



**L-Università ta' Malta**  
Centre for Resilience &  
Socio-Emotional Health

# The Resilience of Maltese Children during COVID-19

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## Executive Summary

This study has been carried out by the Centre for Resilience and Socio-Emotional Health at the University of Malta in collaboration with Flinders University, Australia. It sought to explore the wellbeing, mental health and resilience of Maltese 11-16 year old school children during the first wave of the pandemic when schools were closed in 2020. An online survey examining subjective wellbeing, depression, anxiety, resilience, coping strategies and the positive and negative aspects of the pandemic, was sent to a representative sample of middle and secondary school students in Malta and Gozo. The final sample consisted of 455 students (Year 7 to Year 11) from state, church and independent schools.

Nearly half (47%) of the students were flourishing, while a small proportion (11%) were languishing in their wellbeing. While numbers were small, student wellbeing decreased across year levels (Year 7 to Year 10), with the lowest level of wellbeing reported in Year 10. Overall, male participants tended to show better subjective wellbeing than females, although this was not a consistent trend at all Year levels. There was an increase in the likelihood of languishing in wellbeing after four months of lockdown, however the effect size was small.

The majority of students (54%) did not feel depressed and no students were found to have had extremely severe depression. However, a small proportion (3%) were severely depressed and 13% moderately depressed. While there was a trend toward an increased likelihood of depression once in lockdown for over four months, there were insufficient numbers to test this relationship. Two thirds of students (68%) did not report being anxious but 7% showed severe or extreme levels of anxiety and 8% moderate levels of anxiety.

Nearly half (47%) of the students indicated that they were resilient often or nearly all the time, but 12% reported poor resilience. There was a significant negative correlation between amount of time in lockdown and student resilience, with a decrease in resilience as the time in lockdown increased, but the correlation was very low. Students' level of resilience was directly related to the likelihood of experiencing depression and anxiety, with the most resilient the least likely to develop mental health difficulties.

Spending time with family and feeling safe at home was the most cited positive aspect of the lockdown experience (40%), followed by having more free and relaxing time (19%) and more time to focus on things young people liked and developing new interests (14%). Ten per cent mentioned having no school as a positive experience. The third group of positive experience factors was related to the use technology to meet online with friends (6%), to spend time on social media to play games (8%) and to attend online learning (6%).

On the other hand, just over half (51%) of the participants found the disruption of their normal life as the worst part of the experience, particularly having to stay at home unable to have social outings (26%), or direct social contact with friends (25%). Ten per cent also indicated concern about their sense of loneliness, boredom, and anxiety during the lock down. Only 4% however, were worried about being infected with the virus. The demands of online learning were another negative aspect of the pandemic with 10% referring to the challenges of virtual learning they encountered. On the other hand, only 8% mentioned missing school,

teachers, and peers. Noteworthy was that only 5% mentioned reduced exercise as a negative aspect of the lockdown.

Play, exercise and creativity were the factors mostly used by young people for coping with the pandemic, followed closely by family factors and then positive thinking and self-regulation. Community, neighbours, and online learning were the least used strategies. The three top protective factors were watching TV/video games and music (68%), the support and care of the family (64%) and doing things with the family (48%). Forty-two percent also mentioned social media while 40% indicated that communicating with relatives such as grandparents helped them cope. Play, sense of humour, and chatting with friends also featured as key protective factors (39%-40%). Social interactions with neighbours and playing in the neighbourhood were the least helpful factors, with 42% to 50% almost never engaging in these activities. Other least used strategies included attending online religious services (35%), voluntary work from home (32%), praying (20%), and online lessons with teachers and teacher support (19%-20%). Middle school students appeared to make more use, in contrast to their older secondary school peers, of family and online learning strategies.

There are significant strong to moderate positive correlations between resilience and positive thinking and self-regulation, and play, exercise and creativity, indicating that these are protective factors against the stresses of the pandemic. There was also a low to moderate correlation between resilience and family-related factors, but the other three group of factors had only low (even if significant) correlation with resilience. On the other hand, family related factors were moderately related to positive mental health, while the correlation with depression and anxiety was low, suggesting that the family was particularly important to children's positive mental health, but had relatively lower influence on resilience and the prevention of depression and anxiety. Similarly, while there was a moderate significant correlation between play, exercise and creativity and resilience, the correlations between this group of factors and mental health were low. The relationship between resilience and positive mental health was moderate, indicating that resilient students were more likely to enjoy positive mental health and were less likely to suffer from depression and anxiety.

The best fitting regression model found that aside from individual resilience, only belief in self and self-regulation was protective of depression and anxiety. All of the other factors, including the amount of time in lockdown, were not significant predictors. Increasing self-belief and self-regulation by one unit, decreased the depression score by 6.5% and the anxiety score by 3.5%, while increasing resilience decreased depression by 9.4% and anxiety by 8.8%.

The report concludes with a number of recommendations on how to support the mental health, wellbeing and resilience of Maltese children, underlining the need for a safe home base for all children; for all children to attend school, for children to develop their social and emotional learning and resilience in both formal and non formal education and in different systems; for adequate spaces for play, exercise and creativity; for additional support to families and children hardly hit by the pandemic; and for children to have a voice in decisions.



# I. Introduction

## I.1 Background

The COVID-19 pandemic has produced an unprecedented change in educational systems all over the world. In Malta, one of the several containment measures announced at the start of the pandemic in March 2020, was the closure of all educational institutions including schools, childcare centres, and post-secondary and tertiary institutions. The pandemic crisis required education institutions to find alternatives to face-to-face instruction and explore the possibility of online teaching and learning resulting in a drastic change to children and adolescents' learning environment and the nature of social interactions with their peers. Although lockdown was not imposed in Malta, all schools and public places were closed during this time, and parents were advised to keep children at home and avoid going to public spaces such as playing fields.

Children's wellbeing all over the world has been negatively impacted by the pandemic in the past months, with increasing stress and anxiety resulting from school closure, social distancing from friends and relatives, increased exposure to domestic violence, decreased access to essential services, increased poverty and more exposure to online sexual exploitation and cyberbullying (Jiao et al., 2020; Lee, 2020; OECD, 2020). Most of the studies indicate that there has been an increase in anxiety and mental health problems as a result of COVID-19 amongst children and young people in various parts of the world (Co-SPACE, 2020; OECD, 2020; Richmond Foundation, 2020, Xie et al., 2020). Research also indicates that the longer the lockdown, the poorer the outcome for children's mental health, including heightened anxiety (Imran et al., 2020; Richmond Foundation, 2020). In a study with girls in the UK, Girlguiding (2020) reported that 33% reported feeling sad and lonely most of the time, and 42% to 45 % felt worried and stressed most of the time. Young people aged between 15-18 years felt most stressed with concerns about their future, schooling, and relationships. A study of Italian children, found that they seemed more likely to manifest symptoms of depression and anxiety and to experience regression, fear, and mood change (Pisano et al., 2020). In a study which included young people in Malta (Richmond Foundation, 2020), it was reported that during the pandemic one in three people aged 11 to 19 years felt moderately lonely, while 81% of those 16-24 years experienced an increase in anxiety; 75% of the latter cohort were feeling lonely in December (second wave). In April, when schools were shut down and people were being urged to self-isolate at home (first wave), 82% had expressed feelings of loneliness.

The present study sought to explore the wellbeing, mental health, and resilience of Maltese school children during the first wave of the pandemic when schools were closed for six months (March-September 2020). It is one of the few studies so far however, which sought to investigate what helped Maltese children to cope with the challenges posed by COVID-19 and the first study on Maltese children's resilience during the pandemic. The study forms part of an international project run by the Global Research Alliance<sup>1</sup> and coordinated by Flinders University, Australia. It involves 20 countries from across the world. The objective was to

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<sup>1</sup> <https://research-all.org/>

examine the wellbeing and resilience of students aged 11-16 years while learning from home during the first wave of COVID-19 crisis in early 2020. A survey completed by young people included questions about experiences of aggression (including bullying) as well as measures of wellbeing, resilience, depression, anxiety, and general questions about their experiences while in lockdown. The Malta study has been adapted from the original study, with the section on face-to-face bullying and aggression omitted since children and adolescents were locked at home with their family. The adaptation involved the addition of a section in the questionnaire on the various protective factors which helped children to cope with the COVID-19 crisis, in order to examine their experience of resilience in more depth.

## 1.2 Methodology

### *Sample*

This study took place between June and August 2020. The sample included school children from Year 7 to Year 11 who were registered in State, Church, and Independent schools in Malta and Gozo during the academic year 2019/2020. This included a total of 21,292 students. A total of 55 State, Church and Independent schools were contacted to circulate the online survey with students aged between 10 and 16 years (Middle and Secondary school level). The online survey was also distributed with students aged 10 and 16 years who were attending Skolasajf during July 2020 as well as with members of a parents' association of State school students. The online surveys were completed by students at home following parental and own consent.

Overall, 863 students answered the online survey. Following data checking and cleaning 408 responses had to be removed mainly due to uncompleted questionnaires, lack of parental consent or social desirability bias. The final sample comprised 455 students. Over one in three (approximately 35%) students did not provide demographic information. Of the information provided, there were more females (54.7%  $n = 162$ ) than males ( $n=129$ ), while a small proportion ( $n = 5$ ) selected "other" as their gender category. Ages ranged from 10 to 16 years (Mean = 12.9 years, S.D. = 1.46, missing = 34.7%). Students' grade levels ranged from Year 7 to Year 11 and nearly three quarters (74.6%) of the participants were in Year 9 or lower Grade. Students were from a diverse range of backgrounds across Malta, as shown in Table 1. The amount of time students reported being in lock-down ranged from no days at all to 167 days. On average, participants spent approximately 3 months in lock-down (Mean = 89.6 days, S.D. = 26.6) (Figure 1).

## The Resilience of Maltese Children during COVID-19

Table I. Participants' Characteristics		
	<b>N</b>	<b>%</b>
<b>Gender</b>		
Male	129	43.6%
Female	162	54.7%
Other	5	1.7%
Nmissing	159	-
<b>Age</b>		
10 years	9	3.0%
11 years	44	14.8%
12 years	85	28.6%
13 years	61	20.5%
14 years	48	16.2%
15 years	40	13.55
16 years	10	3.4%
Nmissing	158	-
<b>School Year</b>		
Year 7	107	36.3%
Year 8	72	24.4%
Year 9	41	13.9%
Year 10	62	21.0%
Year 11	13	4.4%
Nmissing	160	-
<b>Region</b>		
Southern Harbour	36	12.3%
Northern Harbour	78	26.7%
South Eastern	50	17.1%
Western	39	13.4%
Northern	61	20.9%
Gozo & Comino	28	9.6%
Nmissing	163	-

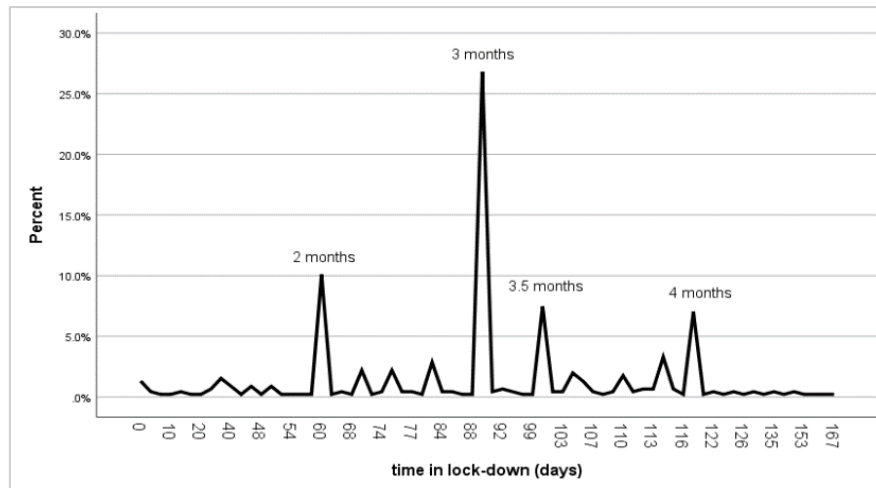


Figure 1. Number of days in lockdown

### *Instruments used*

*Mental Health Continuum Short Form (MHC-SF; Keyes, 2009)* (Cronbach  $\alpha = 0.71$ ): The short form of the MHC consisted of 14 items that assess mental health, focusing on emotional, psychological, and social well-being.

*Depression, Anxiety and Stress Scale - 21 Items (DASS-21; Lovibond & Lovibond, 1995)* (Cronbach  $\alpha = 0.90$ ): DASS-21 is a set of three self-report scales designed to measure the emotional states of i) depression, ii) anxiety and iii) stress. Each of the three scales contains 7 items, divided into subscales with similar content.

*Connor-Davidson Resilience Scale (CD-RISC-10; Connor & Davidson, 2003)* (Cronbach  $\alpha = 0.871$ ): The 10-item scale is comprised of ten of the original 25 items from the CD-RISC scale. The CD-RISC-10 measures resilience or how well one is equipped to bounce back after stressful events, tragedy, or trauma.

*Protective Factors Questionnaire* (Cronbach  $\alpha = 0.83$ ). The questionnaire includes 35 items and consisted of 7 subcategories of protective factors namely positive thinking and self-regulation; play, exercise and creativity; learning and teaching (school); family; friends; neighbours and community. It was developed by the authors from existing literature. The questionnaire was subjective to a CFA to test the construct validity of the scale, which was found to be satisfactory.

The survey included two additional open-ended questions about students' best and worst experiences about being in lockdown. The instruments were translated in Maltese making use of a backward and forward procedure, and piloted with a focus group with each age group.

### *Ethics*

Ethical approval was sought from the Faculty Research Ethics Committee (FREC) at the University of Malta, the MEDE Research Ethics Committee within the Directorate for Research, Lifelong learning and Employability, Ministry for Education and Employment and

the Secretariat for Catholic Education. Consent was also obtained from the State College Principals, Head of Schools and the Foundation for Educational Services (FES) who provide the Skolasajf service. Consent was sought from parents since the participants were under the age of 18 years and online submissions without parental consent were not included in the study. Participants were also asked for their consent that they were participating voluntarily in the study.

### *Statistical analysis*

SPSS and Mplus v 8.2 were used for the statistical analysis of the data. For the Connor-Davidson Resilience Scale, a frequency test based on the average resilience of secondary students was calculated. Pearson correlation was used to examine the relationship between the amount of time in lockdown and student resilience. For the Protective Factors Questionnaire, frequencies were calculated for each of the 35 items followed by ranking the ten most and ten least helpful factors among students. The median for each protective group factor calculated and the ANOVA test was applied to analyse the relationship between the protective group factors and age of students. Spearman correlations were used to examine relationships with the grouped protective factors by resilience (CD-RISC) and mental health (DASS and MHC). For all tests, a p-value of less than 0.05 (95% confidence) level of significance was employed. The responses in the open-ended questions about students' best and worst experience about being in lockdown were categorised into multiple categories and multiple response frequencies were carried out based on these categories.

Confirmatory Factor Analysis (CFA) of the DASS-21 constructs, as well as one factor congeneric models, were undertaken to test the convergence of the constructs of depression, anxiety, and stress. The nested-ness of the data was accounted for using a clustering variable that grouped participants according to their Grade and town in which they were living. The analysis indicated that the stress factor was highly correlated with depression and anxiety suggesting that the DASS-21 scale did not discriminate between the 3 constructs. As has been suggested in other studies using the DASS-21 with young people (Shaw et al., 2017), the stress factor was not included in further analyses.

Given the small sample size, full Structural Equation Models were not possible, so factor score coefficients derived from the CFA analysis were used to calculate factor scores for each of the protective factors and used in regression analyses with the depression and anxiety factors (see Figure 12).

Keyes's (2006) method for assessing subjective wellbeing was used, where young people are flourishing when they show a high levels of hedonia (emotional well-being) and eudaimonia (social and psychological well-being), languishing when levels of hedonia and eudaimonia are low, and moderately mentally healthy otherwise. Participants were classified as flourishing if they experienced at least one of the three symptoms of emotional well-being and at least six of the eleven symptoms of positive functioning "almost every day" or "every day". Participants were considered to be languishing if they experienced at least one of the three symptoms of emotional well-being and at least six of the eleven symptoms of positive functioning "once or twice" or "never". Students who were neither languishing nor flourishing were classified as moderately mentally healthy.

## 2. Findings

### 2.1 Subjective wellbeing

As shown in Table 2, nearly half (47.0%) of the students were flourishing, while a small proportion (10.8%) were languishing in their wellbeing. While numbers were small, student wellbeing decreased across year levels (Year 7 to Year 10). As shown in Figure 2, the number of students who were flourishing decreased while the number of students who were languishing increased across Year levels ( $\chi^2(6) = 14.58, p < .05, ES$  (Cramer's  $V$ ) = .161), with the lowest level of wellbeing reported in Year 10. Overall, male participants tended to show better subjective wellbeing than females ( $\chi^2(2) = 7.52, p < .05, ES$  (Cramer's  $V$ ) = .161), although this was not a consistent trend at all Year levels (see Table 3).

	N	%
Flourishing	214	47.0%
Moderate mental health	192	42.2%
Languishing	49	10.8%
Total	455	100%

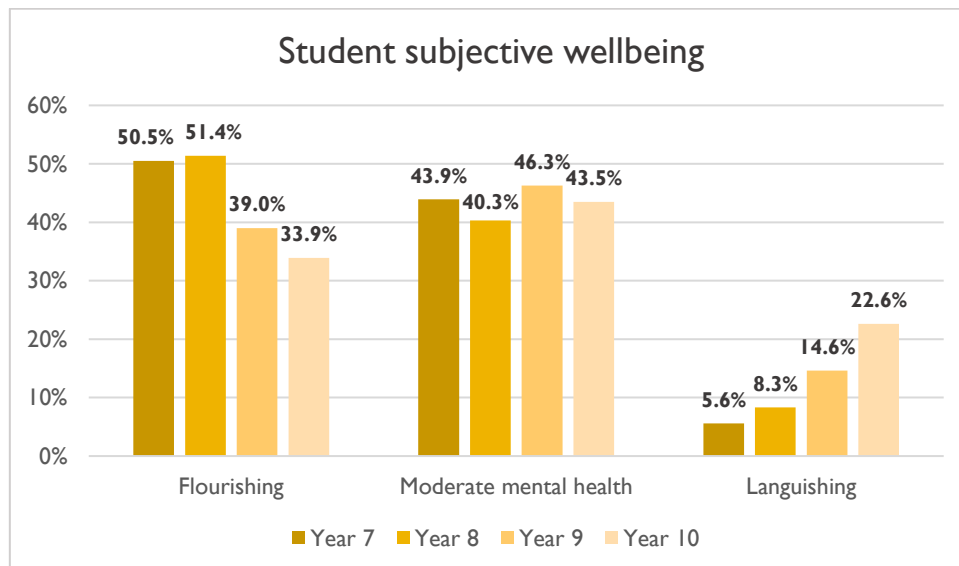


Figure 1. Diminishing subjective wellbeing across Year levels

Table 3. Wellbeing by Gender												
	Flourishing				Moderate mental health				Languishing			
	Male		Female		Male		Female		Male		Female	
	N	%	N	%	N	%	N	%	N	%	N	%
<b>Year 7</b>	22	35.5%	32	49.2%	21	38.2%	23	37.1%	0	0.0%	5	19.2%
<b>Year 8</b>	22	35.5%	15	23.1%	14	25.5%	15	24.2%	1	20.0%	5	19.2%
<b>Year 9</b>	10	16.1%	6	9.2%	9	16.4%	8	12.9%	1	20.0%	5	19.2%
<b>Year 10</b>	8	12.9%	12	18.5%	11	20.0%	16	25.8%	3	60.0%	11	42.3%
<b>Year 11</b>	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

*Number of days in lockdown and subjective wellbeing*

Having created a categorical variable (Table 4), an increase in the likelihood of languishing in wellbeing increased after 4 months of lockdown (see Figure 3); however the effect size was small ( $\chi^2(6) = 15.33, p < 0.05, E.S. (Cramer's V) = .137$ ). The indications that the difficulties in wellbeing increased after four months of lockdown resonates with the study by the Richmond Foundation (2020) which found that one third of young people 11-19 years felt lonely during the pandemic and one third of those between 16-24 experienced more fear and less hope. These figures contrast with those in a pre COVID study on the subjective wellbeing of Maltese 12 year olds: the great majority expressed a high level of subjective wellbeing, with only 2% reporting they were not happy with their lives, and 6% being extremely sad (Cefai & Galea, 2020).

Table 4. Time in lockdown		
	N	%
<b>Up to 2 months</b>	82	20.1%
<b>2 - 3 months</b>	173	42.4%
<b>3 - 4 months</b>	134	32.8%
<b>More than 4 months</b>	19	4.7%
<b>Total</b>	<b>408</b>	<b>100%</b>

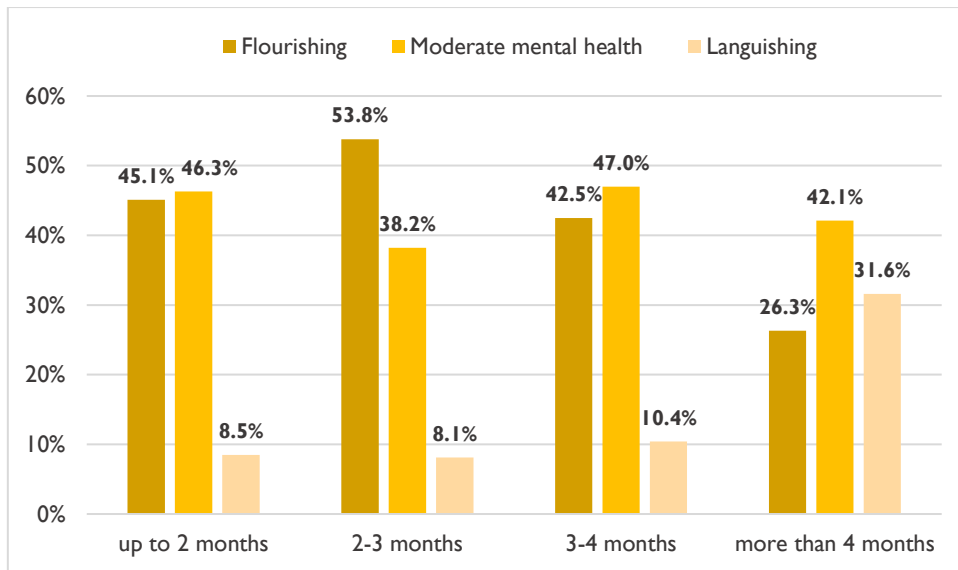


Figure 2. Wellbeing by time in lockdown

## 2.2 Depression and Anxiety

### *Depression*

As shown in Table 5, no students were found to have had extremely severe depression, although a small proportion (3.1%, n=14) were severely depressed and 13.4% showed moderate levels of depression. Just over half (53.5%) of the students were in the normal group. While there was a trend toward an increased likelihood of depression once in lockdown for over 4 months (see Figure 4), there were insufficient numbers to test this relationship.

	N	%
<b>Normal</b>	204	53.5%
<b>Mild</b>	112	29.4%
<b>Moderate</b>	51	13.4%
<b>Severe</b>	14	3.7%
<b>Total</b>	<b>381</b>	<b>100%</b>



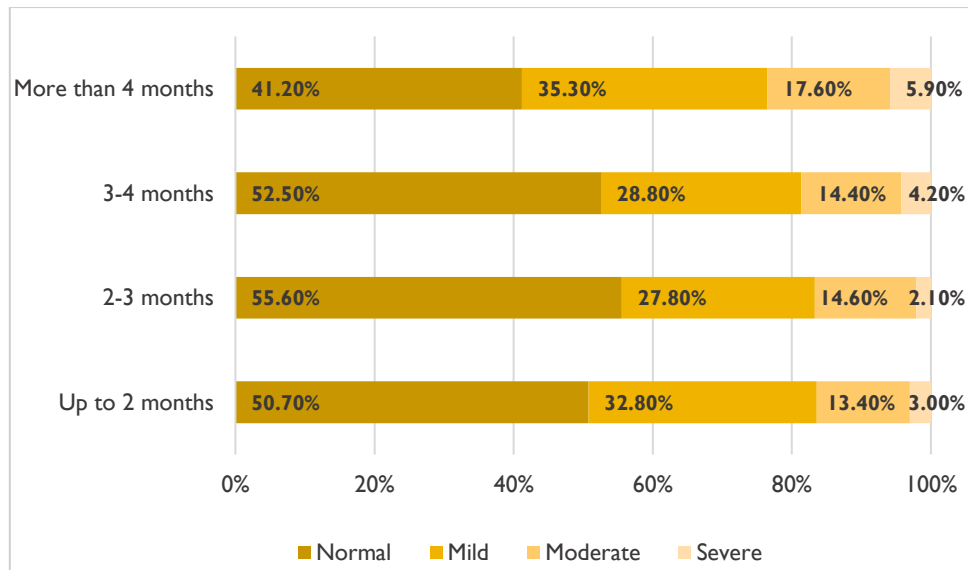


Figure 4. Depression level and time in lockdown

### Anxiety

As shown in Table 6, 6.7% (n=26) of students showed severe or extremely severe levels of anxiety, 8.4% moderate levels of anxiety, while approximately two-thirds (67.9%) exhibited normal levels. The data were insufficient to determine whether time in lockdown was associated with students' level of anxiety (Figure 5)<sup>2</sup>

	N	%
<b>Normal</b>	260	67.9%
<b>Mild</b>	65	17.0%
<b>Moderate</b>	32	8.4%
<b>Severe</b>	22	5.7%
<b>Extremely severe</b>	4	1.0%
<b>Total</b>	<b>383</b>	<b>100%</b>

<sup>2</sup> Depression and anxiety are common burdensome mental health challenges some young people face during their adolescent years. In Malta, 5.4% of individuals aged 15 years and over reported having experienced depression in the preceding 12 months (DHIR, 2017). In a study with 13-year-old Maltese young people, Sammut (2007) found that 7% were suffering from generalised anxiety disorder while 9% were severely anxious. On the other hand, 5% manifested major depressive symptoms and 7% symptoms of severe depression. 21% were at risk of developing depression. In a more recent study with 14-year-old Maltese young people, Buttigieg (2015) reported the risk of depression to be 27%.

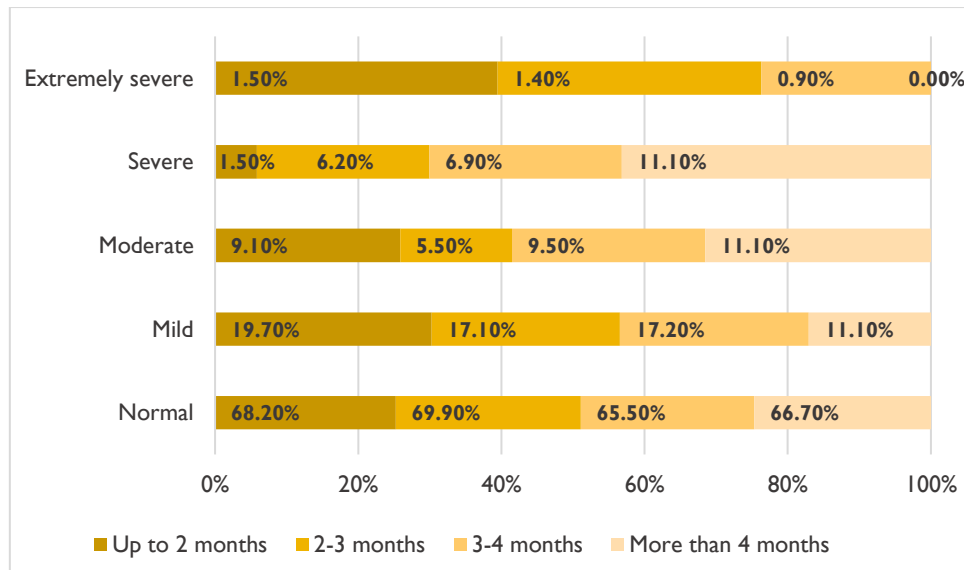


Figure 5. Anxiety categories and time in lockdown

### 2.3 Resilience

Resilience data from the *Connor-Davidson Resilience Scale* were available for 77.4% (n = 352) of participants. The overall means (23.73) is lower than that in other countries, such as USA (30.1), China (29.3), Singapore (27.9), Netherlands (25.7) and Italy (24.8) (Davidson, 2018). As shown in Table 7, 11.9% of the participants reported poor resilience, whereas 47.2% indicated that they felt resilient often or nearly all of the time. These figures are also lower than that of a study carried out with 11-16 year old students in Australia (Skrzypiec et al., 2014). There was a significant negative correlation between amount of time in lockdown and student resilience ( $r = -0.108$ ,  $p = 0.048$ ) with a decrease in resilience as the time in lockdown increased, but the correlation was very low.

Table 7. Average resilience during lockdown		
	N	%
<b>Not true at all</b>	4	1.1%
<b>Rarely true</b>	38	10.8%
<b>Sometimes true</b>	144	40.9%
<b>Often true</b>	138	39.2%
<b>True nearly all the time</b>	28	8.0%
<b>Total</b>	<b>352</b>	<b>100%</b>
<b>Mean 23.73 (7.96)</b>		

## 2.4 Best and worst parts about being in lockdown

Table 8 shows that spending time with family and feeling safe at home was the most cited positive aspect reported by students of the lockdown experience (40%), followed by having more free and relaxing time (19%) and more time to focus on things they liked and developing new interests (14%). Ten per cent mentioned that having no school was a positive experience. The third group of positive experience factors was related to the use of technology to meet online with friends (6%), to spend time on social media to play games (8%) and to attend online learning (6%). It is interesting that not attending school was considered more positively than attending online learning.

**Table 8. Best and Worst part of the lockdown experience**

Best Part			Worst Part		
	N	%		N	%
Free time / Relax / Sleep / Less stress	105	19.4%	Online School work (and stress of school work / Dependence on family for help /online schooling)	54	9.5%
Focus on self and personal growth / Other interests	74	13.6%	Staying home / Lack of social outings/ Change and loss of routine	145	25.6%
Quality time with family / Comfort and safety of home	206	37.9%	Lack of social contact: friends	143	25.3%
No school	52	9.6%	Lack of social contact: school, teachers & peers (and 'Missing school')	47	8.3%
Meet with friends virtually	35	6.4%	Lack of social contact: family & relatives (and 'not seeing parents')	53	9.4%
Social media and playing online games	41	7.6%	Reduced exercise	29	5.1%
Online learning	30	5.5%	Mental health / Negative emotions / Loneliness / Boredom / Uncertainty	51	9.0%
			Fear of going outside and contracting the virus	21	3.7%
			Other	23	4.1%
<b>Total</b>	<b>543</b>	<b>100%</b>	<b>Total</b>	<b>566</b>	<b>100%</b>

On the other hand, 51% of the participants found the disruption of their normal life as the worst part of the experience, particularly having to stay at home and being deprived of social outings (26%), and social contact with friends (25%). Relatedness and connectedness are a fundamental human need and crucial for children's healthy development. Ten percent of students also expressed concern about their sense of loneliness, boredom, and anxiety during the lock down. Only 4% however were worried about of being infected with the virus. The

demands of online learning were another negative aspect of the pandemic with 10% referring to the challenges of online learning. On the other hand, only 8% mentioned missing school, teachers and peers. It is also interesting to note that only 5% mentioned reduced exercise as a negative aspect of the lockdown, indicating that sports and physical exercise are still not a high priority in the lives of Maltese children and young people (Cefai & Galea, 2020). In view of the other finding that online social interaction and games were positive features, and other studies showing Maltese 11-15 year olds are above the international average in intensive electronic media communication and internet addiction (Inchley et al., 2020), there is a clear need for a more active national campaign to embed sports and physical exercise in the daily lives of Maltese children from an early age.

## 2.5 Protective factors

Figures 6 to 11 show the protective factors which supported students' wellbeing and resilience during the pandemic, grouped under 6 broad areas namely positive thinking and self-belief, play and creativity, education, family, friends and community, and neighbours. The most commonly cited protective factors by the participants were particularly focused on the family and play, exercise, and creativity, followed by positive thinking and self-regulation and friends. Teaching and learning, community and neighbourhood featured quite low on the list of protective factors mentioned by the students.

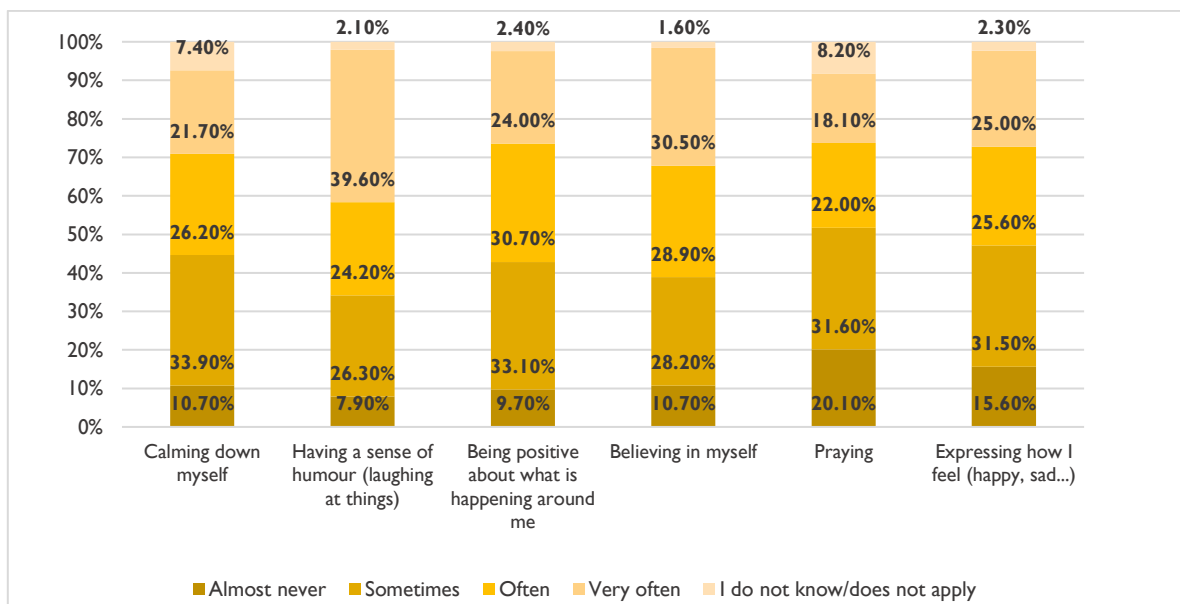


Figure 6. What helped students feel good in lockdown: Positive Thinking and Self-regulation

## The Resilience of Maltese Children during COVID-19

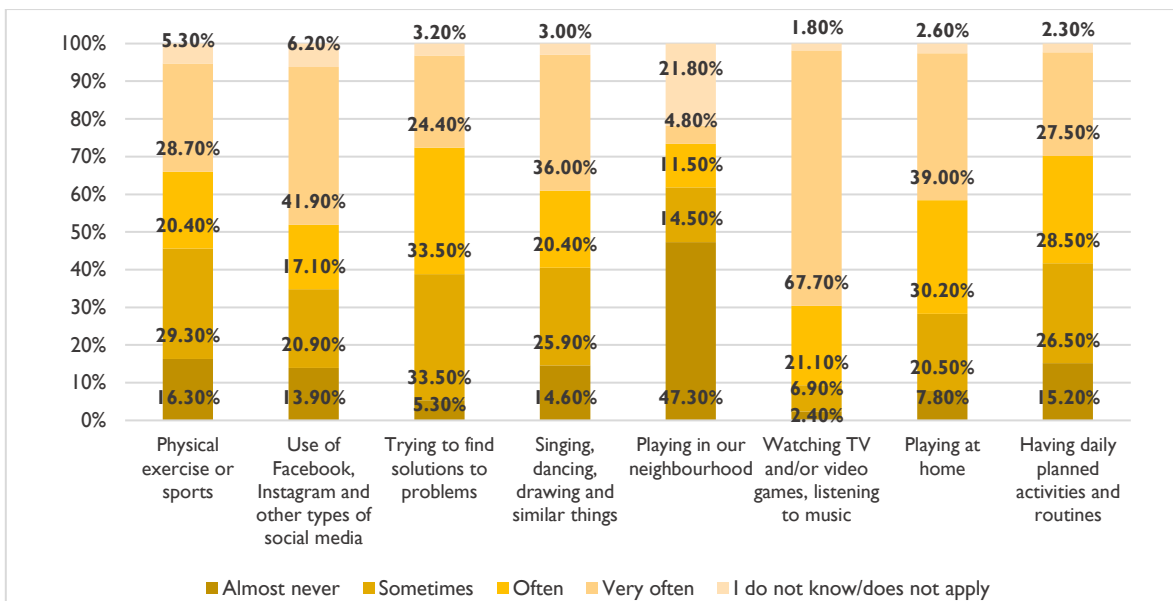


Figure 7. What helped students feel good in lockdown: Play, exercise and creativity

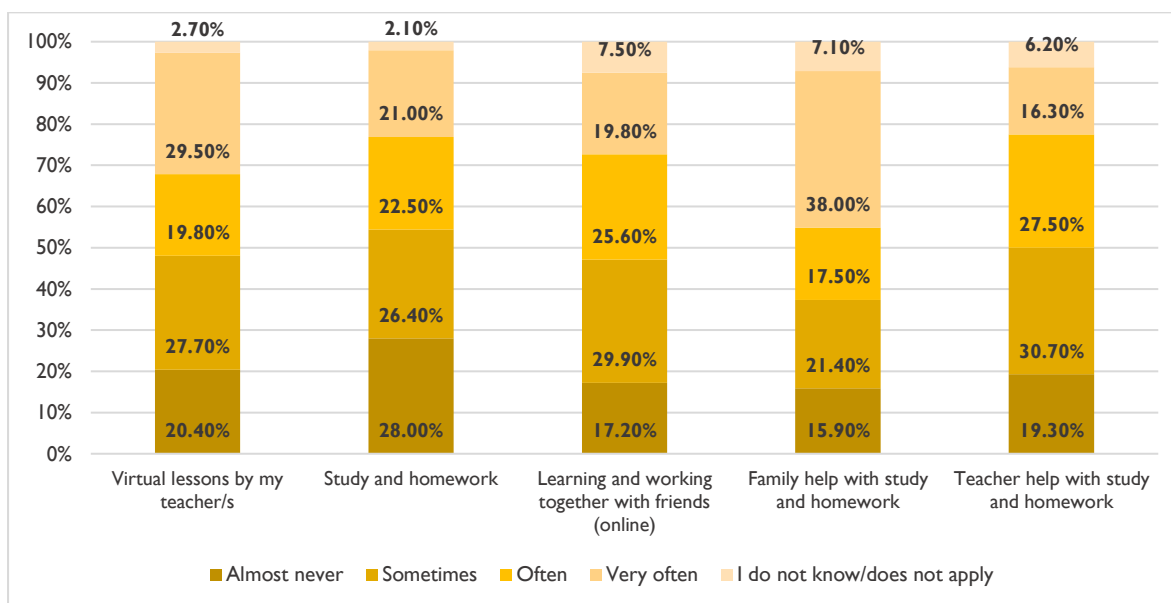


Figure 8. What helped students feel good in lockdown: Learning and teaching (school)

## The Resilience of Maltese Children during COVID-19

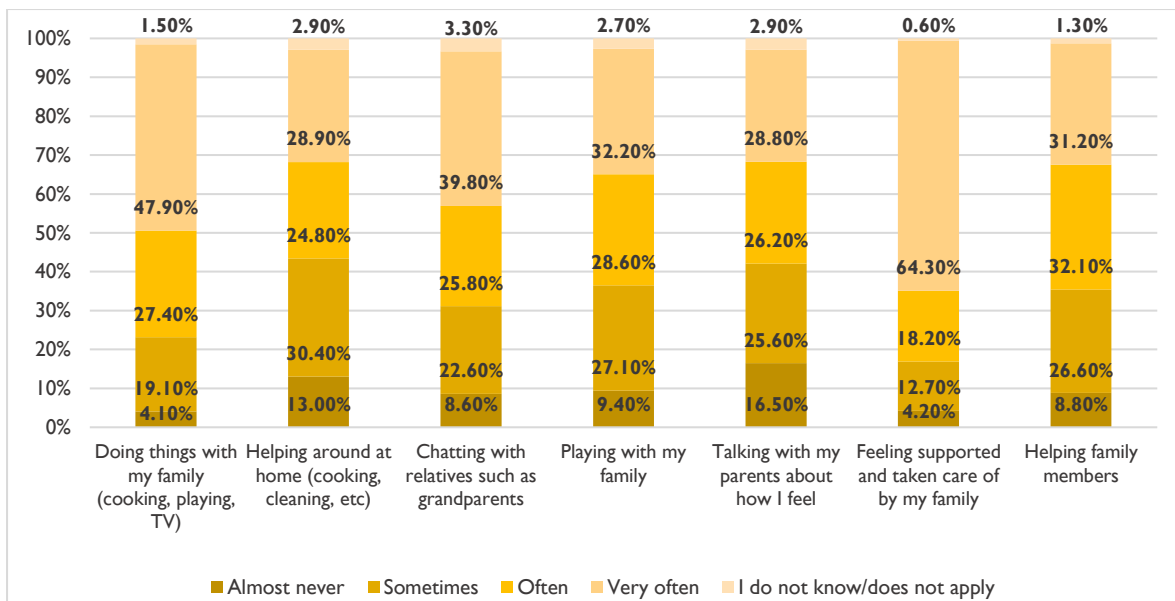


Figure 9. What helped students feel good in lockdown: Family

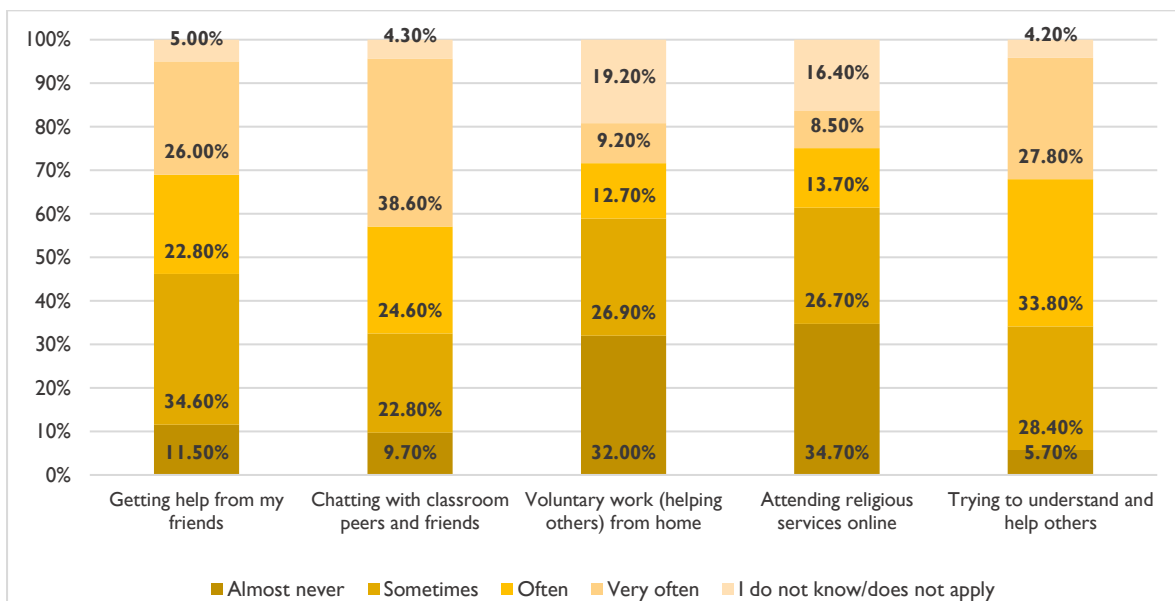


Figure 10. What helped students feel good in lockdown: Friends and Community

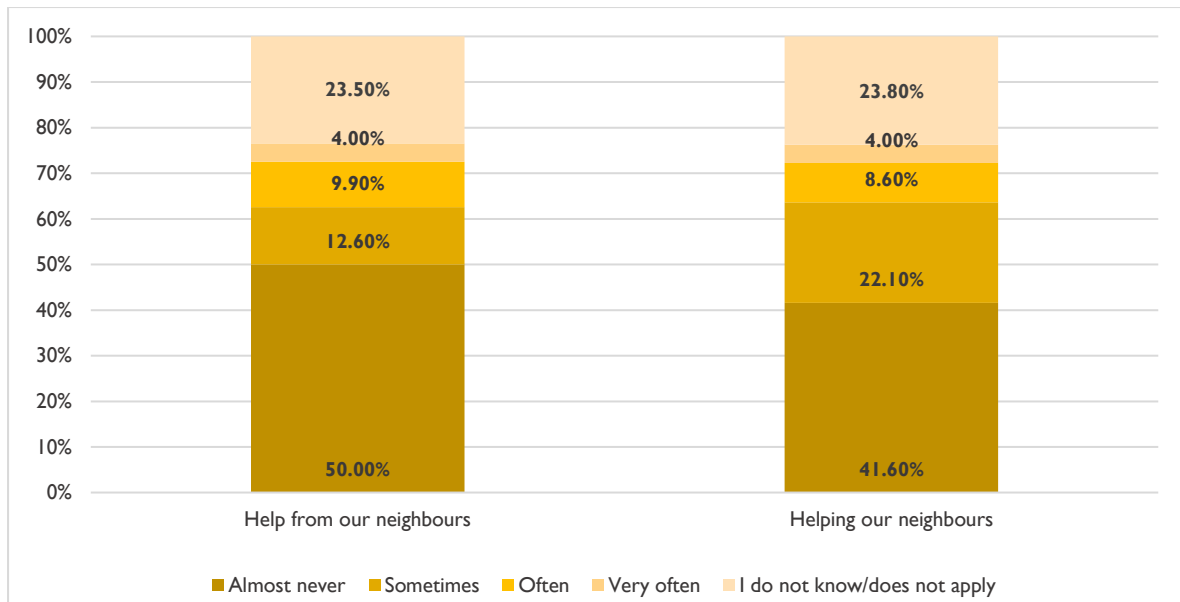


Figure 11. What helped students feel good in lockdown: Neighbours

Table 9 shows the top 10 (very often) and bottom 10 (never) factors which participants found helpful to cope with the lockdown. The three top protective factors used very frequently by young people were watching TV/video games and music (68%), the support and care of the family (64%) and doing things with the family (48%). Forty-two percent also mentioned social media while 40% reported communicating with relatives such as grandparents was protective. Play, sense of humour, and chatting with friends also featured as key protective factors (39%-40%). Social interactions with neighbours and playing in the neighbourhood were the least helpful factors, with 42% to 50% almost never engaging in these behaviours. Other top strategies used the least included attending online religious services (35%), voluntary work from home (32%), praying (20%), and online lessons with teachers and teacher support (19%-20%). Middle school students appeared to make more use, in contrast to their older secondary school peers, of family and online learning strategies.

Overall, these findings show that the family was a critical protective factor for Maltese adolescents during the pandemic (quite understandable as well since young people were locked inside), providing a safe base for this time of uncertainty and anxiety. Three of the top five protective factors were family-related. The family has long been identified as one of the key primary systems in the promotion of children’s resilience, affording the sense of security and emotional support children need in the face of adversity while providing the opportunity to develop problem solving and self-regulation skills which promote a positive self-concept and identity (Reyes & Resurreccion, 2015; Twum-Antwi et al., 2020). Leisure time activities, such as TV and video games and social media, are another key source of resilience, underlining the strong impact of information and digital communication in children’s and young people’s lives today. Another interesting protective factor amongst Maltese young people, was a sense of humour and not taking things too seriously. This strategy has been shown to help defuse tension and reduce anxiety and prevent negative thinking such as overgeneralisation or catastrophizing (see Kuiper, 2012). Communication with friends was also another important source of resilience. It is interesting that school and teachers (virtual

learning) did not feature amongst the top protective factors. Schools are one of the primary systems for the promotion of resilience (Ungar et al., 2019) and the closure of schools might have prevented schools from operating as influential positive systems in children’s healthy development (cf. Cowie & Myers, 2020); furthermore the organisation of the virtual learning environments immediately following school closures, took some time to make an impact on children’s lives.

**Table 9. Most and least helpful protective factors during lockdown**

Most helpful (Very often)			Least helpful (Almost never)		
	%	R		%	R
Watching TV and/or video games, listening to music	67.70%	1	Help from our neighbours	50.00%	1
Feeling supported and taken care of by my family	64.30%	2	Playing in our neighbourhood	47.30%	2
Doing things with my family (cooking, playing, TV)	47.90%	3	Helping our neighbours	41.60%	3
Use of Facebook, Instagram and other types of social media	41.90%	4	Attending religious services online	34.70%	4
Chatting with relatives such as grandparents	39.80%	5	Voluntary work (helping others) from home	32.00%	5
Having a sense of humour (laughing at things)	39.60%	6	Virtual lessons by my teacher/s	20.40%	6
Playing at home	39.00%	7	Praying	20.10%	7
Chatting with classroom peers and friends	38.60%	8	Teacher help with study and homework	19.30%	8
Family help with study and homework	38.00%	9	Learning and working together with friends (online)	17.20%	9
Singing, dancing, drawing and similar things	36.00%	10	Talking with my parents about how I feel	16.50%	10

On the other hand, neighbours and the neighbourhood were the top least helpful protective factors, reflecting the national campaign to stay at home and keep social distancing (22% to 29% of the participants in fact ticked ‘does not apply’ for these strategies). Online religious services, praying and voluntary work were amongst the least helpful strategies for young people. Whilst voluntary work from home may be related to lack of opportunity (19% ticked ‘does not apply’), the relative lack of participation in online religious service and praying suggests that most of the participants did not see these as helpful strategies. Online education with teachers and peers were also seen as least helpful, with three related factors amongst the top ten least helpful factors. It is interesting to note on the other hand, that family help with learning was considered amongst the most helpful factors, suggesting that parents took over part of the role usually assumed by teachers, with the latter playing a less central role in children’s lives. A recent study has in fact reported an increase in the time spent by Maltese parents on home schooling: more than 80% for females and around 64% for males (NCPE, 2021). It must be said however, that this study dates to the first wave of the pandemic



when as in other countries all over the world, children and adults, systems and services, were seeking to cope with the challenges of an unexpected national crisis, the magnitude of which was never experienced by the majority of the living Maltese population.

*Median difference in the six groups of protective factors*

A Confirmatory Factor Analysis was undertaken for each group of protective factors as one factor congeneric models and the nested-ness of the data (year levels in towns) was accounted for (the number of clusters was 37). (See Appendix 2). As a result, one item was removed from Physical Exercise, Family and Online Learning respectively, whilst Friends and Voluntary Work were grouped as one factor. A one-sample Wilcoxon signed-rank test indicated that the median was significantly different from 2.5 for all the protective factors, with a strong to very strong effect size (see Table 10). The results show that the most helpful protective groups of factors in this study were play, exercise and creativity ( $Z = 15.99, p < .001$ ) followed by family ( $Z = 15.99, p < .001$ ) and positive thinking and self-regulation ( $Z = 14.99, p < .001$ ). Community, neighbours, and online learning were the least helpful strategies. Table 11 shows that the younger 11-13 year old participants (middle school) made more use of teaching and learning and family related factors than 14-15 year olds (secondary school)

<b>Table 10. One sample Wilcoxon Signed Ranks Test Statistics effect size for Protective Factors</b>					
	N	Median	Z	P value	R
<b>Positive thinking and self-regulation</b>	298	16	14.99	.000	0.56
<b>Play, exercise and creativity</b>	299	20	15.99	.000	0.87
<b>Learning and teaching</b>	340	11	15.84	.000	0.87
<b>Family</b>	339	18	15.99	.000	0.86
<b>Friends and community</b>	340	13	15.99	.000	0.87
<b>Neighbours</b>	340	4	9.75	.000	0.87

Table 11. Mean scores of protective factors sub-scales by age

		10y	11y	12y	13y	14y	15y	16y
<b>Positive thinking and self-regulation<sup>1</sup></b>	Mean	15.78	17.31	17.07	16.98	16.00	16.03	17.00
	Std. Dev.	3.930	4.188	3.576	4.897	4.384	4.344	3.500
<b>Play, exercise and creativity<sup>2</sup></b>	Mean	20.67	20.27	20.55	20.69	19.60	19.83	20.30
	Std. Dev.	2.000	3.316	3.828	4.664	4.036	4.607	4.296
<b>Learning and teaching<sup>3</sup></b>	Mean	9.44***	11.36***	11.92***	11.10***	9.92***	9.10***	11.10***
	Std. Dev.	2.651	3.148	2.825	3.365	3.608	3.692	4.280
<b>Family<sup>4</sup></b>	Mean	17.22**	19.80**	18.51**	18.10**	16.63**	17.05**	16.40**
	Std. Dev.	4.206	3.188	3.887	4.578	4.546	4.534	4.326
<b>Friends and community<sup>5</sup></b>	Mean	13.22	13.50	13.64	13.75	13.85	13.83	14.00
	Std. Dev.	3.701	3.461	3.443	4.249	3.843	4.082	2.944
<b>Neighbours<sup>6</sup></b>	Mean	4.38	5.26	4.80	4.86	4.89	4.30	5.11
	Std. Dev.	2.774	3.140	2.882	3.277	3.292	2.943	3.219

Note: <sup>1</sup>F(6,280)=0.759, <sup>2</sup>F(6,290)=0.484, <sup>3</sup>F(6,290)=4.539, <sup>4</sup>F(6,290)=3.084, <sup>5</sup>F(6,290)=0.082, <sup>6</sup>F(6,279)=0.367, p>0.05, \*p<0.05, \*\*p<0.01, \*\*\*p<0.001.

*Correlation between protective factors and resilience, mental health, and depression and anxiety*

Table 12 illustrates the Spearman correlations amongst the various protective factors and between the factors and resilience, positive mental health and prevention of depression and anxiety. There are significant strong to moderate positive correlations between resilience and positive thinking and self-regulation ( $p = .578, p < .01$ ) and play, exercise and creativity ( $p = .418, p < .01$ ), indicating that these are protective factors against the stresses of the pandemic. There is also a low to moderate correlation between resilience and family related factors ( $p = .344, p < .01$ ) but the other three group of factors have only low (even if significant) correlation with resilience. On the other hand, family related factors were moderately related to positive mental health ( $p = .450, p < .01$ ) while the correlation with depression and anxiety was low ( $p = -.237, p < .01$ ), suggesting that the family is particularly important to children’s positive mental health, but has relatively lower influence on resilience and the prevention of depression and anxiety. Similarly, while there was a moderate significant correlation between play, exercise and creativity and resilience, the correlations between this group of factors and mental health were low. The relationship between resilience and positive mental health was moderate ( $p = .535, p < .01$ ) indicating that resilient students are more likely to enjoy positive mental health; similarly they are less likely to suffer from depression and anxiety ( $p = -.500, p < .01$ )

**Table 12. Spearman Correlations between variables**

	Neighbours	Positive thinking & self-regulation	Play, Exercise, Creativity	Learning & Teaching	Family	Friends & Community	Overall DASS	MHC-SF 3 PHM Category Diagnosis	MHC Total
<b>Resilience</b>	.202**	<b>.578**</b>	<b>.418**</b>	.241**	<b>.344**</b>	.243**	<b>-.500**</b>	.455**	<b>.535**</b>
<b>Neighbours</b>		.425**	.499**	.430**	.359**	.495**	-.178**	.133*	.187**
<b>Positive thinking &amp; self-regulation</b>			.608**	.512**	.593**	.578**	-.459**	.450**	.546**
<b>Play, Exercise, Creativity</b>				.563**	.638**	.525**	-.262**	.224**	.290**
<b>Learning &amp; Teaching</b>					.652**	.402**	-.259**	.312**	.361**
<b>Family</b>						.455**	<b>-.237**</b>	.391**	<b>.450**</b>
<b>Friends &amp; Community</b>							-.183**	.266**	.257**
<b>Overall DASS</b>								-.557**	-.562**
<b>MHC-SF 3 PHM Category Diagnosis</b>									.852**
** Correlation is significant at the 0.01 level (2-tailed).									
* Correlation is significant at the 0.05 level (2-tailed).									

**Regression analysis**

Sample size was too small to run full one factor models with regressions, so factor scores were used. The best fitting model found that only belief in self and self-regulation was protective of depression and anxiety, while resilience was also found to play a significant role. All of the other factors, including the amount of time in lockdown, were not significant predictors. Increasing self-belief and self-regulation by one unit, decreased the depression score by 6.5% and the anxiety score by 3.5%, while increasing resilience decreased depression by 9.4% and anxiety by 8.8% (Figure 12). In a study on resilience during COVID-19 with 5000 European adult participants, Veer and colleagues (2020) similarly found that positive appraisal style was positively associated with resilience and that in comparison with other protective factors, it was the single strongest factor in coping effectively with COVID-19.

## The Resilience of Maltese Children during COVID-19

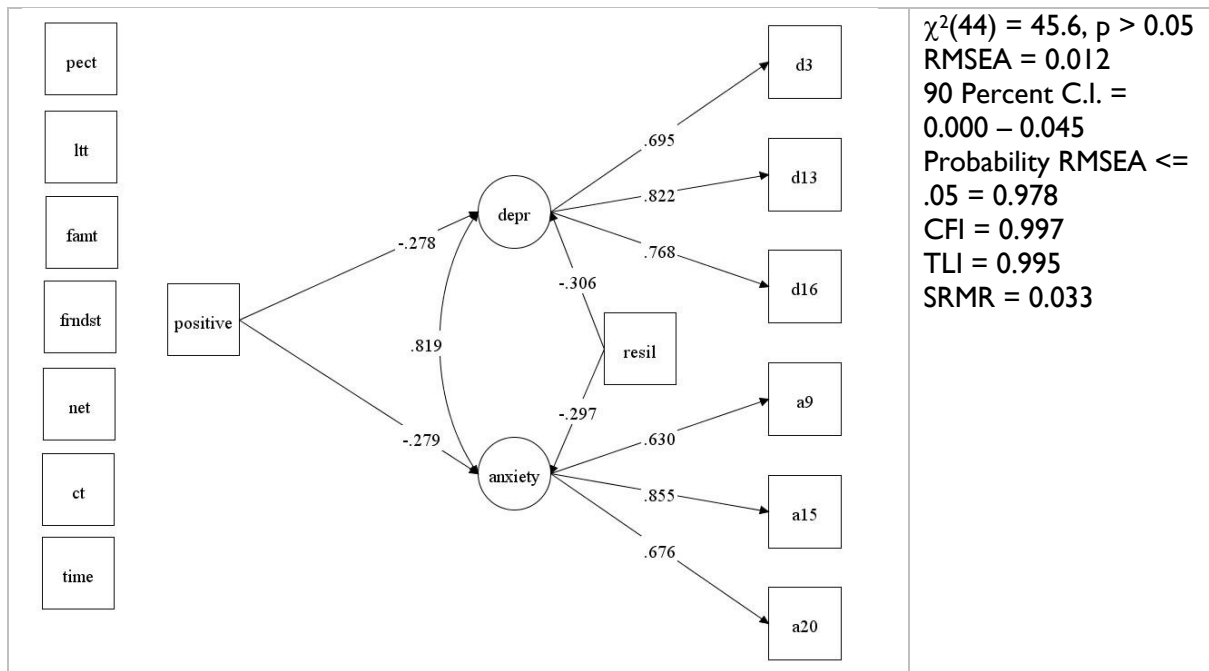


Figure 12 Regression analysis of protective factors, resilience, and prevention of mental health difficulties

## 3. Conclusions and Recommendations

### 3.1 Overview of findings

The findings of this study suggest that overall Maltese children and young people adapted quite well to the challenges posed by the outbreak of the first wave of the pandemic including the closure of schools, recommended lockdown, and online learning. Overall, most of the students enjoyed positive mental health and coped quite well during the pandemic lockdown. However, 11% were experiencing difficulties in their wellbeing, whilst subjective wellbeing decreased across year levels from middle school to secondary school. Overall secondary school males reported better subjective wellbeing than females. There were also indications that the difficulties in wellbeing increased after four months of lockdown.

No secondary school students were found to have had extremely severe depression during the lockdown, although a small proportion (3%) were severely depressed and 13% moderately depressed. Seven percent showed severe or extremely severe levels of anxiety, and 8% moderate levels, while approximately two-thirds had normal levels of anxiety. There was a trend toward an increased likelihood of depression once in lockdown for over 4 months, but there were insufficient numbers to test this relationship; similarly the limited data did not allow us to determine whether time in lockdown was associated with students' level of anxiety. Students' level of resilience was directly related to the likelihood of experiencing depression and anxiety, with the most resilient the least likely to develop mental health difficulties. Twelve per cent of participants reported poor resilience, whereas close to one half reported feeling resilient, with some indications of a decrease in resilience as the time spent in lockdown increased. It is important that student resilience is maintained as a protective factor against mental health problems.

Spending time with family and feeling safe at home was the most cited positive aspect of the lockdown experience, followed by having more free and relaxing time and more time to focus on things they like and develop new interests. The third group of factors was related to the use of technology to meet online with friends, to spend time on social to play games and to attend online learning. It is interesting to note that not attending school was considered more positively than online learning. On the other hand, the worst part of the pandemic lockdown was the disruption of normal life, particularly having to stay at home and lack of social outings, and lack of social contact with friends. Ten percent also indicated concern about their sense of loneliness, boredom, and anxiety during the lock down. The demands of online learning were another negative aspect of the pandemic .Only 8% mentioned missing school, teachers, and peers, and only 5% mentioned reduced exercise as a negative aspect of the lockdown.

The protective factors participants found most helpful during the lockdown were related to play and creativity, followed by family, positive thinking and self-regulation, and friends. Teaching and learning, community and neighbourhood featured quite low on the list of strategies mentioned by the students. The three top strategies used very frequently by young people were watching TV/video games and music, the support and care of the family, and doing things with the family. Other frequently used strategies included the use of social

media, communicating with relatives such as grandparents, play, sense of humour, and chatting with friends. On the other hand, social interactions with neighbours and playing in the neighbourhood were the least used factors, followed by attending online religious services, voluntary work from home and praying, and online lessons with teachers and teacher support. The low frequency of neighbours and neighbourhood, voluntary work and participation in religious activities is also related to restrictions imposed by the pandemic. Middle school students appeared to make more use, in contrast to their older secondary school peers, of family and online learning strategies.

Positive thinking and self-regulation and play, exercise and creativity were most strongly correlated with resilience, followed by family factors, suggesting that the strongest resilience-enhancing factors during the pandemic were related to positive thinking and self-regulation, followed by play, exercise and creativity, followed by family. On the other hand, family related factors appeared to be particularly important for children's positive mental health, but have relatively lower influence on resilience and prevention of depression and anxiety. Aside from an individual's level of resilience, only self-belief and self-regulation were found to be protective of depression and anxiety, with a higher level of self-belief, regulation and coping predicting lower levels of depression and anxiety. The relationship between resilience and positive mental health indicated that resilient students were more likely to enjoy positive mental health and less likely to experience depression and anxiety.

### 3.2 Recommendations

#### *Need for a safe base for all children*

This study has underlined the role of the family as the foundational basis for healthy development, mental health and resilience in times of stress and adversity. It calls for strengthening Maltese families as safe and secure bases for all children, providing strong attachments and connectedness. At the same time, however, families and parents need adequate support themselves in order to create such a safe and secure base; some families may need more support than others. The more resilient the parents are, the more likely children are exposed to the protective factors they require for optimal growth and development. Indeed one of the positive aspects of the pandemic is that it gave the opportunity to many children to observe their parents and relatives modelling resilience, namely how to handle challenges and solve problems, and how to thrive in the face of such difficulties.

#### *Need for all children to attend school*

The lockdown prevented children, particularly vulnerable, marginalised ones, from making use of the school as a key system in the promotion of their healthy development. As a result, schools may have temporarily lost their positive impact on many vulnerable children, leaving them bereft of the support they need and even more at risk in their development. It is thus crucial that all children attend school, with a continued campaign to lessen any lingering anxiety about returning fully to school. Another study with Maltese young people showed that the return to school following the first wave helped to reduce their anxiety (Richmond

Foundation, 2020). The finding in this study that only a small percentage missed going to school, underlines the need for schools to continue their efforts to make schooling and learning an enjoyable, meaningful and rewarding experience for all students, including those considered 'less inclined' to traditional academic learning. The COVID-post-COVID transition could be a unique window of opportunity for schools to reorganise themselves as compassionate and caring learning communities, catering for the diverse needs of all their students.

### *Need to enhance children's social and emotional learning and resilience skills*

This study has found that resilience is a key protective factor against mental health problems such as depression and anxiety in adolescents. It has also identified positive self-concept, self-regulation, and positive coping as a key protective factor in the development of resilience, the promotion of positive mental health and the prevention of depression and anxiety amongst children and young people. Positive self-concept and self-esteem, emotional regulation and resilience skills, are competences that all children can learn from an early age within the various systems in their lives, such as family, school, peer group and community. The findings of the study underline the need for universal social and emotional learning and resilience programmes in both formal and non formal education across various systems, from the early years, and supported by caring and supportive contexts and adult role models, These would help Maltese children to become more confident of themselves and their strengths and abilities, be able to self-regulate and to solve problems, make responsible decisions and turn challenges into opportunities. This finding resonates with findings from other studies where Maltese children yearned for more freedom and autonomy in their lives, calling for a balance between a sense of safety and security, and a sense of autonomy and space to make decisions (Cefai & Galea, 2020). The safe spaces in children's lives need to provide adequate space for children to face challenges and seek solutions in such situations. This would help boost their positive self-concept, enhance their self-efficacy and develop and sharpen their problem solving skills. Overprotection can be a risk factor for the healthy development and resilience of children and young people (Twum-Antwi et al., 2020).

### *Need for adequate spaces for play, exercise and creativity*

Having more free time and more time to focus on things they like and develop new interests was the coping strategy of choice during the lockdown. At the same time, the participants missed going out and meeting friends. However, TV, internet and social media appear to have taken a considerable amount of the time made available for children during the lockdown, whilst physical exercise was not a priority. This relates to other recent findings where Maltese children were above the EU average in the intensive use of electronic media communication, but below average in participation in physical exercise and sports (Inchley et al., 2020). The creation of more accessible, community-based and child-friendly spaces and hubs for play, physical exercise, sports, creativity, and nature, would help to increase physical exercise and participation in sports, reduce time on the internet, and promote engagement in social, creative and nature-based activities amongst Maltese children and young people.



### *Need for additional support to families and children hardly hit by the pandemic*

Whilst the Maltese children's story of the pandemic appears to be one of resilience and thriving, such narrative must not mask the different reality of some children for whom the lockdown experience was much more challenging and may have had a disproportionately negative effect on their health and wellbeing. Current research indicates that vulnerable children, such as those from low socio-economic status, with mental health problems, and with disability, were the hardest hit, with the pandemic contributing to rising inequality (OECD, 2020; UNESCO, 2020; YoungMinds, 2020). Children and young people from poor families, from a migrant background, with mental health difficulties, with disability, and children exposed to family violence, may have found their difficulties exacerbated by the pandemic, as services became interrupted, and safe spaces inaccessible. The post-COVID strategy for children's health, social welfare and education needs to pay particular attention to address the needs of these children, needs which were present before the pandemic, but have been highlighted and exacerbated by the pandemic.

### *Need to listen to children's voices*

This study provided a portrait of the experiences of Maltese children and young people during lockdown and what they found helpful and not helpful in coping with the challenges posed by the pandemic. It highlighted the value of giving children and young people the opportunity to express their thoughts and feelings and to appreciate how what they say is not only meaningful and valid, but may go beyond what adults may think and assume. Children's voices need to be taken into consideration in policies, practices and interventions from planning stage to implementation and evaluation. It is only then that we can ensure that children's and young persons' needs are adequately addressed.

## 3.3 Conclusion

This study indicates that many Maltese children and young people have been able, with the support of their families, communities, and local and national services, to handle the stresses of the pandemic quite well, and in many instances turned this challenge into a positive learning experience for personal growth. It has helped to identify which particular strategies Maltese children have found most useful in coping effectively with the challenges experienced during the lockdown and which strategies contributed to their resilience and mental health and wellbeing. It has made suggestions on how the use of such strategies may be enhanced by providing the appropriate facilities, resources and interventions. The pandemic has also provided a learning experience for systems as well besides individuals, and it has provided a window of opportunity for families, schools, local communities, and social, community and health services, to reorganise themselves to operate effectively as more resilience enhancing and health promoting systems. This could be one of the major legacies of the pandemic for Maltese children and young people and for Maltese society as a whole. It would be a pity if this opportunity would not be utilised before the window closes again in the near future.



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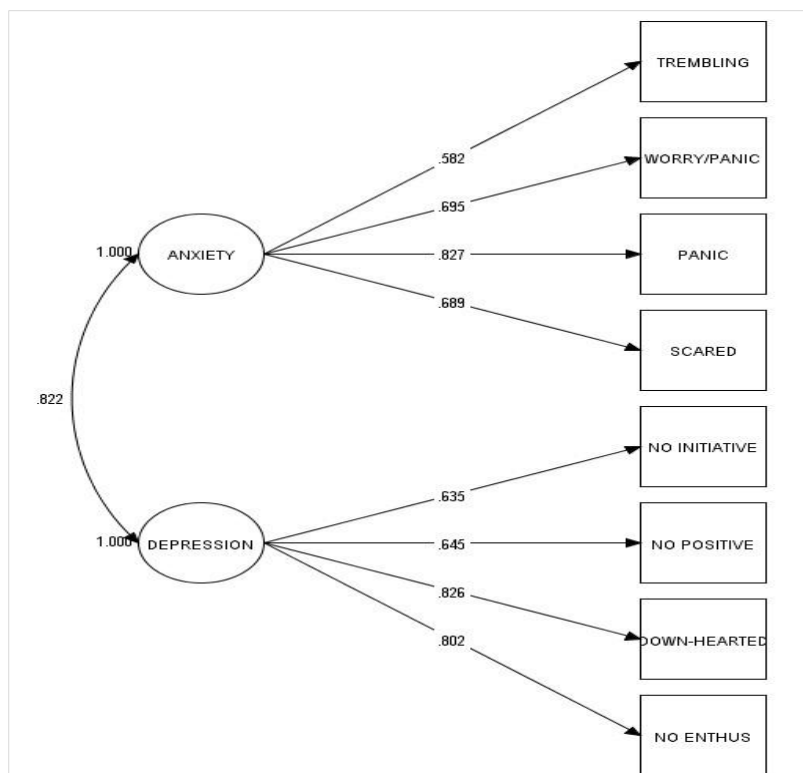
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# Appendix I

## Confirmatory Factor of Depression, Anxiety and Stress Scale (DASS)

The DASS-21 by Lovibond and Lovibond (1995) was used to measure student depression, anxiety and stress. Measuring Depression and Anxiety proved challenging to calculate for children, as the scale was originally designed for adults. Similar to other data on adolescents, the stress component in the Malta data was found to highly correlate with depression and anxiety ( $r = 0.831$  and  $0.934$ , respectively), indicating that it was not a good discriminating factor. The stress scale has not been found to be a reliable and valid measure for adolescents in recent literature (see Shaw et al, 2017). Hence, the stress component was not included in the analysis.

A Confirmatory Factor Analysis (CFA) was undertaken to check the DASS with stress removed. The model that fit the data best comprised 4-items of anxiety and 4 of depression ( $\chi^2(19) = 26.02$ ,  $p > .05$ ; RMSEA = 0.031, 90% C.I. RMSEA = 0.000 – 0.057, Probability RMSEA  $\leq .05 = 0.872$ , CFI = 0.991, TLI = 0.986, SRR = 0.029). Depression and anxiety were calculated by summing each of the 4-items identified in the CFA and then standardised accordingly.



Using MPlus I the best model using CFA for depression and anxiety found the following items for depression:

- D\_3: -I couldn't seem to experience any positive feeling at all
- D\_5: -I found it difficult to work up the initiative to do things
- D\_13: -I felt down-hearted and blue

D-16: -I was unable to become enthusiastic about anything

And for anxiety:

A\_7: -I experienced trembling (e.g. in the hands)

A\_9: -I was worried about situations in which I might panic and make a fool of myself

A\_15: -I felt I was close to panic

A\_20: -I felt scared without any good reason

Scores on the DASS-21 needed to be multiplied by 2 to calculate the final score.

To determine the cut-offs, the anxiety and depression scores needed to be converted to Z-scores, then:

- a z-score < 0.5 is considered to be within the normal range,
- a z-score of 0.5 to 1.0 is mild,
- a z-score of 1.0 to 2.0 is moderate,
- a z-score of 2.0 to 3.0 is considered severe, and
- z-scores > 3 are considered to be extremely severe

Depression = 2(D3+D5+D13+D16)

Anxiety = 2(A7 + A9 + A15 + A20)

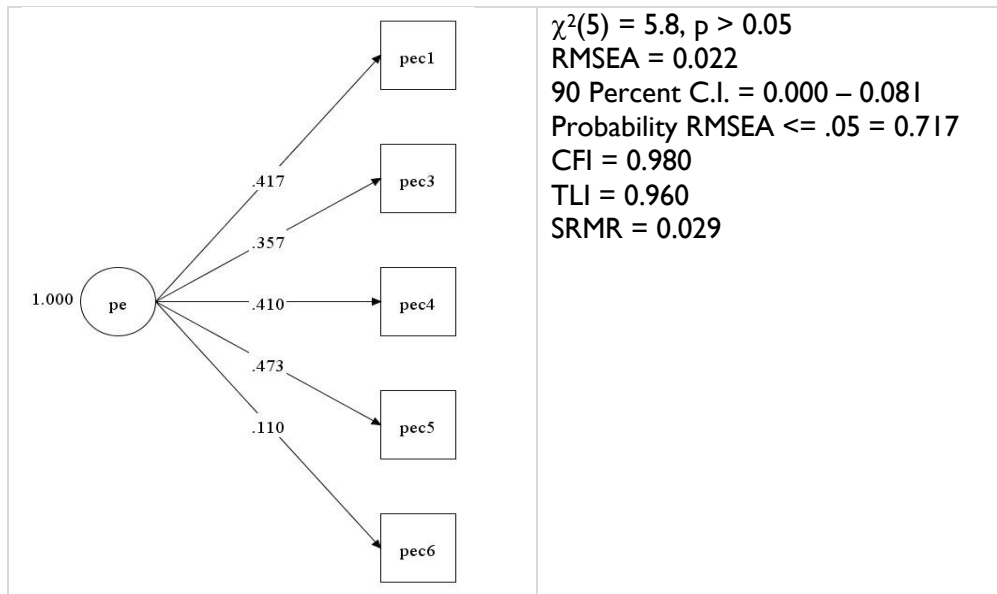
Depression and Anxiety scores were then standardized and categorised as above.

## Appendix 2

### Confirmatory Factor Analysis of Protective Factors

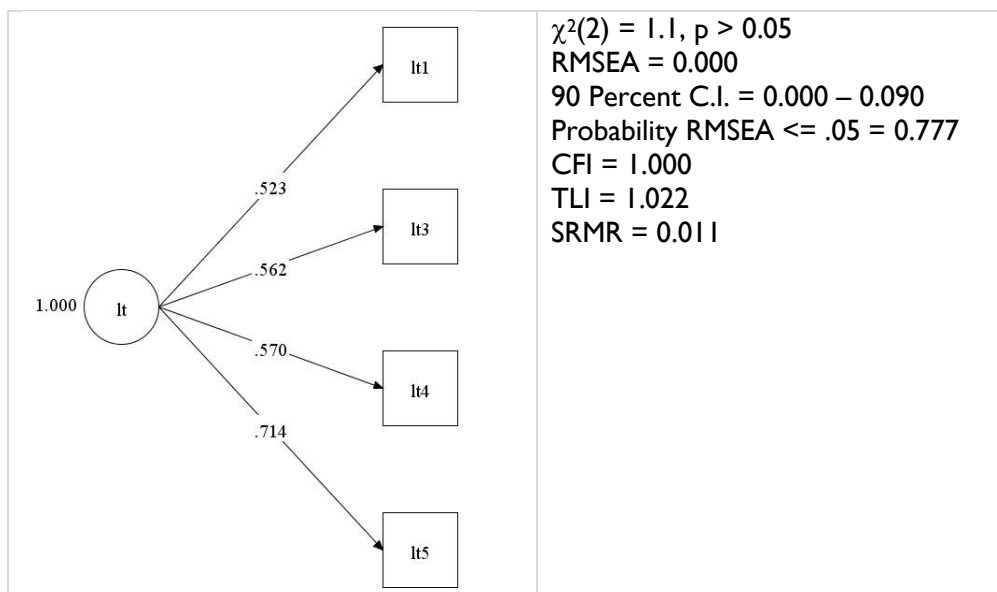
#### Physical Exercise

Well-fitting model – improved when PEC2 (Social media) was dropped from the model.



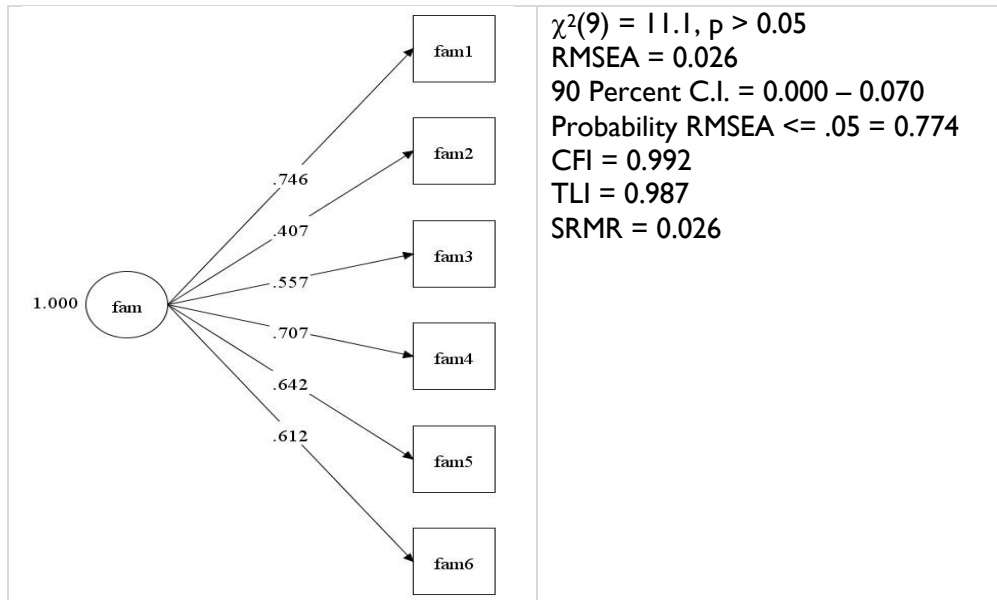
#### Online Lessons

Model was well fitting after dropping LT2 (Study\_homework)



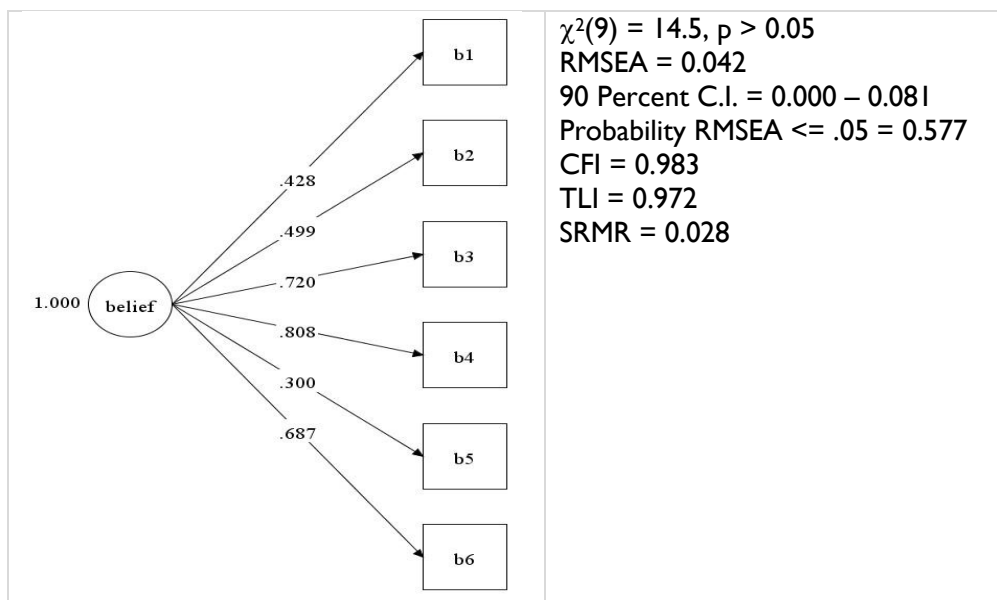
### Family

Model was well fitting after dropping FAM7 (Helping\_Family\_Members) – this correlated highly with FAM2 (Helped\_Around\_Home) suggesting another dimension, so it was dropped.



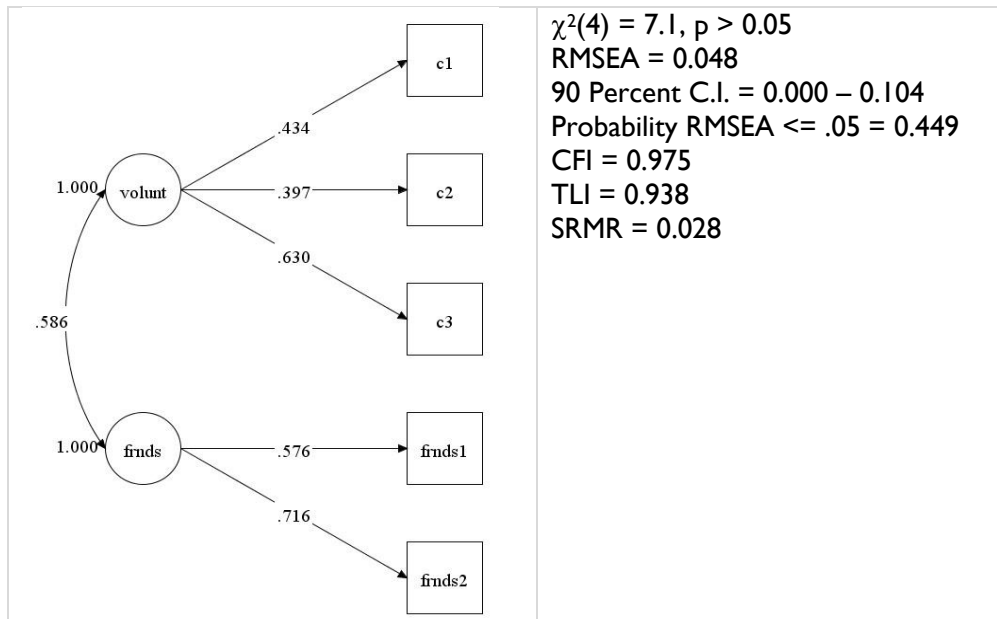
### Self belief and Self regulation

Well-fitting model



### Friends and Volunteering

Needed to put these together as there were insufficient items to separate them as separate single one factor congeneric models. The CFA was a very good fitting model.







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