\alpha = 0.84$).

Berne Questionnaire of Subjective Well-Being/Youth Form (BSW/Y) [47]. This questionnaire consists of 39 items [5-point Likert scale rating from 1 (not at all) to 5 (very much)]

that produces the following six factors: Positive attitude towards life (eight items, e.g., I enjoy life; Cronbach's $\alpha = 0.87$), Self-esteem (four items, e.g., I can manage as well as others; Cronbach's $\alpha = 0.77$), Joy in life (four items, e.g., During the last few weeks, I felt happy because other people liked me; Cronbach's $\alpha = 0.84$), Depressive mood (six items, e.g., My life has no meaning; Cronbach's $\alpha = 0.86$), Problems (eight items, e.g., During the last few weeks, how often were you worried because of your health; Cronbach's $\alpha = 0.70$), Somatic complaints (eight items, e.g., During the last few weeks, you had a very bad headache; Cronbach's $\alpha = 0.87$). Positive attitude towards life, self-esteem, joy in life and (Lack of) Depressive mood are included in a higher-order positive factor called Satisfaction (Cronbach's $\alpha = 0.93$), while Somatic complaints and problems are included in a higher-order negative factor called Ill-being (Cronbach's $\alpha = 0.87$). Factor analysis verified the factorial structure of the questionnaire for Greek adolescents, for both the lower-order and the higher-order factors [48].

The 15-item Resilience Scale (RS-15) [49] was used to assess adolescents' psychological resilience. It is a self-reported scale that is rated based on a 7-point Likert scale (1 = disagree to 7 = agree) and produces a total score. Selective items include "I have self-discipline", "When I make plans, I follow through with them", and "I am determined" (Cronbach's $\alpha = 0.90$). The scale has been adjusted and used in other Greek surveys as well [50].

Finally, the following sociodemographic variables were measured: biological sex at birth (female, male), grade (three grades for secondary school corresponding to 12–15 years of age and three grades for high school corresponding to 15 to 18 years old), parental educational attainment (measured for the student's father and mother using the following single item measure: "What is the highest level of education completed by your father/mother?" Responses included "Compulsory", "High school degree" and "University degree), and family income (low, middle, high). Additionally, three questions were used to measure COVID-19-related experience. Specifically, one question examined whether COVID-19 infected a close person, a second one measured whether a relative or friend was hospitalized due to COVID-19, and a third one measured the loss of a loved one due to COVID-19.

2.3. Procedure

The study followed a cross-sectional design and constituted part of a broader research project exploring parent, teacher, and adolescent adjustment and perceived needs during different stages of the pandemic. This paper presents the results of the adolescent survey during the second wave of the pandemic. During this period, protective measures were introduced, including school closures, distance learning, and a national lockdown.

Data were collected via online self-report questionnaires using Google forms that were emailed to schools randomly drawn from the database of schools registered in the Greek Ministry of Education. Permission for the survey was granted by the Ministry of Education and the Institute of Educational Policy. Participants' selection was random since every student was eligible to participate. Schools were asked to distribute the research link to parent organizations. Parent organizations are groups of parents/guardians of each school's pupils who are represented by a parent council. Parent organizations represent the views of parents/guardians, facilitate cooperation with the school, support school operations, and support student education and development. Subsequently, parents would allow their children to participate in the survey, as parental consent was required. Following the university research ethics process, information was provided on the survey's first page, describing the study's aims and process and highlighting the voluntary nature and anonymity of participation and the right to withdraw at any time.

2.4. Statistical Analysis

Data were analyzed using SPSS software, version 26.0 [51]. Pearson's correlation coefficients were calculated to explore the associations between the study variables. To identify and classify patterns of similar observations, two-step cluster analysis was performed

using the SPSS TwoStep Clustering algorithm, which is designed to handle large datasets efficiently and has features to guide in determining the optimal number of clusters [52]. A further advantage of the two-step cluster analysis approach is that it identifies which combinations from the many that are logically possible in the data are important, and it identifies the types empirically, rather than imposing them from an a priori scheme. Schwarz's Bayesian information criterion (BIC) was used to select the "best" cluster solution. The procedure is relatively robust to violations of the two assumptions: (a) the independence of the variables in the model; and (b) the normality of the variable distributions. However, both assumptions were tested and met for the following variables, which were included in the analysis: (a) resilience; (b) fear of COVID-19; (c) loneliness; (d) BSWY-satisfaction; and (e) BSWY-problems. The chi-square test for independence was performed to examine associations between distributions of clusters of participants and sex, and the independent samples t-test and one-way ANOVA were conducted to test the effects of demographic variables on the study's variables.

3. Results

This section may be divided by subheadings. It should provide a concise and precise description of the experimental results, their interpretation, as well as the experimental conclusions that can be drawn.

3.1. Preliminary Analysis

Means, standard deviations, and bivariate correlations among study variables are shown in Table 1. Pearson's correlation coefficients were calculated to address study hypothesis/goal 1. All components of satisfaction (positive attitude towards life, self-esteem, lack of depressive mood, and joy in living) were negatively associated with fear of COVID-19. Although all coefficients were statistically significant, they were small and ranged between $r = -0.10$ and $r = -0.19$. Ill-being, which comprises problem-awareness and somatic complaints and reactions, had higher (ranging between $r = 0.28$ and $r = 0.32$) positive and statistically significant associations with fear of COVID-19.

In contrast, all components of satisfaction had moderate and high positive associations with resilience (correlation coefficients ranged between $r = 0.58$ and $r = 0.75$) and negative associations with loneliness ($r = -0.51$ and $r = -0.66$). Similarly, the components of ill-being had moderate negative associations with resilience (correlation coefficients ranged between $r = -0.37$ and $r = -0.44$) and positive associations with loneliness ($r = 0.37$ and $r = 0.42$). In all cases, correlation coefficients were statistically significant at the 0.001 level.

3.2. Cluster Analysis

Cluster analysis aims to identify groups of similar observations, formally forming groups so that: (a) within a group, the observations are most similar; and (b) between groups, the observations are most dissimilar. Cluster analysis is a form of unsupervised classification: there are no pre-defined classes, and it can be considered descriptive data mining. Three clusters were identified, and cluster centres of the hierarchical three-cluster solution were then used as the starting values for the K-means clustering procedure, in which iterations were performed until no cases were relocated. One-way ANOVA with Tukey's HSD test examined differences by clusters of participants in scores of resilience, loneliness, COVID fear, and BSWY-satisfaction and problems (see Table 2). The chi-square test determined the significance of distributions across the clusters by stage of change.

Table 1. Means, Standard Deviations, and Correlations among Study Variables.

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
1 BSW/Y-Positive attitude towards life	-	−0.37 ***	−0.45 ***	0.58 ***	0.63 ***	0.65 ***	−0.47 ***	0.88 ***	0.66 ***	−0.13 **	−0.51 ***
2 BSW/Y-Problems		-	0.55 ***	−0.47 ***	−0.36 ***	−0.51 ***	0.83 ***	−0.50 ***	−0.37 ***	0.32 ***	0.38 ***
3 BSW/Y-Somatic complaints			-	−0.59 ***	−0.44 ***	−0.53 ***	0.92 ***	−0.60 ***	−0.41 ***	0.20 ***	0.37 ***
4 BSW/Y-Lack of depressive mood				-	0.56 ***	0.65 ***	−0.61 ***	0.83 ***	0.58 ***	−0.19 ***	−0.57 ***
5 BSW/Y-Joy in life					-	0.54 ***	−0.46 ***	0.81 ***	0.64 ***	−0.10 *	−0.53 ***
6 BSW/Y-Self-esteem						-	−0.59 ***	0.84 ***	0.64 ***	−0.15 **	−0.61 ***
7 BSW/Y-Ill-being							-	−0.63 ***	−0.44 ***	0.28 ***	0.43 ***
8 BSW/Y-Satisfaction								-	0.75 ***	−0.17 ***	−0.66 ***
9 Resilience									-	−0.10 *	−0.57 ***
10 Fear of COVID-19										-	0.16 ***
11 Loneliness											-
Mean	3.49	2.57	2.35	3.55	3.23	3.69	2.45	3.49	79.36	11.34	38.67
SD	0.80	0.81	1.03	1.09	0.92	0.88	0.82	0.76	15.58	4.85	10.62

Note. All relationships are estimated using Pearson's product-moment correlations. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 2. Cluster Means and ANOVAs across the Three Clusters (N = 469).

Variables	Clusters			*df*	*F*	η^2	Tukey's HSD
	Resilient and Satisfied (n = 178)	Average (n = 193)	Vulnerable and Distressed (n = 98)				
Resilience	94	78	56	2, 466	879.0	0.790	1 > 2 > 3
Loneliness	31.3	39.3	50.8	2, 466	198.3	0.460	1 < 2 < 3
Fear of COVID-19	10	12	12	2, 466	7.9	0.033	1 < 2, 3
BSWY-Satisfaction	4.1	3.4	2.6	2, 466	264.8	0.532	1 > 2 > 3
BSWY-Problems	2.0	2.6	3.0	2, 466	58.2	0.200	1 < 2 < 3

Students who belonged to Cluster 1 (Resilient and Satisfied) had higher scores in resilience and satisfaction and lower scores in loneliness, fear of COVID-19, and ill-being. Cluster 3 (Vulnerable and Distressed) students had lower scores in resilience and satisfaction and higher scores in loneliness, fear of COVID-19, and ill-being. Finally, Cluster 2 students (Average) had middle scores in all five variables; however, Cluster 2 and 3 students had similar scores in fear of COVID-19. Whereas ANOVA indicated significant differences between the groups in these variables (all pairwise differences were significant at the 0.001 level), it should be considered that the clusters were created to be as different as possible regarding the selected variables, and therefore, the actual statistics are meaningless, and the finding is unsurprising.

The chi-square test for independence examined associations between distributions of clusters of participants and sex, respectively. Cluster membership was not independent of sex [$\chi^2(2) = 6.48$, $p = 0.039$]. Specifically, whereas in resilient and satisfied students, the percentage of girls was very close to that of boys (54% and 46% respectively), in average and vulnerable and distressed groups, the percentage of girls was almost double that of boys (66% and 34% in cluster 2 and 64% and 36% in Cluster 3).

3.3. Further Analyses on Demographic Data

Biological sex at birth had a significant effect on all variables except loneliness (see Table 3). In all cases, girls had worse scores than boys, whereas Cohen's *d* scores indicated medium or large effect sizes in most cases.

Table 3. Means, Standard Deviations, and Independent Samples T-Test Statistics for Biological Sex at Birth on Study Variables.

	N_{Girls}	N_{Boys}	$M_{Girls}(SD_{Girls})$	$M_{Boys}(SD_{Boys})$	Cohen's *d*	*t*-Value
BSWY-Satisfaction	287	182	3.4 (0.8)	3.7 (0.7)	−0.37	−3.918 ***
BSWY-Positive Attitude towards Life	287	182	3.4 (0.8)	3.6 (0.8)	−0.29	−3.083 **
BSWY–Lack of depressive mood	287	182	3.4 (1.1)	3.8 (1.0)	−0.39	−4.131 ***
BSWY-Joy in Life	287	182	3.2 (0.9)	3.3 (0.9)	−0.20	−3.083 *
BSWY-Self-Esteem	287	182	3.6 (0.9)	3.9 (0.8)	−0.35	−2.143 ***
BSWY-Mean of problems and somatic complaints	287	182	2.7 (0.8)	2.1 (0.7)	0.78	8.198 ***
BSWY-Problems	287	182	2.8 (0.8)	2.3 (0.8)	0.61	6.448 ***
BSWY-Somatic Complaints	287	182	2.6 (1.0)	1.9 (0.9)	0.73	7.649 ***
Resilience	287	182	78.1 (15.9)	81.3 (14.9)	0.31	−2.159 *
Fear of COVID-19	287	182	12.1 (4.8)	10.2 (4.7)	0.38	4.055 ***
Loneliness	287	182	38.7 (10.8)	38.6 (10.4)	0.01	0.066

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Grade had a significant effect on all BSWY scores except for positive attitude towards life and self-esteem (see Table 4). Specifically, younger students had better scores than their older peers. However, effect sizes were small in all cases. The results were verified by the comparison between secondary and high school students' scores. No significant differences were found in resilience, loneliness, or fear of COVID-19 between students of different grades.

Table 4. Means, Standard Deviations, and One-Way Analyses of Variance for Student's Grade on Study Variables.

		N	*M*	*SD*	*F* Ratio	*p*	η^2
BSWY-Positive Attitude towards Life	S1	31	3.7	0.7	1.899	0.093	0.020
	S2	54	3.6	0.7			
	S3	53	3.6	0.8			
	HS1	97	3.5	0.8			
	HS2	127	3.4	0.8			
	HS3	107	3.4	0.8			
BSWY-Problems	S1	31	2.2	0.9	6.184	<0.001	0.063
	S2	54	2.2	0.7			
	S3	53	2.3	0.8			
	HS1	97	2.7	0.8			
	HS2	127	2.7	0.8			
	HS3	107	2.7	0.8			
BSWY-Somatic Complaints	S1	31	1.8	0.8	5.370	<0.001	0.055
	S2	54	2.1	0.9			
	S3	53	2.1	1.0			
	HS1	97	2.3	1.0			
	HS2	127	2.5	1.0			
	HS3	107	2.6	1.0			
BSWY–Lack of depressive mood	S1	31	3.9	1.0	2.441	0.034	0.026
	S2	54	3.8	1.1			
	S3	53	3.7	0.9			
	HS1	97	3.6	1.1			
	HS2	127	3.4	1.1			
	HS3	107	3.4	1.1			
BSWY-Joy in Life	S1	31	3.6	1.0	3.456	0.004	0.036
	S2	54	3.3	0.9			
	S3	53	3.5	1.0			
	HS1	97	3.4	0.9			
	HS2	127	3.1	0.9			
	HS3	107	3.1	0.9			
BSWY-Self-Esteem	S1	31	3.9	1.0	0.805	0.546	0.009
	S2	54	3.8	0.9			
	S3	53	3.7	0.9			
	HS1	97	3.7	0.9			
	HS2	127	3.6	0.9			
	HS3	107	3.7	0.8			
BSWY-Ill-being	S1	31	2.0	0.8	6.913	<0.001	0.069
	S2	54	2.1	0.7			
	S3	53	2.2	0.8			
	HS1	97	2.5	0.8			
	HS2	127	2.6	0.8			
	HS3	107	2.7	0.8			
BSWY-Satisfaction	S1	31	3.8	0.7	2.696	0.020	0.028
	S2	54	3.6	0.7			
	S3	53	3.6	0.7			
	HS1	97	3.5	0.8			
	HS2	127	3.4	0.8			
	HS3	107	3.4	0.7			

Table 4. *Cont.*

		N	*M*	*SD*	*F* Ratio	*p*	η^2
Resilience	S1	31	81.3	17.6	0.375	0.866	0.004
	S2	54	80.6	14.2			
	S3	53	80.7	12.5			
	HS1	97	79.3	16.0			
	HS2	127	78.8	16.6			
	HS3	107	78.3	15.6			
Fear of COVID-19	S1	31	11.5	4.9	0.237	0.946	0.003
	S2	54	11.5	5.0			
	S3	53	11.1	4.7			
	HS1	97	11.6	5.0			
	HS2	127	11.0	4.5			
	HS3	107	11.4	5.1			
Loneliness	S1	31	38.2	12.6	0.672	0.645	0.007
	S2	54	36.9	10.0			
	S3	53	37.7	9.8			
	HS1	97	38.8	11.7			
	HS2	127	39.7	10.9			
	HS3	107	38.8	9.4			

Note. S1, S2, and S3 stand for the three grades of the secondary school, whereas HS1, HS2, and HS3 stand for the three grades of the High School.

Family income had a significant effect on Resilience, BSWY–Satisfaction, BSWY–Problems and BSWY–Positive Attitude (see Table 5). Specifically, students from families with higher incomes had better scores in all four variables than their peers from families with low and middle incomes. However, no difference was found between students from families with low and middle incomes.

Table 5. Means, Standard Deviations, and One-Way Analyses of Variance for Family Income on Study Variables.

		N	*M*	*SD*	*t(467)*	*p*	Cohen's *d*
BSWY-Positive Attitude towards Life	Low	40	3.3	0.9	6.828	0.001	0.032
	Middle	301	3.5	0.8			
	High	74	3.8	0.7			
BSWY-Problems	Low	40	2.8	0.9	3.559	0.029	0.017
	Middle	301	2.6	0.8			
	High	74	2.4	0.9			
BSWY-Somatic Complaints	Low	40	2.4	1.1	1.123	0.326	0.005
	Middle	301	2.4	1.0			
	High	74	2.2	1.0			
BSWY–Lack of depressive mood	Low	40	3.5	1.0	0.850	0.428	0.004
	Middle	301	3.6	1.1			
	High	74	3.7	1.2			
BSWY-Joy in Life	Low	40	3.2	0.9	2.264	0.105	0.011
	Middle	301	3.2	0.9			
	High	74	3.5	0.9			
BSWY-Self-Esteem	Low	40	3.7	0.9	1.137	0.322	0.005
	Middle	301	3.7	0.9			
	High	74	3.8	0.8			
BSWY-Ill-being	Low	40	2.6	0.9	2.448	0.088	0.012
	Middle	301	2.5	0.8			
	High	74	2.3	0.8			
BSWY-Satisfaction	Low	40	3.4	0.8	3.482	0.032	0.017
	Middle	301	3.5	0.8			
	High	74	3.7	0.7			

Table 5. *Cont.*

		N	*M*	*SD*	*t(467)*	*p*	Cohen's *d*
Resilience	Low	40	79.4	16.8	5.219	0.006	0.025
	Middle	301	78.0	15.8			
	High	74	84.5	13.3			
Fear of COVID-19	Low	40	11.8	4.6	0.165	0.848	0.001
	Middle	301	11.4	4.9			
	High	74	11.3	5.4			
Loneliness	Low	40	40.9	10.1	1.248	0.288	0.006
	Middle	301	38.1	10.4			
	High	74	38.1	11.0			

Students who reported that a friend/relative tested positive for COVID-19 did not differ from the rest of the sample regarding their fear of COVID-19. Similar results were obtained from those participants who reported that a relative or friend had died from COVID-19.

4. Discussion

This study explored adolescent mental health during the pandemic by examining student levels of subjective well-being, resilience, fear of COVID-19, and loneliness. Regarding the study's first aim, the findings showed that resilience was positively associated with life satisfaction and negatively associated with loneliness, poor well-being, and fear of COVID-19. These findings were not unexpected. Social connectedness has been positively related to resilience and well-being, while felt loneliness has been associated with mental health difficulties [18,53]. Fostering positive relationships in school and families is likely to positively affect adolescent well-being [54].

Especially during periods of prolonged physical isolation, promoting social connectedness and social support appears essential. During school closures, distance learning and telehealth interventions are alternative means for continuing education and supportive services. Studies indicate that, while internet technology can be beneficial in promoting a sense of connectedness to friends and school, it might also be related to increased anxiety and loneliness [55]. Therefore, careful utilization of digital methods to reinforce social bonds, connectedness, and support could be beneficial; however, purposeful planning and consideration is warranted.

Fear of COVID-19 was negatively associated with resilience, confirming previous findings in adolescents and adults [56–58]. Resilience was found to have a mediating role between fear of COVID-19 or COVID-19 related worry and emotional symptoms (depression and anxiety) in adolescent and young adult samples [59,60]. Future studies should explore the potential mediating role of resilience in the association between fear of COVID-19 and adolescent mental health.

The cluster analysis indicated that adolescents were diversely affected by the pandemic. Three distinct clusters were identified in relation to resilience, loneliness, fear of COVID-19 and well-being. The first group (resilient and satisfied) included 38% of students, the second group (average outcomes) was the largest, with 41% of students belonging to this group, and the third group (vulnerable and distressed) included 21% of students. The three clusters confirm anecdotal evidence of patterns of early reactions to the pandemic in clinical practice: the most resilient group includes those who coped well or even thrived during the pandemic; the second group describes those who were negatively affected due to the restrictions in daily and social life but to a limited degree; and the third group includes the most vulnerable children experiencing more adverse conditions during the stay-at-home period [61]. Similarly, recent data confirm three groups of adolescents whose mental health improved (34%), remained stable (46%), or worsened (15%) during the pandemic compared to pre-pandemic rates [62]. Our findings also partially confirm the study of She et al. [63], who also identified three clusters of adolescents in relation to coping during the pandemic, measuring levels of fear of COVID-19, resilience, and smartphone

use. In our sample, however, the percentages of students in Clusters 2 (average) and 3 (vulnerable and distressed) were larger.

Our findings align with the study by Las Hayas et al. [64], which categorized students based on mental well-being, symptoms of mental health, and behavioural problems, reporting three groups (26% good mental health, 68% intermediate mental health, and 6% poor mental health).

A large percentage (21%) of young people in the present sample belonged to the low-resilience group. Previous data showed that the prevalence of mental health problems in young Greek people was higher than the European mean in a study comparing European countries [32]. This finding indicates that one in every five young people struggled during the second stage of the pandemic. These adolescents presented with lower scores in resilience and life satisfaction and higher scores in problems, fear of COVID-19, and loneliness.

Overall, more than half of the students struggled to some degree during the pandemic, while a considerable proportion belonged to the low-resilience profile, emphasizing the need to implement school-based mental health interventions during challenging periods. The findings indicate that a tiered approach combining universal mental health promotion programmes for all students and targeted interventions for more vulnerable ones appears suitable. Considering the exacerbation of social inequalities during the pandemic, providing additional support to the most affected is essential [44]. Based on the findings, areas to target in school-based interventions are proposed.

On a universal level, preventive school-based interventions to foster resilience and social connectedness are likely to benefit all students. Targeted interventions should further consider including components related to managing anxiety and worries about the pandemic. To date, there is limited evidence on the effectiveness of interventions targeting the effects of COVID-19 in children and adolescents [65,66], and the feasibility of evidence-based resilience-building programmes under the pandemic conditions is unclear [67]. While school-based interventions are effective in promoting well-being and targeting specific difficulties [68,69], the adaptation of interventions to the specific needs of school communities during the pandemic requires careful consideration.

Sex differences were evident in most variables. Significantly more girls than boys belonged to the average group and the vulnerable and distressed group. Girls reported more fear and scored higher on anxiety and depressive symptoms and lower on resilience levels and well-being. The findings are in line with previous studies reporting sex differences [70]. Nonetheless, some studies have reported mixed or insignificant results [71]. The sex gap in adolescent mental health is established, with girls having worse mental health than boys [72], which might be reflected in the sex differences found in the present study. Similarly, younger adolescents reported more favourable outcomes than older participants, scoring higher on well-being factors. This finding aligns with previous data reporting that young people's mental health difficulties during the pandemic appear to intensify with age [71]. Further, differences related to socioeconomic status were identified, showing that young people from low- and middle-income families scored lower in resilience and SBJ than those from high-income families. Previous studies in other countries indicated that children and adolescents with low socioeconomic status are significantly more affected by the pandemic [32,73,74].

Overall, differences based on sex, age, and family income were identified. Girls, older adolescents, and those in lower socioeconomic groups were more likely to belong to the less resilient groups (groups 2 and 3), indicating the heterogeneous impact of the pandemic on adolescents. Further research is needed to better understand how demographic and socioeconomic differences affect young people's adaptation during the pandemic. Future research should explore the interaction of demographic and social factors in student adaptation.

Limitations of the study should be acknowledged. The web-based nature of data collection might have made it subject to greater self-selection bias, although it has been supported that web-based surveys are equivalent to the use of traditional methods [75]. Nonetheless, it is possible that students with limited internet access or devices or those with limited digital literacy

were excluded. Girls and high school students were somewhat overrepresented compared to boys and secondary school students. Therefore, while schools were randomly selected to improve the study's external validity, the possibility that the sample is not representative cannot be excluded. While the hypothesized associations between the variables examined were confirmed, the direction of these relations cannot be determined.

5. Conclusions

The study shows that high school students' adaptation varied during the second wave of the pandemic. The study identified three profiles of students (Resilient and Satisfied, 38%; Average, 41%; Vulnerable and Distressed, 21%) with varying levels of reported resilience, well-being, loneliness, and fear of COVID-19, indicating that more than half of the students struggled to some degree during this period of the pandemic. Resilience was positively associated with life satisfaction and negatively associated with loneliness, ill-being, and fear of COVID-19. Targeting loneliness and anxiety related to COVID-19 is a promising area for mental health promotion interventions during the pandemic. Socio-demographic factors (gender, age, family income) were related to student adaptation and showed the heterogeneous impact of the pandemic on young people. Older age, female sex, and lower family income were related to less favourable outcomes. Considering these factors might facilitate the identification of young people at risk. The findings indicate that tailored mental health interventions are needed to support adolescents by adopting tiered approaches. Since schools constitute the ideal setting to reach most young people, providing school-based universal and targeted interventions to promote young people's resilience and well-being is suggested.

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Informed Consent Statement: Informed child and parental consent was obtained from all subjects involved in the study.

Data Availability Statement: The data supporting the findings of this paper are part of a large dataset currently undergoing further analysis. Due to the ongoing nature of this analysis and the need for additional research, the data cannot be made publicly available at this time. However, upon completing the analysis and ensuring compliance with data-sharing policies, we intend to make a portion of the dataset available for future research. Inquiries regarding data access can be directed to the corresponding author.

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