



Mental Health Difficulties and Health Related Quality of Life amongst Late Adolescents in Vocational Education

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This study investigated vocational students' mental health by identifying the prevalence of depression, stress, anxiety, eating disorders and associated risk and protective factors among 16- to 18-year-old students attending a vocational college in Malta. Health Related Quality of Life (HRQOL) was also investigated. A sample of 422 students completed standardised self-report mental health tools and a demographic and personal variables' questionnaire. A total of 64.4% of students were found to be struggling with at least one of the mental health conditions assessed while 36.7% reported a suspected eating disorder. The prevalence rates of depression, anxiety and stress (moderate, severe or extremely severe) were 43.3%, 48.8% and 29.3% respectively. Students had a lower HRQOL than the reference population as indicated by European norm data. Only 13.5% of participants sought help from mental health services. Risk factors include female gender, poverty, being LGBTQ, not living with both parents, past negative school experiences, poor relationships and presence of suspected or diagnosed conditions or disabilities, amongst others. Having supportive relationships with family, peers and school personnel emerged as protective factors.

Keywords: mental health; HRQOL; depression; anxiety; eating disorders; vocational education.

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Introduction

Mental health difficulties have been increasing among European adolescents, yet few are identified and addressed (WHO Regional Office for Europe, 2018). The COVID-19 pandemic has increased these difficulties (Vizard et al., 2020; Cortina et al., 2021), impacted help-seeking behaviour negatively (Newlove-Delgado et al., 2021), and led to a decrease in physical and psychological HRQOL among youths (Genta et al., 2021). In the UK, the rate of probable mental health conditions among youths aged between 17 and 22 years in 2020 was 20%, with children and adolescents living within families experiencing financial difficulties and those having problematic relationships with family members, being more vulnerable (Vizard et al., 2020).

Depression, anxiety disorders and eating disorders (EDs) are among the most common mental health conditions affecting adolescents (WHO Regional Office for Europe, 2018). Due to their negative repercussions these conditions warrant early intervention. Depressive symptoms are associated with suicide ideation and risk, future physical and mental illness, and unemployment (Thapar et al., 2012; Henje Blom et al., 2016). Adolescent anxiety is linked to peer difficulties, poor academic performance, family relationship problems, substance abuse and other emotional problems, including depression (Crawley et al., 2018). Following a meta-analysis of research related to depression and anxiety in children and adolescents during the pandemic, Racine et al. (2020) concluded that the prevalence of these conditions doubled, with a prevalence of depression of 25.2% and a prevalence of anxiety of 20.5%. Girls and older adolescents were more vulnerable, and the prevalence at later stages of the pandemic was higher.

There is a lack of research regarding the mental health of students in post-secondary vocational education and training (VET), which pre-exists the pandemic (Benatov et al., 2021 Orygen, 2018). The Working Group on the Future of Post-Secondary Education in Malta (2017) describes how post-secondary education is a critical stage in lifelong education and a significant number of school drop-outs occur at this age. It states that in Malta, although 86% of students who finish compulsory education start post-secondary education, 44% do not subsequently advance to tertiary education. Although dropout at the main post-secondary VET College in Malta, the Malta College of Arts, Science and Technology (MCAST) has been decreasing, 1770 students did not complete their courses between 2017 and 2020 (Torou et al, 2022).

One may hypothesise that this is partly due to mental health difficulties, since students who have mental health conditions are more likely to terminate post-secondary education prior to completion (Hjorth et al., 2016; Lee et al., 2009). Psychological stress was in fact one of the main reasons for dropout at MCAST (Torou et al., 2022). Dropout in VET is also a problem in other European countries. Bannink et al. (2015), citing the Dutch Ministry of Education Culture and Science (2011), describe how 75% of all school drop-outs in the Netherlands occur in post-secondary VET. These findings demonstrate that a study of VET students' mental health is necessary to address student dropout in VET.

Conceptual Framework

This research is embedded within a biopsychosocial theoretical framework of mental health. Developed by Engel in 1977, the biopsychosocial model views mental health as a result of the interaction of biological,

psychological and social factors (Engel, 2012). The present research is also informed by the resilience theoretical framework, focusing on strengths, and how young people can develop positively even when they have been exposed to risk (Zimmerman et al., 2013). Olsson et al. (2003) describe how process-focused research within resilience theory shows that resilience is an active developmental process, impacted by both risk factors and protective mechanisms. Zimmerman et al. (2013) recommend that rather than focusing on deficits, an effort should be made to focus on building strengths among all adolescents by creating universal support strategies and enhancing protective factors. The aim is to build skills for the future without first waiting for the young person to struggle and then intervening afterwards.

The present study addresses the research question “What are the mental health needs of 16- to 18-year-old students following full-time Level 1 to 3 courses within post-secondary vocational education in Malta and Gozo?” It attempts to answer this question by identifying the prevalence of symptoms of the common conditions of depression, anxiety, stress, and EDs among students, and to assess whether this is an area requiring intervention, since no local evidence is available.

In line with the biopsychosocial model of mental health (Engel, 2012), the study also sought to identify factors hindering and supporting students’ mental health, including students’ HRQOL, which includes physical, psychological and social aspects. Identifying protective factors is in tune with the resilience theory as described by Fergus and Zimmerman (2005), and allows us to identify which factors should be enhanced within an higher educational environment to foster students’ strengths. The research also endeavours to obtain a picture of students’ use of mental health services and to identify ways of how colleges can support students’ mental health.

This is the first study to examine the mental health of post-secondary lower-level VET students in Malta using a quantitative approach. In Malta, full-time VET courses are mainly provided by MCAST within the domains of Community Services, Engineering and Transport, Business Management and Commerce, Information and Communication Technology, Applied Sciences, and Creative Arts. Students in lower-level courses would not have managed to obtain sufficient school-leaving qualifications to continue furthering their education within purely academic pathways, or at equivalent VET levels.

Methodology

The study adopted a quantitative methodology within a post-positivist research paradigm. This is based on philosophical positivism, which postulates the existence of one reality, but acknowledges human limitations in fully understanding this reality objectively (Guba, 1990). This research is thus based on evidence-based research tools, attempting to maintain reliability and validity to achieve objectivity as much as possible, while acknowledging the limitations of the research tools and the research process in fully achieving this objective.

Research Process

All students aged 16 years and over attending full-time courses from Levels 1 to 3 at MCAST were invited to participate in this research via email and in class by their lecturers and by student mentors. Lecturers and student mentors distributed and collected information letters and consent forms from students and their parents,

when students were under 18 years of age, and subsequently asked students who wanted to participate in the research to complete four questionnaires anonymously during one of their lessons, using an interviewer-assisted method when necessary. This involved reading the questions aloud in class. A training session was organised for lecturers and student mentors by the researcher prior to the dissemination of the questionnaires.

The research procedure and research tools utilised in this study were approved by the respective Research Ethics Committees at the University of Malta and MCAST.

Research Tools

Students' HRQOL was measured by the English version of the KIDSCREEN-27 for children aged 8-18 years (Berra et al., 2007; The KIDSCREEN Group, 2006). The KIDSCREEN Tools were developed, tested and implemented in a collaborative project among 13 European countries, and included data from more than 10,000 children and adolescents. HRQOL is measured in terms of physical well-being, psychological well-being, autonomy and parent relations, social support, and peers through 27 items divided among 5 subscales. The KIDSCREEN-27 results were numerically inputted with marks ranging from 1 to 5. Higher marks in all questions, except questions 1, 4, 5 and 6, indicated higher HRQOL scores, with a 1 indicating 'Not at all' or 'Never', and 5 indicating 'Always' or 'Extremely'. Questions 1, 4, 5 and 6 were negatively worded and were therefore reverse-coded. Subscale scores were summed up and transformed into Rasch person parameter estimates and T-values using the self-report algorithm detailed in the KIDSCREEN manual (The KIDSCREEN Group, 2006). T-values were used in all analyses related to HRQOL. When questionnaires were incomplete, the totals for the incomplete subscale were not computed as Rasch scores and T-values could not be calculated, resulting in different response rate totals for the different subscales. The Physical Well-being subscale consisted of 5 items ($\alpha=.82$), the Psychological Well-being subscale consisted of 7 items ($\alpha=.87$), the Autonomy and Parent Relations consisted of 7 items ($\alpha=.84$), the Social Support and Peers subscale consisted of 4 items ($\alpha=.87$) and the School Environment subscale consisted of 4 items ($\alpha=.78$).

Symptoms of Depression, Anxiety and Stress were measured using the self-report Depression, Anxiety and Stress Scale - 21 Items (DASS-21) for adults and adolescents aged 12 years and older (Lovibond & Lovibond, 1995). The tool utilises three 7-item subscales, with higher scores indicating higher levels of anxiety, depression or stress (Lovibond & Lovibond, 1995). The original English version and a Maltese translation were used. The translation was carried out by Cefai and colleagues (2021b) in a study with Maltese adolescents and demonstrated good internal consistency (Cronbach $\alpha = 0.90$). The tool enables identification of students who are struggling with a seriously depressive state as well as students who are struggling but are not so severe as to have a diagnosis. This was considered important considering the increased risk of adolescents with sub-threshold depression of developing a major depressive disorder (Hill et al., 2014). In terms of DSM categories of mental illness, the 'Anxiety' Scale resembles most closely the symptom criteria for Anxiety Disorders, except for Generalised Anxiety Disorder, to which the 'Stress' Scale corresponds most closely. The 'Depression' scale resembles most closely Mood Disorders. In this study Cronbach's alpha was

.89 in the Depression subscale, .84 in the Anxiety subscale and .83 in the Stress subscale. All subscales consist of 7 items.

As recommended in the DASS manual (Lovibond & Lovibond, 1995), scales with one missing answer were computed by taking the average of the respective DASS scale score. Questionnaires including more than 1 missing answer on a scale were removed. Totals for each scale were then computed. As the original DASS has 52 items, to determine the severity of depression, stress and anxiety in this sample according to the reference population, reference points from the original study were halved. Raw scores were used for analysis.

Symptoms of EDs were examined using the SCOFF Questionnaire (Morgan et al., 1999), which aims to identify persons who may have Anorexia Nervosa and Bulimia Nervosa, in order to enable further clinical assessment. The English version and a Maltese translation were used. Translation to Maltese was carried out using a back-translation procedure by lecturers with a Level 7 qualification in the Maltese and English languages. Test-retest reliability was assessed at a two-week interval with a sample of 26 Level 4 MCAST students. Kappa tests demonstrated satisfactory translation reliability ($K=.629$, $p<.001$) when it came to distinguishing whether students have a suspected ED.

SCOFF responses were inputted numerically with a 'Yes' response being given a 1 value and a 'No' response being given a value of 0. Incomplete questionnaires were removed. The total number of 'Yes' responses were computed into a different continuous variable to create students' total scores. Possible scores ranged from 0 to 5. Students who scored between 2 and 5 were classified as being at risk of EDs.

The final questionnaire asked for students' age, gender, place of residence, people living in the same residence, nationality, siblings, work status, sexual orientation, relationship status, financial status, parental level of education, existence of diagnosed physical, mental or learning conditions, and worries. It also asked participants about their preferred confidants in case of personal problems, service use, experiences in primary and secondary schools, and experiences at MCAST. Open-ended questions were used to identify major difficulties faced by students at MCAST, and what they find helpful. Students were invited to make suggestions as to what MCAST can do to support students' mental health. The selection of questions was based on the resilience theory by Fergus and Zimmerman (2005). These authors describe how promotive factors, which include internal assets, such as self-esteem, and external resources, such as parental support, can disrupt the developmental trajectories leading to negative outcomes resulting from exposure to risk factors. The questionnaire items examine these promotive factors within the biopsychosocial model, and their relationship to mental health. The items do not encompass a full list of influential variables but include those most commonly listed in available research and that are possible to assess via self-report tools.

Analysis

Three statistical tests were used, using the facilities of SPSS, to identify and describe relationships between variables. The Chi square test was used to investigate the association between two categorical variables and the Shapiro Wilk test was used to check whether the normality assumption was satisfied for each score distribution. Since the majority of the score distributions were not normally distributed, the Mann Whitney

U-test was used to compare mean scores between two independent groups of participants. For each statistical test, a 0.05 level of significance was adopted. Open-ended answers were analysed via content analysis.

Research Participants

422 students, out of a total of 1596 students registered within MCAST courses at levels 1-3, completed the questionnaires. Response rate was of 26.44% guaranteeing a maximum margin of error of 4.09% assuming a 95% confidence level. Students reside within all districts in Malta and Gozo. Students were selected by convenience sampling to maximise the sample size. Although this is a non-probability sampling method, sampling bias was reduced by ensuring that the sample and population proportions for students' gender and level of studies were comparable.

Findings

Students' Characteristics

Students' characteristics were obtained from the Demographic Questionnaire and are outlined in Table I. Valid responses only are included, therefore remaining percentages to 100 constitute of unanswered items. Males were significantly more likely to be single and prefer to go on dates while females were more likely to be in a committed relationship ($X^2(12)=49.426, p<.01$). Another significant difference ($X^2(3)=20.728, p<.001$) concerned living arrangements: while 82.4% of students who live with both parents classify themselves as very well-off or as having enough money to live a comfortable life, 62% who do not live with both parents classify themselves accordingly

HRQOL and DASS-21 scores in all subscales were significantly different ($p<.001$) according to students' use of services. Students who never needed to use services obtained the best scores, followed by students who talked to lecturers and students who used services. The highest levels of mental health difficulties and lowest HRQOL were consistently noted in students who needed to use services but did not. Students struggling with anxiety, depression and stress at moderate to higher levels rarely made use of services. Students with EDs report significantly more need or use of services ($X^2(5)=12.254, (p=.031)$) yet 81.5% of students with suspected EDs have never used them.

Students' Mental Health and HRQOL

A total of 64.4% of students were found to be struggling with at least one of the mental health conditions assessed; 36.7% are considered likely to have an ED and in need of further assessment.

Table I*Information from Demographic Questionnaire*

Characteristic	n.	%
Age		
16	171	40.5
17	145	34.4
18	106	25.1
Nationality		
Maltese	358	84.8
Other	61	14.4
Level of current studies:		
1	17	4
2	144	34.1
3	260	61.6
Gender		
Male	253	60
Female	157	37.2
Non-binary	6	1.4
Sexual orientation		
Heterosexual males	243	58.1
Heterosexual females	125	29.6
Bi-sexual	18	4.3
Unsure	16	3.8
Homosexual males	4	0.9
Homosexual females	4	0.9
Other	6	1.4
Students living with		
Both parents	248	58.8
Once parent	84	19.9
One parent and extended family	20	4.7
Both parents and extended family	14	3.3
Blended family	14	3.3
Extended family	12	2.8
Other	7	1.6
Having siblings		
Yes	359	85.1
No	57	13.5
Other	3	0.7
Familial financial circumstances		
Can buy necessities only	90	21.3
Have insufficient money for necessities	13	3.1
Lead a comfortable life	278	65.9
Very well-off	34	8.1
Students' additional responsibilities		
None	213	50.5
Working part-time	71	16.8
Helping their family in their line of work	53	12.6
Taking regular care of a family member	48	11.4
Working part-time and caring for a family member	19	4.5
Other, including multiple responses	16	3.8
Fathers' education level		
Tertiary	42	10
Post-secondary	64	15.2

Secondary	143	33.9
Primary	15	3.6
Student doesn't know	147	34.8
Never attended school	5	1.2
Mothers' education level		
Tertiary	68	16.1
Post-secondary	84	19.9
Secondary	166	39.3
Primary	8	1.9
Student doesn't know	92	21.8
Never attended school	1	0.2
Relationship status		
Want to be in a relationship	119	28.2
Single and happy to be so	112	26.5
Committed relationship	103	24.4
Prefer to date only	38	9
In a non-committed relationship	17	4
Experienced a recent breakup	14	3.3
Other	4	0.9
Condition/disability		
Students having a diagnosed condition/disability	117	27.7
Student suspecting that they have a condition/disability	62	14.7
Students not having a condition/disability	216	51.2
Type of diagnosed condition/disability		
Physical condition	37	8.8
Mental health condition	35	8.3
Learning disability	58	13.7
Multiple conditions	10	2.4
No answer	27	6.4
Students' preferred confidants in case of serious problems		
Counsellor/psychologist	51	12.1
Doctor/psychiatrist	29	6.8
Lecturer	15	3.6
Student mentor	39	9.2
Social/youth worker	7	1.7
Family	138	32.7
Friends	107	25.4
Student would not talk to anybody	97	23
Other: Partner, priest, nurse or multiple options	26	6.2
No answer	4	0.9
Use of mental health services		
Never needed to use	229	54.3
Never used but confided in lecturers	39	9.2
Needed to use but never did	42	10
Needed to use, never did, but talked to lecturers	3	0.7
Used MCAST services, finding them helpful	18	4.3
Used services outside MCAST	39	9.2
Would like to use MCAST services	16	3.8
Used MCAST services and did not find them helpful	0	0

Table II*Prevalence of Eating Disorders (ED)*

SCOFF results	<i>n.</i>	%
Presence of Suspected ED	147	36.7
Sometimes inducing vomiting due to feeling uncomfortably full	44	10.4
Worry of having lost control over how much they eat	139	32.9
Student has recently lost more than 6.4kg in a three-month period	75	17.8
Seeing themselves as fat when others say that they are too thin	109	25.8
Stated that food dominates their life	126	29.9

Table III presents students' DASS-21 scores categorized according to population mean scores provided by Lovibond and Lovibond (1995). Results show scores in the 3 subscales according to whether they fall within the population mean, termed as 'normal', above the population mean but below the typical severity of someone who needs help, termed as 'mild', those having 'moderate' scores and those within the 'severe' and 'extremely severe' population sections. Spearman correlational analysis demonstrated positive correlations significant at the .001 level between all 3 scales.

Table III*Prevalence of Depression, Stress and Anxiety*

Subscale	Normal		Mild		Moderate		Severe		Extremely Severe	
	<i>n.</i>	%	<i>n.</i>	%	<i>n.</i>	%	<i>n.</i>	%	<i>n.</i>	%
Stress	222	58	48	12.6	52	13.6	45	11.8	15	3.9
Anxiety	165	43	32	8.3	79	20.6	26	6.8	82	21.4
Depression	174	44.8	46	11.9	72	18.6	38	9.8	58	14.9

Binomial test calculation results using mean European T-values as cut-off points for comparison showed that participants in this sample had significant lower HRQOL ($p < .001$) in all subscales when compared to the European norm data provided by The KIDSCREEN Group (2006). In the Physical Well-being Subscale, 61.8% of students obtained lower scores demonstrating low energy, possibly feeling physically exhausted, unwell and unfit; 11.4% obtained higher scores thus feeling highly fit physically, active, energetic and healthy; while 26.8% of students scored within the normal range. In the Psychological Well-being subscale, 25% showed normal scores indicating positive emotions, satisfaction with life and absence of loneliness and sadness; 64.4% obtained low scores, indicating no pleasure in life, feeling depressed, unhappy and having a low self-esteem; and 10.7% obtained high scores showing happiness, positive views of life, life satisfaction and emotional balance. In the Autonomy and Parent Relations Subscale, 32.2% obtained normal scores; 50% scored below the normal threshold indicating that they felt restricted, overlooked, unappreciated and restricted by their financial situation; while 16.8% scored above the normal threshold, feeling positive about the

relationship with their parents and having enough autonomy. In the Peers Subscale, 44.9% of students do not feel accepted or supported enough by peers, 24.7% feel extremely accepted and supported, and 30.4% obtained normal scores. In the School Subscale, 38.4% obtained normal scores, 45.4% scored below this threshold indicating negative feelings about school and feelings that they are not doing well, and 16.2% feel very happy and that they are doing very well at school. All subscales were positively correlated ($p < .001$).

Mann-Whitney U-test calculations demonstrated significant lower KIDSCREEN scores among students with suspected EDs in Physical Well-being ($U=9981$, $p < .001$), Psychological Well-being ($U=10828$, $p < .001$), Parents ($U=12498.5$, $p < .001$) and Peers ($U=12929.5$, $p < .001$) subscales. These participants also obtained lower mean scores in the DASS-21 Stress ($U=8776.5$, $p < .001$), Anxiety ($U=9129$, $p < .001$) and Depression ($U=10302.5$, $p < .001$) subscales. Negative correlations significant at the .001 level were found between all DASS-21 scores and KIDSCREEN subscales, except for the Anxiety subscale and School HRQOL.

Further analysis of results revealed the demographic and personal variables significantly associated with students' mental health and HRQOL. Factors associated with a high HRQOL and/or better mental health, include being Gozitan rather than Maltese, living with both parents, being a heterosexual male, not having a suspected or diagnosed condition or disability, coming from a financially stable background, and worrying much and confiding in friends or family. Risk factors were being Maltese, being female, being LGBTQ, not living with both parents, having a diagnosed or suspected condition, having financial difficulties, having additional responsibilities to studying, being in a romantic relationship, not confiding in anyone and being more willing to talk to a professional or educator. Statistical results and more specific findings are outlined in Table IV. HRQOL.

School Experiences

A total of 67% of participants described their experiences in primary school as good or very good, compared to 59% in secondary school. The remaining students described school experiences as neutral, bad or very bad. Problems with peers, including bullying, were the main reasons given for negative school experiences. LGBTQ students were more likely to experience bullying in primary $X^2(2, N=232)=28.186$, ($p < .001$) and secondary school ($X^2(2, N=240)=23.784$, ($p < .001$)). Approximately half of LGBTQ students experienced peer difficulties compared to 9.4% of heterosexual males and 27.4% of heterosexual females. This was the case also regarding students with diagnosed or suspected conditions, who were bullied significantly more in both primary ($X^2(2)=16.275$, ($p < 0.01$)) and secondary ($X^2(2)=7.555$, ($p = .023$)) school.

Most students (77.9%) reported their MCAST experience as good or very good. 20.1% described their experience as neutral and 1.4% as bad. Negative experiences at MCAST were associated with higher mental health scores while students, who do not have difficulties reported less stress and anxiety. Most common difficulties experienced were subject related, especially coping with academic demands (43.1%). The most helpful factors were good relationships with lecturers (45%), student mentors (14%) and peers (14.9%). When asked what MCAST can do to better support their mental health needs, the most common suggestion was

Table IV*Variables significantly associated with mental health*

	HRQOL subscales	P-value	Suspected EDs	DASS-21 scores	P-value
Place of Residence	2	.023			
	3	.024	-	-	-
	4	.001			
Living arrangements	1	.017			
	2	.005		Depression	<.001
	3	.002	-	Stress	.023
	4	.004			
Gender	1	.017	Males: 24.6%	Depression	<.001
	2	.005	Females: 54%	Anxiety	<.001
	3	.002	X ² (2, N=396)=40.146, (p<.001)	Stress	<.001
Sexual Orientation	1	<.001	Male heterosexual: 23.4%	Depression	<.001
	2	<.001	Female heterosexual: 52.5%	Anxiety	<.001
	3	.002	LGBTQ: 60.9%	Stress	<.001
			X ² (2, N=397)=42.194, (p<.01)		
Additional responsibilities	-	-	Extra duties: 43.1% No extra duties: 30.4% X ² (1, N=399)=6.914, (p<.01)	-	-
Female relationship status	-	-	In a relationship: 61.4% Single: 40.6% X ² (1, N=134)=5.793, (p=.016)	-	-
Male relationship status	5	.003	-	Stress	.001
Financial situation	1	.004		Depression	.015
	2	<.001		Anxiety	.013
	3	<.001	-	Stress	.011
	4	.001			
Condition/ disability	1	<.001	No condition: 28.8%	Depression	<.001
	2	<.001	Diagnosed condition: 45.9%	Anxiety	<.001
	3	<.001	Suspected condition: 48.3%	Stress	<.001
	5	<.001	X ² (2)=12.923, (p<0.01)		
Learning Disability	5	.032	-	-	-
Mental health condition	1	.013		Depression	<.001
	2	<.001	-	Anxiety	<.001
	3	<.001		Stress	<.001
Physical condition	5	<.001	-	Anxiety	.043
Confiding in family	1	<.001		Depression	<.001
	2	<.001		Anxiety	<.001
	3	<.001		Stress	<.001
Confiding in peers	3	.01	Peers: 47.1%	Depression	.006
	4	.014	Other: 33.4%	Anxiety	.028
			X ² (1)=6.035, (p=.014)	Stress	.001
Confiding in nobody	1	<.001			
	2	<.001			
	3	<.001		Depression	<.001
	4	<.001	-		
	5	<.001			
Confiding in professional or educator	5	<.001	-	Anxiety	.043

NB: Subscale 1 refers to Physical well-being, Subscale 2 refers to Psychological well-being, Subscale 3 refers to Autonomy and Parent relationships, Subscale 4 refers to Peers and Social Support and Subscale 5 refers to School Environment.

caring about students' mental health, talking to them individually and understanding them (13%). Students with mental health difficulties and those with a lower HRQOL were significantly more likely to suggest this.

Students were significantly more likely to report a suspected ED when they had negative or neutral experiences in primary $X^2(3)=11.935, (p<.01)$ and/or secondary school $X^2(3)=10.495, (p=.015)$. The percentage of students with suspected EDs who reported a bad experience at primary school and secondary school were 60.7% and 47.1% respectively. The percentage of suspected EDs who had a very good experience in primary school was only 29.1% and 22.2% in secondary school. Significant differences in HRQOL in all subscales were also found according to how students rated their school experiences ($p<0.001$ in almost all cases), with a progressive decrease in mean scores noted according to a worsening experience in primary and secondary schools. Students who had positive school experiences were also significantly more likely ($p<.001$) to have lower DASS-21 scores in all subscales. Experience at MCAST was significantly linked to results in the Depression subscale, where declining mean scores were noted according to a worsening experience ($p=.047$).

A major risk factor for negative scores in all dependent variables was past difficulties in peer relationships including bullying. A total of 67.4% of students who were bullied in primary school and 58.6% of students who were bullied in secondary school reported suspected EDs. These students also demonstrate significantly higher ($p<.001$) DASS-21 scores. Conversely students who had good peer relationships in secondary school had lower stress scores ($U=4385.5, p=.049$). Students whose experience in secondary school was difficult due to self-related factors had significantly higher Depression ($U=2303, p=.001$), Anxiety ($U=2332.5, p=.002$) and Stress ($U=2631.5, p=.015$) scores.

Liking teachers in primary school, was linked to lower Stress ($U=1708, p<.01$) and Anxiety ($U=1694.5, p=.021$) scores. Good relationships with secondary school teachers were linked to lower Anxiety ($U=1437, p=.011$). However, these findings need to be interpreted with caution as less than 30 students identified good relationships with teachers at these levels. Students who were happy in secondary school demonstrate lower Stress scores ($U=3397, p=.037$). The prevalence of EDs is lower among students who liked primary and secondary school, were happy there and had no major difficulties.

At MCAST, higher stress scores were observed among students who struggle to cope with assignments, especially when having multiple deadlines together ($U=10498.5, p=.044$). This was also linked to suspected EDs $X^2(1)=22.38, (p<.01)$. A total of 56.6% of 116 students who find it difficult to cope with assignments and deadlines report a suspected ED, compared to 30% of students who do not have this difficulty. Students who report a positive experience so far have significantly lower Stress ($U=3109, p=.002$) and Anxiety ($U=3641, p=.042$) scores. Positive school experiences are also linked to higher HRQOL while negative experiences are linked to lower mean scores (Table V). Subscale numbers are identical to Table IV.

Table V*School experiences and HRQOL*

	Experience	Subscale	P-value
Primary school	Peer difficulties/Bullying	1	<0.001
		2	<0.001
		3	.016
Secondary School	Being happy at school/Good memories	1	.034
		2	.012
		3	.036
	Good peer relationships	1	.022
		2	.006
		5	.024
	Self-related hindering factors	2	.001
		3	.032
		4	.041
		5	<0.001
	Peer difficulties/Bullying	1	<0.001
		2	<0.001
3		.045	
MCAST	Positive experience	1	.04
		2	.105
	Good peer relationships	5	.008
	Good relationships with lecturers	3	.004
	No difficulties	2	.042
		3	.005
		4	.032
		5	<0.001

Discussion

Although the present study has a number of limitations, such as possible bias in the selection of the risk and protective factors assessed, possible volunteer bias, the use of self-report tools and cross-sectional findings, the findings are robust enough to conclude that there was a high prevalence of mental health difficulties among lower level VET students during the pandemic. The prevalence rates of depression, anxiety, stress and EDs were higher than in studies carried out before the pandemic (eg: Hjorth et al., 2016; WHO Regional Office for Europe, 2018) and at the beginning of the pandemic (eg: Racine et al., 2020), supporting the belief that adolescents' mental health difficulties have increased during the pandemic (Racine et al., 2020; Cortina et al., 2021). Similar prevalence rates of these mental health difficulties reported in other countries during the same time frame (eg: Jones et al., 2022) support this conclusion. The rate of students experiencing mental health difficulties and the rate of students scoring below the European norm average in the Psychological Well-being HRQOL subscale are identical, further supporting the reliability of the findings. It is recommended that more studies are carried out among post-secondary students to see whether the prevalence rate has remained the same, and to see whether there are differences in relation to other students in other Maltese post-secondary colleges.

The findings highlight various risk factors for mental health difficulties similar to those identified in the international literature, rendering further credence to the findings. It is of concern that most students had

more than one risk factor. Students with physical, mental health, or learning disabilities and LGBTQ students were for example more likely to have been bullied in school. It is also of concern that students in lower levels of VET have a high prevalence of risk factors. Almost one half of the students in this sample reported a diagnosed or suspected condition. About a quarter of participants in this study are at risk of poverty, this being more likely if they live with one parent only. Almost half of students have other responsibilities in addition to studying. Stopping work might not be an option for these students. They may need to work long hours to support themselves and their families. The higher prevalence of EDs among students who have additional work and/or caring responsibilities supports the interpretation that some of these students are struggling. In view of the assessment system at MCAST, which is based on continuous assessment and includes multiple deadlines throughout the year, some students might be unable to cope with their studies and their responsibilities. This interpretation is supported by the fact that the most common stressors for students are multiple assignments. Too many responsibilities may interfere with studying and propel students to miss lessons resulting in failed grades and the need to invest more time to catch up, thus creating a vicious circle, which increases the risk of dropout. Further qualitative research could help to understand more these students' difficulties and how they may be supported.

Another risk factor affecting students' mental health is the significantly lower HRQOL in all subscales when compared to KIDSCREEN European norm data (The KIDSCREEN Group, 2006). Although care has to be taken when considering this comparison, as students in this sample were in the older age range of the KIDSCREEN studies and varied from the KIDSCREEN sample in such characteristics as SES, the current findings support the few available reports that students in VET may be a vulnerable group (Dalen, 2012; Bannink et al., 2015; Orygen, 2018).

The high prevalence of students who were found to be struggling with at least one of the mental health conditions assessed, underlines the importance of identifying and assessing more than one common mental health condition in population interventions. One also needs to consider that externalizing difficulties were not considered in this study. Including assessments targeting such difficulties would have probably resulted in an increased prevalence of mental health challenges. The necessity of developing a research instrument that specifically targets older adolescents and can identify students who are struggling with internalizing and externalizing mental health issues clearly emerges from these findings. Such an instrument would be likely to identify more students who are struggling than those being identified currently.

The urgency of this matter is emphasised when one considers the low percentage of students who sought help from mental health services, suggesting a high level of untreated mental health conditions. Further research to identify how early intervention should be implemented is necessary. This is supported by the finding that although most students report their current MCAST experience as good or very good and these students were less likely to have mental health problems, this positive experience by itself is insufficient to prevent students from experiencing mental health difficulties, many of which seem to be caused by their personal backgrounds and histories.

Supporting students' mental health in Schools

These results show that positive school experiences are important protective factors when it comes to mental health problems, since these were linked to better HRQOL, less risk of EDs and lower DASS scores. As reported by Olsson et al., (2003) and Evans-Whipp and Gasser (2019), positive relationships in school, including close friends, as well as academic achievement, can increase well-being and resilience. Students' well-being is fostered within caring school environments (Cefai et al., 2021a) and good relationships with teachers enhance self-esteem and positive affect (Dessel et al., 2017). Such findings were replicated in this study, with students having good peer relationships in secondary school and students having good past and present relationships with peers and teachers reporting lower stress scores and higher HRQOL.

In view of the high prevalence of mental health difficulties in this sample, it is evident that school mental health services and specialized community mental health centres cannot support students on their own. Since students who had support from home, from school and peers, and as well as a safe and stable environment did not experience mental health difficulties, suggesting that they flourished better, it makes sense to introduce a systemic, whole-school approach to mental health (Cefai et al., 2021a). This entails a change in school ethos based on increasing connectedness, student safety and level of care through positive regard (Hawe et al., 2015). Systematic reviews demonstrate the importance of this approach based on its effectiveness and positive outcomes (Bullock et al., 2015; Cefai et al., 2021a). Such an approach is endorsed by the students themselves through their suggestions as to how they can be supported to enjoy good mental health. The most common suggestion was a desire for MCAST staff to talk to them individually, empathise with them and understand them more. Students want to learn more about mental health, they want more help, care, respect and a closer relationship with lecturers. They want to study at their pace and want improvement in educational and organizational aspects, such as assessment practices.

A whole-college approach to mental health could incorporate interventions categorised into preventive interventions targeted at helping vulnerable students, and indicated interventions aimed at helping students who are already struggling with mental health issues. Research to evaluate the possibility of introducing interventions aimed at increasing peer support, increasing mental health literacy, staff training, involving parents and supporting students at risk of poverty is needed. Such interventions would help to equip students with the necessary protective support strategies to prevent mental health difficulties and enhance their resilience.

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Conflict of Interest Declaration

The main author of the study, Claire Abela, is employed as a Senior Lecturer with MCAST. MCAST does not gain or lose financially from the publication of this research. The authors have no further relevant financial or non-financial interests to disclose.

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