

MENTAL HEALTH

OF ADOLESCENTS AND THEIR CAREGIVERS

DURING THE COVID-19 PANDEMIC IN NORTH MACEDONIA



MENTAL HEALTH
OF ADOLESCENTS AND
THEIR CAREGIVERS
DURING THE
COVID-19 PANDEMIC IN
NORTH MACEDONIA

Final report

University Clinic of Psychiatry – Skopje
Ss Cyril and Methodius University,
Skopje, North Macedonia

This study was conducted by the University Clinic of Psychiatry in Skopje with support from UNICEF and USAID. The authors' views expressed in this publication do not necessarily reflect the views of UNICEF, the United States Agency for International Development or the United States Government.

Lead researcher:

Stojan Bajraktarov, MD, PhD, Psychiatrist

Researchers:

Ivo Kunovski, MSc, Clinical Psychologist

Marija Raleva, MD, PhD, Child and Adolescent Psychiatrist

Gjorgji Kalpak, MD

Antoni Novotni, MD, PhD, Psychiatrist

Branko Stefanovski, MD, PhD, Psychiatrist

Kadri Hadzihamza, MD, PhD, Psychiatrist

Data analysis:

Rozalinda Isjanovska, MD, PhD, Epidemiologist

International consultant:

Felix Bolinski, MSc, Netherlands Institute of Mental Health and Addiction (Trimbos Institute), VU University Amsterdam

Advisory board:

Dimitar Bonevski, MD, PhD, Psychiatrist

Viktor Isjanovski, MD, PhD, Psychiatrist

Elizabet Miceva Velichkoska, MD, PhD, Psychiatrist

Peer review board:

Ana Frichand, PhD, Psychologist

Biljana Blazhevaska-Stoilkovska, PhD, Psychologist

Kneginja Richter, MD, PhD, Psychiatrist

Acknowledgments

The research team would like to acknowledge and appreciate the contribution of all participants, adolescents and caregivers, the researchers collecting the data and all school personnel involved in the recruitment process. Moreover, we acknowledge and appreciate the help of the Advisory Board, who has provided support on research practices related to safety, ethics, and data protection. We appreciate the help of the Peer Review Board, who have provided support in the process of scientific writing. Also, we would like to acknowledge the support provided by the international consultant, responsible for quality control throughout the research process.

LIST OF ABBREVIATIONS

COVID-19:	Coronavirus disease
FCV-19S:	Fear of COVID-19 Scale
GAD-7:	Generalized Anxiety Disorder Assessment
GDPR:	General Data Protection Regulation
ICAST:	ISPCAN Child Abuse Screening Tools
PHQ-9:	Patient Health Questionnaire
PHQ-A:	Patient Health Questionnaire - Modified for Adolescents
UNEG:	UN Evaluation Group
UNICEF:	United Nations Children's Fund
WHO:	World Health Organization
WHOQOL-BREF:	WHO Quality of Life Scale

CONTENTS

	EXECUTIVE SUMMARY	8
1	BACKGROUND	13
2	AIMS	15
3	METHODOLOGY	16
3.1	Study design	16
3.2	Participants	16
3.3	Study sample	17
3.4	Study procedures	17
3.5	Study variables	18
	<i>3.5.1 Socio-demographic data</i>	18
	<i>3.5.2 Violence</i>	18
	<i>3.5.3 Mental health</i>	18
	<i>3.5.4 Fear of COVID-19</i>	19
	<i>3.5.5 Quality of life</i>	20
3.6	Statistical analysis	20
3.7	Ethical considerations	21
	<i>3.7.1 Informed consent procedure</i>	21

	3.7.2	<i>Study monitoring</i>	22
	3.7.3	<i>Adverse events</i>	22
	3.7.4	<i>Data handling and record keeping</i>	22
	3.7.5	<i>Quality control</i>	22
	3.7.6	<i>Financial support</i>	22
	3.7.7	<i>Human rights, child rights and gender</i>	23
4.	RESULTS		24
	4.1	Sociodemographic characteristics	24
	4.2	Experience with COVID-19	27
	4.3	Mental health	28
	4.3.1	<i>Depression</i>	29
	4.3.2	<i>Anxiety</i>	32
	4.3.3	<i>Fear of COVID-19</i>	35
	4.4	Quality of life	36
	4.4.1	<i>General perception of quality of life</i>	37
	4.4.2	<i>General perception of personal health</i>	39
	4.4.3	<i>Physical health</i>	41
	4.4.4	<i>Psychological health</i>	43

	4.4.5	Social relationships	45
	4.4.6	Environment	47
5.		DISCUSSION	50
6.		STUDY LIMITATIONS	56
7.		CONCLUSIONS	58
8.		RECOMMENDATIONS	60
9.		REFERENCES	62
		ANNEXES	67
		Annex A – Inception report	67
		Annex B – Study instruments	77
		Annex C – Information leaflet (in Macedonian)	85
		Annex D – Terms of reference (ToR) Advisory Board	90
		Annex E – Terms of reference (ToR) Peer Review Board	91

EXECUTIVE SUMMARY



BACKGROUND

A growing body of research indicates that the health, social, and financial impact of the COVID-19 pandemic has resulted in worrisome psychological effects on the general population and the functioning of families worldwide. Common mental health problems, such as depression and anxiety, are considered to be one of the leading causes of disability globally. These problems have pronounced negative consequences on the physical and mental health of individuals, but also on national health and social systems.

Numerous studies have pointed to the increase in the rate of mental health problems during the COVID-19 pandemic, where adolescents are considered a particularly vulnerable group in terms. In addition to adolescent mental health, it is of great importance to consider the mental health of their caregivers as well. The COVID-19 pandemic has contributed to the development of a significant number of studies examining the effects of the pandemic on mental health, but most research is still conducted in high-income countries. Therefore, there is little information about the state of mental health of adolescents and their caregivers in low- and middle-income countries. Such research is unavailable in North Macedonia.

AIMS

The current study aims to collect data on the sociodemographic characteristics and mental health of adolescents and their caregivers in the context of the established restrictive measures as a response to the COVID-19 pandemic in the country. Data were processed to determine prevalence rates and risk factors associated with impaired mental health and quality of life among adolescents and their caregivers. More specifically, the study aims to determine the rate of common mental health problems among adolescents and their caregivers, to identify risk factors associated with common mental health problems and with impaired quality of life; and to offer recommendations for the development of strategies for promotion, prevention, and early intervention.

The study intends to contribute to a public health approach addressing the major issues of child and adolescent mental health, improving family wellbeing, as well as to further encourage the development of policies and the implementation of evidence-based interventions in the sectors of health, education, social work. Intended audiences of

this study are policy makers in the Ministry of Health, Ministry of Education, Ministry of Labor and Social Policy, local government bodies, mental health practitioners, social workers, teachers, parents/ caregivers, and nongovernmental organizations.

METHODOLOGY

The Study was conducted by the University Clinic of Psychiatry – Skopje, in collaboration with UNICEF and the Ministry of Education. The study randomly selected a representative sample of adolescents from primary and secondary schools (aged 12-18 years) and one of their caregivers. The sample consisted of 506 adolescents (31.4% male, 68% female) and 492 caregivers (29.9% male, 70.1% female). The study incorporated the recommended Measurement of Mental Health Among Adolescents at the Population Level Methodological Approach. A battery of questionnaires was applied to gather information on sociodemographic characteristics, mental health problems, family violence, and quality of life. Data was analyzed on a descriptive level and with non-parametric tests for associations between socio-demographic data, mental health, experiences during the pandemic, fear of COVID-19, and quality of life.

RESULTS

In our study, we found that the majority of respondents were female, lived in an urban area, and identified as Macedonian. The majority of the caregivers were also employed and had completed secondary education. During the COVID-19 pandemic, the greatest support for the respondents was found in family members, while more adolescents found support in their friends. Significantly more adolescents (7.7%) compared to caregivers (4.5%) reported needing mental health services. However, more than half of those who identified a need for mental health services did not seek out such services.

Regarding family violence we found that 10.9% of caregivers reported experiencing inter-partner physical abuse, and 33% reported exposure to emotional inter-partner abuse. Additionally, 5.7% of caregivers reported pushing or hitting their children, while 37.5% of caregivers reported yelling and insulting their children in the past month. Yet, the majority of parents (64.8%) reported using conversation as a means of addressing problems with their children.

Depression was present in 10.4% of caregivers, with self-harming thoughts were reported by 22% of them. However, almost 30% of adolescents had moderate to severe symptoms of depression. Self-harming thoughts were registered in more than a quarter of adolescents (25.5%), while in the last month, 8.7% of adolescents reported such thoughts. Additionally, 42.1% of adolescents had moderate to severe symptoms of anxiety. Fear of COVID-19 was significantly higher among female caregivers, those with higher education, and among caregivers who are employed. Fear of COVID-19 was also significantly higher among female and younger adolescents. All these results show that adolescents suffer significantly more from depression, anxiety, self-harming thoughts, depression-related dysfunction, and fear of COVID-19 compared to adults.

In caregivers, the severity of depressive symptoms was higher among those who identified as females, living in urban areas, having higher education, and in those who were unemployed. The severity of depressive symptoms was also significantly higher among caregivers who live with a member with a chronic illness, among those exposed to physical and verbal violence, and among those who needed mental health services. Among adolescents, the severity of depressive symptoms was significantly higher in the females, older adolescents, those who lived with a family member with chronic illness, those who needed mental health services, as well as in adolescents exposed to physical and emotional abuse. Depression was also higher among adolescents from urban areas, and in those who belong to smaller ethnic groups.

Our study findings report that the prevalence of anxiety shows similar patterns with regard to sociodemographic characteristics. The severity of anxiety symptoms was significantly higher among female caregivers, among caregivers living in urban areas, and in those who reported exposure to verbal violence. Anxiety was also more severe in caregivers who were unemployed, who lived with a family member with a chronic illness, needed mental health services, and in those who reported exposure to physical violence. In adolescent, the severity of anxiety was significantly higher in females, older adolescents, those who reported having a chronically ill family member, those who needed mental health services, and among adolescents who were exposed to physical and emotional abuse. Anxiety was also higher among adolescents from urban areas, and adolescents belonging to smaller ethnic groups.

The general perception of quality of life was significantly higher among caregivers with higher education, among those who were employed, and in those who did not need mental health services. The general perception of quality of life was lower among caregivers who lived with a family member with chronic illness, among caregivers who were exposed to physical violence, and significantly lower among those exposed to verbal violence. The general perception of quality of life was also significantly higher among male adolescents and among Macedonian and Albanian adolescents, but it was the lowest among adolescents from other ethnic groups. The general perception of quality of life was significantly lower among adolescents who lived with a family member with a chronic disease, among adolescents who needed mental health services, and among physically and verbally abused adolescents.

DISCUSSION AND CONCLUSIONS

The results of our study confirmed the conclusions of studies applied in other contexts during the COVID-19 pandemic. In general, the adolescent population suffered much more than adults, facing dramatic disruptions in their daily lives. Depression and anxiety have increased during the pandemic, possibly as a result of the prolonged social isolation, school closures, disruption of leisure activities, interests and sports, and the ever-increasing turn to online activities. Uncertainty, disruption in daily habits and concern for the health and well-being of family and loved ones, loss of close family members due to death during the pandemic, are likely to be associated with an increase in symptoms of anxiety and depression among young people.

This study, consistent with previous research, found that girls are more likely to experience anxiety and depression compared to boys. This may be due to factors such as biological susceptibility, lower self-esteem, higher rates of and greater sensitivity to violence, and social inequalities. Older adolescents may also be more affected by mental health issues due to the biological vulnerability and hormonal changes that occur during puberty, as well as social factors such as isolation and disrupted relationships with peers due to physical distancing measures. Family factors can also contribute to the destabilization of adolescent mental health, particularly for those living with a family member with a chronic illness, experiencing physical or emotional abuse, or in need of mental health support but not receiving it. It is therefore crucial to consider these risk factors in addressing the mental health needs of adolescents.

The perception of quality of life is influenced by social, economic, ethnic, and gender inequalities, which may have been exacerbated by the COVID-19 pandemic. Previous findings in this study have demonstrated that exposure to violence is a significant risk factor for both quality of life and personal health among caregivers and adolescents.

RECOMMENDATIONS

In line with the findings, the following recommendations were offered:

1. Development and implementation of a national strategy and action plan for the promotion of mental health and the prevention of mental health problems of children and adolescents, with particular focus on gender and other specificities, as well as on children and adolescents under social risk and the ones with disabilities;

Primary/ universal prevention:

- Awareness raising and conducting public campaigns for strengthening the mental health of children and adolescents, reducing stigma related to mental health problems and help-seeking;
- Delivering programs for mental health promotion and prevention of mental health problems in children and adolescents in primary health protection, primary and secondary schools, rural and urban areas, and between ethnic groups;
- Conducting gender-sensitive programs for the prevention of depression, anxiety, suicidality and self-harm in children and adolescents in primary and secondary schools (with special focus on gender differences, various cultural and gender needs, as well as in dealing with depression and anxiety in girls and women);

Selective prevention:

- Supporting and developing different modalities of mental health services for children and adolescents, and strengthening existing services;
- Developing of and ensuring the availability of technologically assisted services for mental health in children and adolescents (digital programs for stress management, dealing with negative life experiences, online psychological support services etc.);

- Monitoring vulnerable categories of children and adolescents, especially the ones living with chronically ill family member, the ones who required mental health support, and children and adolescents exposed to violence;
 - Developing peer-support programs and strengthening positive peer relations;
 - Adapting technologically assisted mental health programs in improving the access to care for youth and caregivers;
2. Prevention of violence towards and between children and adolescents in all areas of society;
 3. Developing, adapting, evaluating, and supporting parenting evidence-based programs as primary prevention programs in strengthening child and adolescent mental health, and preventing violence towards children and adolescents;
 - Conducting family support programs that will include parents/ caregivers of different ages, will focus on the child's socio-emotional development, the parent-child relationship, as well as promoting healthy lifestyles, building resiliency, and using nonviolent discipline strategies;
 - Development of national parenting programs for parents/ caregivers of children to 9 years of age, younger adolescents to 14 years of age, and older adolescents to 18 years of age;
 4. Strengthening inter-institutional cooperation between sectors of health and social protection, education, governmental and nongovernmental organizations, and other groups (e.g., youth organizations, parents/ caregivers etc.), in the effort to represent, support and adapt health policies on local and national level, directed towards the child and adolescent wellbeing, as well as their family's wellbeing;
 5. Strengthening data-collection and needs-assessment capacities, through the continuous development and support of an integrated system for monitoring child and adolescent mental health within the national electronic system (MojTermin), managed by the electronic health administration under the Ministry of health;

1. BACKGROUND



The WHO declared the novel coronavirus disease (COVID-19) a pandemic on March 11, 2020. Consequently, countries globally began to take social restriction measures, such as social distancing rules, and quarantines, in order to reduce the spread of the virus. Recent scientific literature indicates that the health, social, and financial impact of COVID-19 has resulted in worrisome psychological effects on the general population, and on the functioning of families around the world¹. The most frequently reported psychological symptoms are anxiety and depression, with adolescents indicated as a particularly vulnerable group for developing mental health difficulties². Recent research shows that assessing the impact of the COVID-19 pandemic on families is an important tool in planning adequate responses to health crises³.

Common mental health problems, such as depression and anxiety, are considered to be one of the leading causes of disease globally⁴. Before the start of the COVID-19 pandemic, epidemiological studies estimated the prevalence of anxiety and depression up to 20.8%, and the prevalence of anxiety alone up to 28.8%⁵. In terms of representation, research points out that women report higher rates of depression⁶ and anxiety⁷, compared to men. However, additional sociodemographic risk factors, such as rural v. urban living, show less consistent associations⁸.

- 1 Necho M, Tsehay M, Birkie M, Biset G, Tadesse E. Prevalence of anxiety, depression, and psychological distress among the general population during the COVID-19 pandemic: A systematic review and meta-analysis. *International Journal of Social Psychiatry*. 2021; 67(7): 892-906.
- 2 Merikangas KR, Nakamura EF, Kessler RC. Epidemiology of mental disorders in children and adolescents. *Dialogues in clinical neuroscience*. 2022.
- 3 Solmi M, Estradé A, Thompson T, Agorastos A, Radua J, Cortese S, Dragioti E, Leisch F, Vancampfort D, Thygesen LC, Aschauer H. Physical and mental health impact of COVID-19 on children, adolescents, and their families: The Collaborative Outcomes study on Health and Functioning during Infection Times-Children and Adolescents (COH-FIT-C&A). *Journal of Affective Disorders*. 2022; 299: 367-76.
- 4 GBD 2019 Diseases and Injuries Collaborators. Global burden of 369 diseases and injuries in 204 countries and territories, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019. *Lancet*. 2020; 396(10258): 1204-1222
- 5 Kessler RC, Berglund P, Demler O, et al. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*. 2005; 62(6): 593-602.
- 6 Liu Q, He H, Yang J, et al. Changes in the global burden of depression from 1990 to 2017: Findings from the Global Burden of Disease study. *J Psychiatr Res*. 2020; 126: 134-140.
- 7 Yang X, Fang Y, Chen H. Global, regional and national burden of anxiety disorders from 1990 to 2019: results from the Global Burden of Disease Study 2019. *Epidemiology and psychiatric sciences*. 2021; 30: e36.
- 8 Purtle J, Nelson KL, Yang Y, et al. Urban-rural differences in older adult depression: A systematic review and meta-analysis of comparative studies. *American Journal of Preventive Medicine*. 2019; 56(4): 603-613.

Numerous studies indicate an increased rate of mental health problems during the pandemic, and adolescents are considered to be a particularly vulnerable group in terms of impaired mental health. The reason for this is not only the effects of the pandemic, which disproportionately affected young people⁹, but also the fact that psychological disorders mainly develop and reach their peak onset in the developmental period from early to late adolescence¹⁰. The cumulative effects of these factors pose a significant risk for a sharp and continued increase in adolescent mental health problems.

Recently published scientific research points to the negative impact of the COVID-19 pandemic, particularly in an increased incidence of mental health problems due to social isolation and loneliness. According to a multicenter study¹¹, conducted in 11 countries, including North Macedonia, there is a statistically significant correlation between personal exposure to the COVID-19 virus and the occurrence of symptoms of depression and anxiety in the adult population. Additionally, adolescent attitudes regarding the COVID-19 pandemic in Canada¹², indicate that the pandemic caused a strong emotional impact through distancing from friends and extended family members, reduced school, and outside activities, especially in the transitional moments when children move from primary to secondary school.

In addition to the previously mentioned influencing factors that contribute to frequent mental health problems in adolescents, it is extremely important to consider the mental health of their parents and legal caregivers. Unfortunately, most research on the topic is conducted in high-income countries¹³. The COVID-19 pandemic has contributed to the development of a significant number of studies examining the effects of the pandemic on mental health in specific social and health groups, such as healthcare workers¹⁴ and students¹⁵. However, there is little information regarding the state of mental health of adolescents and their caregivers. Adequate assessment of the prevalence of common mental health problems is particularly important for the development of evidence-based health policies. In addition, the identification of sociodemographic risk factors associated with mental health problems allows for the development of targeted treatment approaches, and the allocation of resources in the health and social sector.

9 Hafstad GS, Augusti EM. A lost generation? COVID-19 and adolescent mental health. *The Lancet Psychiatry*. 2021; 8(8): 640-641.

10 Auerbach RP, Mortier P, Bruffaerts R, et al. WHO World Mental Health Surveys International College Student Project: Prevalence and distribution of mental disorders. *J Abnorm Psychol*. 2018; 127(7): 623-638.

11 Ding K, Yang J, Chin MK, Sullivan L, Demirhan G, Violant-Holz V, Uvinha RR, Dai J, Xu X, Popeska B, Mladenova Z. Mental health among adults during the COVID-19 pandemic lockdown: a cross-sectional multi-country comparison. *International Journal of Environmental Research and Public Health*. 2021;18(5): 2686.

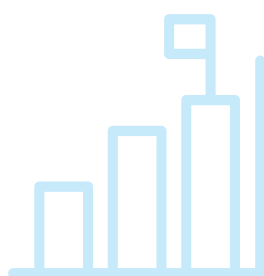
12 Ramey HL, Lawford HL, Berardini Y, Caimano S, Epp S, Edwards C, Wolff L. It's Difficult to Grow Up in an Apocalypse: Children's and adolescents' experiences, perceptions and opinions on the COVID-19 pandemic in Canada. Innocenti Research Report, UNICEF Office of Research - Innocenti, Florence. 2022.

13 Wainberg, M. L., Scorza, P., Shultz, J. M., et al. Challenges and Opportunities in Global Mental Health: a Research-to-Practice Perspective. *Curr Psychiatry Rep*. 2017; 19(5): 28.

14 Ristevska-Dimitrovska G, Batic D. The impact of COVID-19 on mental health of healthcare workers and police/army forces in the Republic of North Macedonia. *Eur Neuropsychopharmacol*. 2020; 40: S479.

15 Mancevska S, Gligoroska JP, Velickovska LA. Levels of anxiety and depression in second year medical students during COVID-19 pandemic spring lockdown in Skopje, North Macedonia. *Research in Physical Education, Sport and Health*. 2020.

2. AIMS



The aim of the study was to collect data on the sociodemographic characteristics and mental health of adolescents and their caregivers during the COVID-19 pandemic in North Macedonia. Data were processed to determine prevalence rates and risk factors associated with impaired mental health and quality of life among adolescents and their caregivers on a national level. Moreover, next to a gender perspective, the report addresses issues directly related to children's' rights, namely those of freedom from discrimination (e.g., based on living environment, socioeconomic background) and from violence.

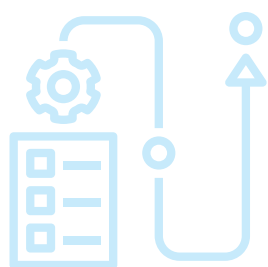
The collected data may offer evidence-based directions for building health, social, educational, and economic policies and activities for strengthening child, adolescent, and family mental health. For that purpose, of particular importance is the involvement of key sectors (Ministry of Health, Ministry of Labor and Social Policy, Ministry of Education and Science, Ministry of Finance, nongovernmental and professional organizations) in discussing and operationalizing the results and recommendations of the study.

The study has the following specific objectives:

1. To determine the rate of frequent mental disorders among adolescents and their caregivers;
2. Identification of risk factors associated with frequent mental disorders among adolescents and their caregivers;
3. Identification of risk factors associated with impaired quality of life among adolescents and their caregivers;
4. Propose recommendations for the development of strategies for promotion, prevention, and intervention;

3.

METHODOLOGY



3.1 STUDY DESIGN

The conducted research represents a cross-sectional study on a nationally representative sample of adolescents and their caregivers in North Macedonia. In collaboration with the Bureau of Educational Development, recruitment of participants was conducted through primary and secondary schools from different regions of the country, thereby recruiting adolescents and caregivers from different socioeconomic backgrounds. In terms of age groups, adolescents aged 12-14 years (grades VII-IX) were recruited from primary schools, while adolescents aged 15-18 years (grades I-IV) were recruited from secondary schools.

The study is led by mental health researchers from the University Clinic for Psychiatry – Skopje, as well as an epidemiologist from the Institute of Epidemiology and Biostatistics with Medical Informatics. A total of 20 field researchers were trained by the mental health researchers and involved in providing informed consent, as well as data collection and entry. Field researchers were composed of psychiatry and clinical psychology trainees. Their task was also to be available to participants by phone or face-to-face in providing support during informed consent procedures and survey completion.

3.2 PARTICIPANTS

The sample included adolescents and their caregivers. Adolescents and caregivers were included in the study if they meet the following criteria:

1. Adolescent aged 12-18 and parent/ caregiver aged ≥ 18 ;
2. Providing written informed consent;
3. Participants must be residents of North Macedonia;
4. Adolescents should live in the same household with the parent/caregiver;
5. Participants have access to a telephone;
6. Participants must speak Macedonian, Albanian or Turkish language;

3.3 STUDY SAMPLE

Calculation of the minimum sample size for an epidemiological study was based on the expected prevalence rate of common mental disorders in low- and middle-income countries of 30% with precision $\tau_2 = 0.05$ and confidence level with $\alpha = 0.05$. Therefore, the study aimed to collect data from a minimum of 646 participants (323 caregivers, 323 adolescents), considered as adequate to identify risk factors as well. However, in anticipation of a 30% dropout rate, the sample was increased to around 840 participants (420 caregivers, 420 adolescents), considered a feasible sample, based on the total number of 144,855 adolescents aged 12-18 living in North Macedonia¹⁶. The final study sample included 506 adolescents and 492 caregivers.

3.4 STUDY PROCEDURES

The study was conducted using a number of established questionnaires, which were translated into Macedonian, Albanian and Turkish. The transcultural translation and adaptation of the questionnaires followed the recommended Measurement of Mental Health Among Adolescents at the Population Level Methodological Approach¹⁷. It consisted of the following steps: translation and adaptation by bilingual researchers, review by an expert in the field of mental health, discussions in focus groups, integration of qualitative data, as well as interviews conducted with experts in the field of mental health. Finally, before the questionnaires were used in the reported study, these were pre-tested together with the data collection procedure in one classroom from a secondary school in Skopje. Based on the experiences and collected data, the research team made minimal adaptations to the initial design and planned procedures.

Information about the study was shared with adolescents and caregivers by field researchers. Representatives from the Bureau of Educational Development, teachers and professional associates in schools, adolescents, and caregivers were briefed on the objectives of the study and planned procedures prior to the data collection process. The Bureau offered their suggestions regarding the wording of specific items from the questionnaires, related to suicidality and quality of sexual relationships, which were incorporated in the final battery of questionnaires.

Field researchers initially collected basic contact information (name, phone number, and/or email) from adolescents and caregivers who signed informed consent. Personal data obtained, such as names and contact information, was used solely to contact participants, and was stored separately from data on main study parameters. Immediately after obtaining informed consent, a paper form of the survey was distributed to the participants, which upon completion was collected by the field researchers. Responses

16 State statistical office of Republic of North Macedonia. Census of the population, households and housing in Republic of North Macedonia. 2021; makstat.gov.mk

17 Carvajal L, Ahs JW, Requejo JH, Kieling C, Lundin A, Kumar M, Luitel NP, Marlow M, Skeen S, Tomlinson M, Kohrt BA. Measurement of Mental Health Among Adolescents at the Population Level: A Multicountry Protocol for Adaptation and Validation of Mental Health Measures. *Journal of Adolescent Health*. 2022.

from adolescents and their caregivers were linked to unique numerical codes, which were not linked to personal data of the participants. .

3.5 STUDY VARIABLES

3.5.1 SOCIO-DEMOGRAPHIC DATA

Sociodemographic information was collected through self-administered questionnaires by adolescents and caregivers. Data were collected on age, sex, place of residence, ethnicity, level of education, employment status, number of persons in the household, presence of chronic somatic illness in the family, as well as the need for mental health services during the pandemic. Caregivers were also asked to indicate their relationship with the adolescents involved in the study.

3.5.2 VIOLENCE

The participants were asked to determine the experiences and frequency of interpersonal violence in the family and violent parenting approaches. An adapted and shortened version of the Child Abuse Screening Tool was used for this purpose (ICAST; ISPCAN Child Abuse Screening Tools)¹⁸. ICAST is an internationally validated research tool in the field of child victimization. The tool consists of structured questions about frequent or serious negative experiences in children, such as parenting practices, physical and psychological violence, and various forms of abuse and neglect. Three versions of the tool have been developed, including a version for caregivers, a version for children over 11 years of age, and a retrospective version for young adults.

3.5.3 MENTAL HEALTH

The presence and severity of depressive symptoms in caregivers was assessed with a shortened form of the Patient Health Questionnaire (PHQ-9; Patient Health Questionnaire)¹⁹. PHQ-9 is a self-report questionnaire designed to identify depressive symptoms in adults. The questionnaire contains nine items with responses on a four-point Likert scale ranging from “not at all” to “almost daily”. Total scores range from 0–27, with higher scores indicating more severe depressive symptoms. Cut-off scores for varying intensities of depressive symptoms have been established: no symptoms (0-4), mild (5-9), moderate (10-14), moderately severe (15-19), severe (20-27). The presence of depression is determined by obtaining a score of 8 or more²⁰. The questionnaire also contains items to determine the presence and intensity of suicidal ideation and behavior. In this study, the internal consistency of the PHQ was found to be $\alpha=0.83$.

18 World Health Organization. Preventing child maltreatment: a guide to taking action and generating evidence. World Health Organization; 2006.

19 Kroenke K, Spitzer RL. The PHQ-9: a new depression diagnostic and severity measure. *Psychiatric annals*. 2002; 32(9): 509-15.

20 Manea L, Gilbody S, McMillan D. Optimal cut-off score for diagnosing depression with the Patient Health Questionnaire (PHQ-9): a meta-analysis. *Cmaj*. 2012; 184(3): 191-6.

The presence and severity of adolescent depressive symptoms were assessed with the adolescent version of the Patient Health Questionnaire (PHQ-A; Patient Health Questionnaire- Modified for Adolescents)²¹. The PHQ-A is a self-assessment questionnaire developed for adolescents over 11 years of age and follows the outline of the adult PHQ-9, including the cut-off scores. However, in the adolescent version, the potential presence of a clinical depression is determined by a score of 10 or more²². PHQ-A also assesses the duration of depressive symptoms over the year, impaired functioning caused by depression, and suicidal ideation and behavior. In this study, the internal consistency of the PHQ-A was found to be $\alpha=0.86$.

The presence and severity of anxiety symptoms in adolescents and caregivers were assessed with the Generalized Anxiety Questionnaire. (GAD-7; Generalized Anxiety Disorder Assessment)²³. The GAD-7 is a self-report questionnaire designed to identify anxiety symptoms in adolescents and adults. The questionnaire contains seven items with responses on a four-point Likert scale ranging from “not at all” to “almost daily”. Total scores range from 0-21, with higher scores indicating more severe anxiety symptoms. The following cut-off scores for different intensity of anxiety symptoms have been established: no symptoms (0-4), mild (5-9), moderate (10-14), severe (15-21). The potential presence of a clinical anxiety disorder is determined by obtaining a score of 10 or more. In this study, the reliability coefficient of the GAD-7 registered in the subsamples of adolescents and caregivers had values of $\alpha=0.89$ and $\alpha=0.88$, respectively.

3.5.4 FEAR OF COVID-19

Fear related to the COVID-19 pandemic was assessed with the Fear of COVID-19 Scale (FCV-19S; Fear of COVID-19 Scale)²⁴. The FCV-19S is a questionnaire for self-assessment of attitudes and experiences related to COVID-19. The questionnaire consists of seven items with responses on a five-point Likert scale, ranging from “strongly disagree” to “strongly agree”. Total scores range from 7-35, with higher scores indicating a higher degree of fear associated with the virus. The questionnaire was used to assess virus-related fear in adolescents and caregivers. Internal consistency of this scale was $\alpha=0.86$ on the subsample of adolescents, and $\alpha=0.92$ on the subsample of caregivers.

-
- 21 Johnson JG, Harris ES, Spitzer RL, Williams JB. The patient health questionnaire for adolescents: validation of an instrument for the assessment of mental disorders among adolescent primary care patients. *Journal of Adolescent Health*. 2002; 30(3): 196-204.
- 22 Nandakumar AL, Vande Voort JL, Nakonezny PA, Orth SS, Romanowicz M, Sonmez AI, Ward JA, Rackley SJ, Huxsahl JE, Croarkin PE. Psychometric properties of the patient health questionnaire-9 modified for major depressive disorder in adolescents. *Journal of child and adolescent psychopharmacology*. 2019; 29(1): 34-40.
- 23 Spitzer RL, Kroenke K, Williams JB, Löwe B. A brief measure for assessing generalized anxiety disorder: the GAD-7. *Archives of internal medicine*. 2006; 166(10): 1092-7.
- 24 Ahorsu DK, Lin CY, Imani V, Saffari M, Griffiths MD, Pakpour AH. The fear of COVID-19 scale: development and initial validation. *International journal of mental health and addiction*. 2020; 27:1-9.

3.5.5 QUALITY OF LIFE

Subjective experience of quality of life was assessed with the self-reported shortened form of the WHO quality of life scale. (WHOQOL-BREF; WHO Quality of Life Scale)²⁵. WHOQOL-BREF is a questionnaire for self-assessment of the quality of life. The questionnaire consists of 26 items with responses on a five-point Likert scale ranging from “disagree” to “strongly agree”. Quality of life is determined in terms of four domains: physical health (7 items), psychological health (6 items), social relationships (3 items) and environment (8 items). The physical health domain includes items on mobility, daily activities, functional capacity, energy, pain, and sleep. The psychological health domain includes items on self-image, negative thoughts, positive attitudes, self-esteem, learning ability, concentration, religion, and psychological status. The social relationships domain includes items about relationships with others, social support, and sex/love life. The environment domain includes items on financial resources, safety, health and social services, the immediate environment, opportunities for acquiring new skills, recreation, transportation, and the general environment (e.g., noise, air pollution, etc.). In addition, items are included that determine the overall perception of personal health and quality of life. As found in this study, the internal consistency of the physical domain, psychological domain, environment, and social relationship domain were $\alpha=0.77$, $\alpha=0.84$, $\alpha=0.82$, and $\alpha=0.62$ on the subsample of adolescents, and $\alpha=0.77$, $\alpha=0.76$, $\alpha=0.83$, and $\alpha=0.77$ on the subsample of caregivers, respectively.

3.6 STATISTICAL ANALYSIS

Data were analyzed using the statistical software STATISTICA²⁶. Data was presented as absolute numbers (*N*) and percentages (%) for categorical variables, as well as means (*M*) and standard deviations (*SD*) for continuous variables. The associations between socio-demographic data, mental health, fear of COVID-19 and quality of life were analyzed with non-parametric Mann-Whitney U Test to test differences between two groups and were presented as a test result (*U*) and statistical significance (*p*). Associations between sociodemographic characteristics, mental health, fear of COVID-19 and quality of life were analyzed with the non-parametric Kruskal-Wallis H Test and results were presented with test statistics (*H*) and significance levels (*p*). The analyses were performed on an aggregated level, as well as comparatively for specific subcategories (e.g., male/ female). Statistical significance was set at $\alpha= 0.95$. The prevalence rates of mental health problems were calculated as a proportion of the total sample (adolescents and caregivers), in relation to the established cutoff scores of the proposed outcome measures. Special attention is given to analyzing sociodemographic differences in terms of mental health and quality of life among adolescents and caregivers.

25 Skevington SM, Lotfy M, O’Connell KA. The World Health Organization’s WHOQOL-BREF quality of life assessment: psychometric properties and results of the international field trial. A report from the WHOQOL group. *Quality of Life Research*. 2004; 13(2): 299-310.

26 StatSoft Inc. (2004) STATISTICA (Data Analysis Software System), Version 7.

3.7 ETHICAL CONSIDERATIONS

Before the recruitment and data collection process began, the study was approved by the Ethics Committee at the Faculty of Medicine, St. Cyril and Methodius University, Skopje. All documentation (questionnaires, informed consent forms, list of information) was submitted to the ethics committee. Permission to recruit participants through state primary and secondary schools was obtained in cooperation with the Bureau of Educational Development.

In accordance with the norms and standards of the UN Evaluation Group (UNEG), researchers were sensitive to local beliefs and cultural values, practices and customs and acted with integrity and honesty in their dealings with participants and other stakeholders. The researchers paid attention to their contact with those involved in the research to be characterized by respect, to protect the anonymity and confidentiality of personal data and to declare existing or potential conflicts of interest. As an extension to this, the research also followed the do no harm principle, in that no questions were asked that could be considered judgmental or place those involved in a dangerous or humiliating position, and questions that reactivated a respondent's negative feelings from a traumatic event were avoided as much as possible.

The participants were not involved in the research development, design, and selection of the measurement instruments. Collaboration with relevant institutions was aimed at supporting and facilitating communication with schools and staff, supporting participant recruitment, and providing feedback on research design and procedures. The Ministry of Health, Ministry of Labor and Social Policy, Ministry of Education and Science, representatives of academia (Faculty of Medicine, Faculty of Philosophy), as well as civil organizations, were included in verification meetings about the study outcomes, conclusions, and recommendations. The suggestions of institutions/ organizations were incorporated into the final recommendations of the study.

3.7.1 INFORMED CONSENT PROCEDURE

The process of recruiting adolescents and caregivers of different ages, places of residence and educational levels followed standard procedures in order to ensure informed consent to participate in the study. The steps included sharing a list of information about the process, protection of the participant's privacy and confidentiality of the shared information, and verbal contact for any questions related to the procedures and measurement instruments. Participation in the study was voluntary and data are presented anonymously.

Verbal and written informed consent were provided by caregivers and adolescents aged 14 years and older. Verbal and written informed consent were provided by caregivers of adolescents aged 12-13 years. The informed consent form was accompanied by a list of study information and important telephone numbers in case of need. Personal identifiable information was not included in the completion of the survey. The possibility of exclusion/ withdrawal from the study at any time was also clearly highlighted.

3.7.2 STUDY MONITORING

Research practices related to safety, ethics and data protection were monitored by an advisory board, which is independent of the research team and the content of the research project. Advisory board members participated in regular research team meetings and offered guidance and recommendations on research practices, resources, duties, priorities, communication, recording and reporting of suspected adverse events, data handling, and record keeping. The Advisory Board consisted of three members, selected for their experience in the field of mental health in the country. The final report was reviewed by a Peer Review Board consisting of three members, selected for their experience in publishing mental health research. The Peer Review Board provided recommendations for improving the structure and content of the report.

3.7.3 ADVERSE EVENTS

Any suspected adverse events observed by investigators or reported by participants, defined as undesirable experiences occurring to them during the study (independent of relation to study procedures), were recorded and discussed with the Advisory Board. No serious adverse events were reported during the study.

3.7.4 DATA HANDLING AND RECORD KEEPING

Data was handled confidentially and in accordance with national GDPR regulations. Participants' data was only identifiable by a unique 5-digit code, with the key code linking the participant and their data only being accessible by the lead investigator. All research data (hard copies) is stored in a locked cabinet in a locked room at the University Clinic of Psychiatry – Skopje. Upon completion of this final report, the key code will be destroyed, and the anonymized data will be kept for 5 years.

3.7.5 QUALITY CONTROL

Quality control throughout the research process, including design, data collection, analysis, interpretation of results, and data dissemination, was monitored by an international consultant. The international consultant was selected based on his international and regional experience with mental health research. This version of the report has also benefitted from comments received by UNICEF established external quality control mechanism through revision of the final draft report.

3.7.6 FINANCIAL SUPPORT

The entity that provided the financial support was not involved in the development of the design, the collection of data, nor in the interpretation of the data. The entity that provided the financial support offered guidance on the structure of the report, but did not participate in the processing and writing of the results. The entity that provided financial support helped in the communication with the collaborators, as well as in the dissemination of the results at the local and international level.

3.7.7 HUMAN RIGHTS, CHILD RIGHTS AND GENDER

For the whole duration of the study the fundamental principle that all human beings, whatever the nationality, place of residence, sex, national or ethnic origin, color, religion, language, or any other status, were treated equally and with respect. No issues were reported from any study participant or any research team member for deviations in incorporating these basic human rights. Moreover, from a gender perspective, the report addresses issues directly related to women's rights, namely those of freedom from discrimination (e.g., based on living conditions, socioeconomic background) and from violence.

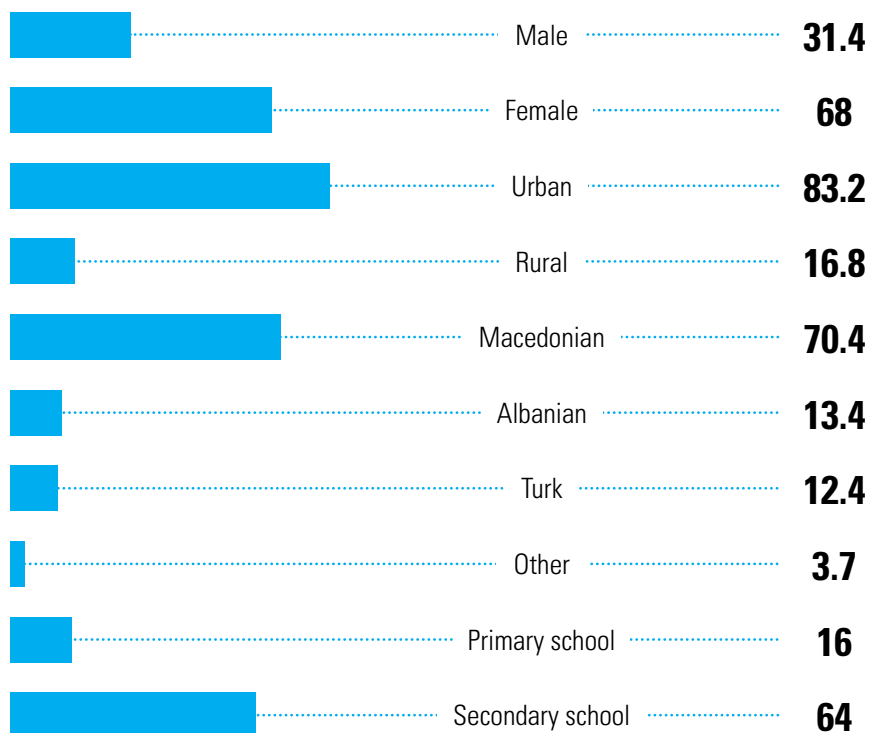
4. RESULTS



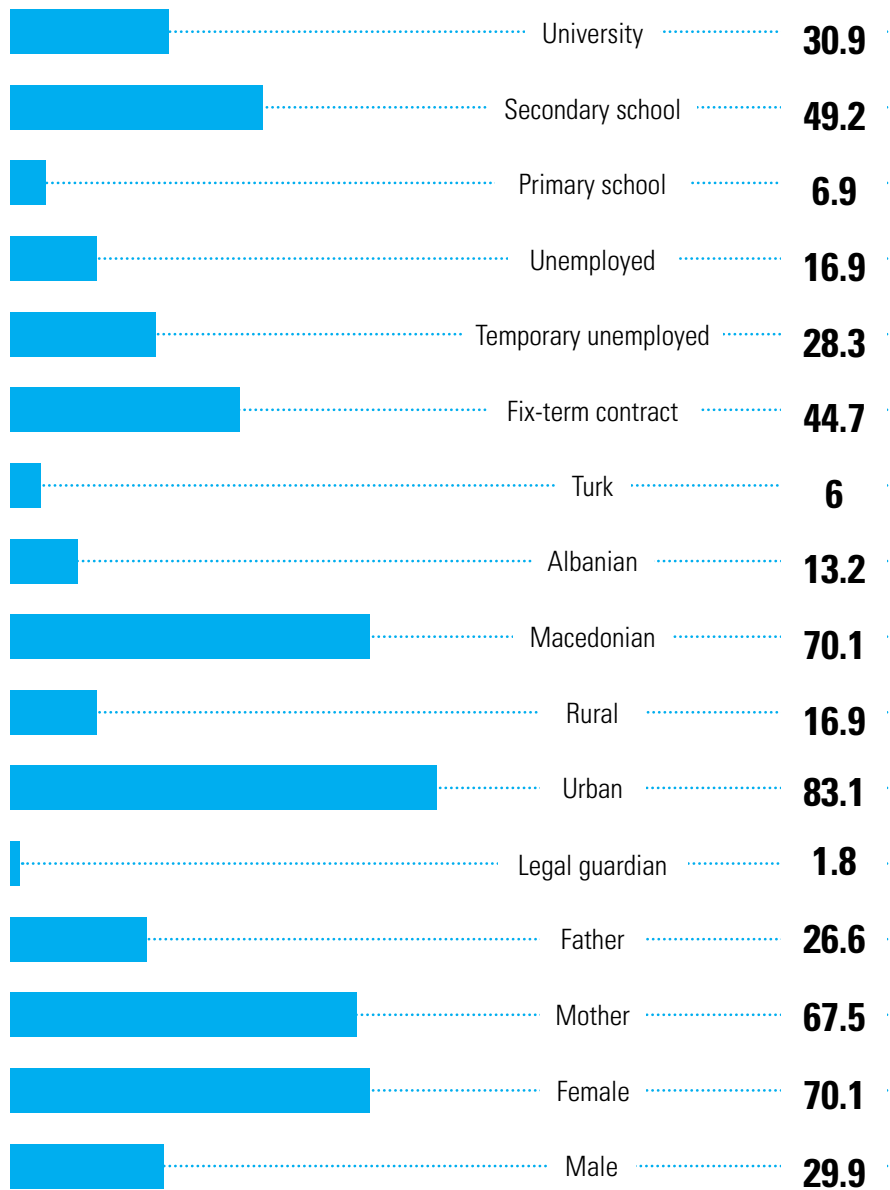
4.1 SOCIODEMOGRAPHIC CHARACTERISTICS

Graphs 1 and 2 show the sociodemographic characteristics of the respondents. A total of 998 adolescents and caregivers participated in the study (506 adolescents and 492 caregivers). Adolescents were aged 12 to 18, while caregivers were aged 20 to 63. The average age of adolescents was 15.9 years (*SD*= 1.4), and the average age of caregivers was 43.6 years (*SD*= 5.5). A significantly higher percentage of all respondents were female, and a majority of caregivers were mothers (67.5%). Adolescents and caregivers mostly lived in an urban environment and declared themselves as Macedonians. The majority of the caregivers were employed on an indefinite and short-term contract basis and have completed secondary education.

Graph 1. Socio-demographic characteristics of adolescents (%)

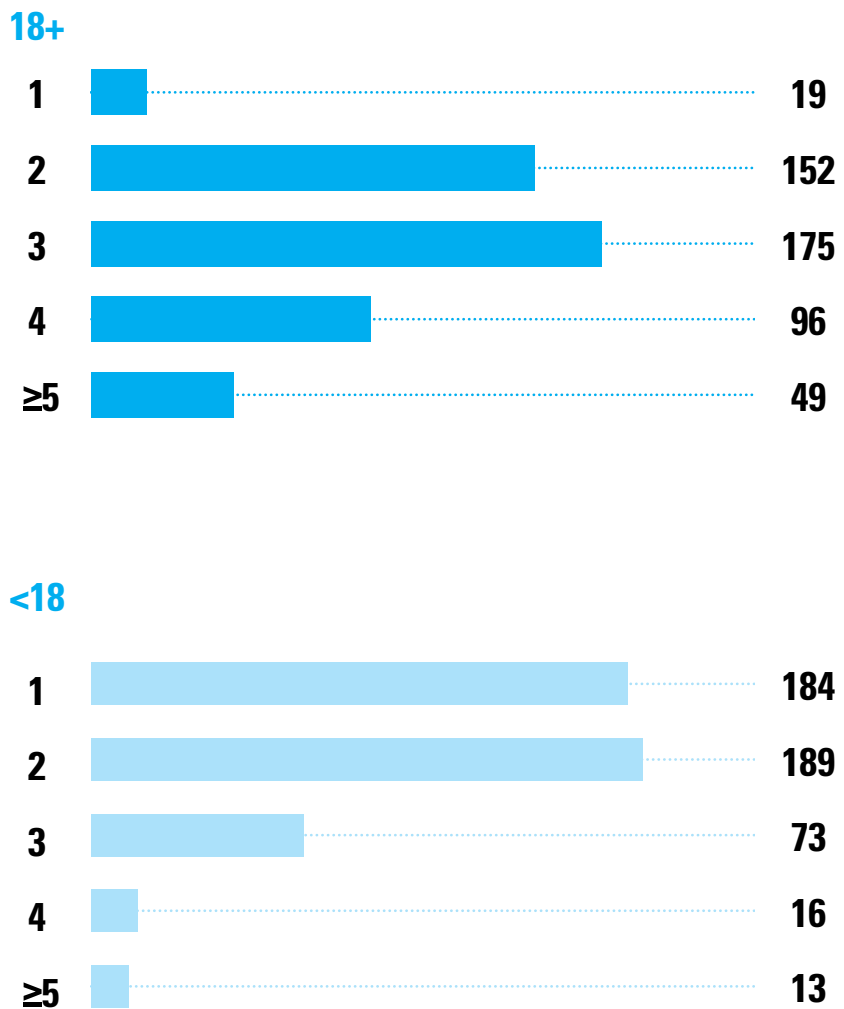


Graph 2. Socio-demographic characteristics of caregivers (%)



Graph 3 shows the number of members in the surveyed households. Most households consisted of two to three adults (over 18 years of age) and one to two minors (under 18 years of age). This result indicates that households often included additional family members in addition to caregivers and youth.

Graph 3. Number of members in the households



4.2 EXPERIENCE WITH COVID-19

Table 3 shows respondents' experiences with the COVID-19. During the COVID-19 pandemic, according to the surveyed adolescents and caregivers, the greatest support was the one received from the family. More adolescents, compared to caregivers, found support in friends. During the COVID-19 pandemic, the largest percentage of adolescents surveyed stated that they personally or a member of their family did not need support or professional help for mental health. **4.5% of caregivers have a need for mental health services, while significantly more adolescents (7.7%) have this need.** But **more than half of those who needed mental health services, including adolescents and caregivers, still did not seek it.**

TABLE 3. EXPERIENCE WITH COVID-19

	ADOLESCENTS		CAREGIVERS	
	N	%	N	%
Chronic disease in the household				
Yes	136	26.9	127	25.8
No	370	73.1	365	74.2
Most support received from				
Family	423	83.6	428	87.0
Partner			29	5.9
Friends	52	10.3	6	1.2
Professional	1	0.2	6	1.2
Other	18	3.6	23	4.7
Need for mental health services				
Yes	39	7.7	22	4.5
No	467	92.3	470	95.5
Use of mental health services				
Yes	17	3.4	10	2.0
No	487	96.2	482	98.0

4.3 MENTAL HEALTH

Table 4 shows the prevalence of potential depression, suicidal thoughts, anxiety, and fear of COVID-19. **A potential clinical depression is present in 10.4% of caregivers.** Of them, 22.4% faced problems in everyday work, taking care of the household or in the relationship with other people, caused by the negative impact of depressive symptoms. The presence/prevalence of suicidal thoughts is registered in 22% of the caregivers. A potential clinical anxiety disorder was present in a smaller percentage of caregivers compared to depression, but the majority of caregivers reported mild symptoms of anxiety. Most of the respondents stated that they have no fear of COVID-19. During the COVID-19 pandemic, **10.9% of caregivers reported the existence of inter-partner physical violence, expressed through mutual hitting and/or pushing.** Also, **33% of caregivers reported exposure to verbal inter-partner violence, expressed through insults and shouting at each other.** Regarding the approach to their children, **5.7% of caregivers reported that they pushed or hit their children, while 37.5% of caregivers reported that they yelled at and/or insulted their children.** Talking about the problems was used as a disciplinary approach by 64.8% of the caregivers.

The majority of adolescents reported mild symptoms of depression (about 30%). Of them, 34.4% faced problems in everyday work, taking care of the home or in the relationship with other people, caused by the negative impact of depressive symptoms. Almost 30% of adolescents have moderate to severe symptoms of depression. In the past year, 48.4% of adolescents felt moody or sad for a long time, despite the fact that there were days when they were in a good mood. **Self-harming thoughts were registered in more than a quarter of adolescents (25.5%), while in the last month, 8.7% of adolescents had thoughts of harming themselves.** Symptoms of anxiety were generally mild as well (around 58%). However, **42.1% of adolescents reported moderate to severe symptoms of anxiety.** Adolescents have a higher degree of representation and intensity of depression, anxiety, suicidal thoughts, dysfunctionality due to depression and fear of the COVID-19 virus compared to their caregivers.

TABLE 4. PREVALENCE OF DEPRESSION, SELF-HARMING THOUGHTS, ANXIETY, AND FEAR OF COVID-19

	ADOLESCENTS		CAREGIVERS	
	N	%	N	%
Depression				
Yes	148	29.2	51	10.4
No	358	70.8	441	89.6
Intensity of depression				
Severe	24	4.7	3	0.6

Moderate severe	39	7.7	5	1.0
Moderate	85	16.8	33	6.7
Mild	149	29.4	117	23.8
Suicidal thoughts				
Yes	129	25.5	108	22.0
No	373	73.7	382	77.6
Disfunctionality as a result of depression				
Severe	20	4.0	3	0.6
Moderate	63	12.4	17	3.4
Mild	154	30.4	88	17.9
Anxiety				
Yes	120	23.7	30	6.1
No	386	76.3	462	93.9
Intensity of anxiety				
Severe	100	19.8	30	6.1
Moderate	114	22.5	109	22.2
Mild	292	57.7	353	71.7
Intensity of fear of COVID-19				
Severe	3	0.6		
Moderate	31	6.1	1	0.2
Mild	118	23.3	38	7.7

4.3.1 DEPRESSION

Table 5 shows the associations between sociodemographic characteristics and depression among respondents. For caregivers, **women reported slightly more depressive symptoms than men, but this difference was not statistically significant** ($p>0.05$). Moreover, while the average total depression score was slightly higher among caregivers from urban areas and among those with higher education, these differences again are not statistically significant ($p>0.05$). Similarly, the mean total score on the depression scale was highest among caregivers who are not employed, but the results also indicated no statistically significant differences in terms of employment status ($p>0.05$).

For adolescents, the average total score of the depression scale was significantly higher in women than in men ($p < 0.001$). Moreover, while depressive symptoms were somewhat higher among adolescents from urban compared to rural areas, this difference was not statistically significant ($p > 0.05$). **The mean summary score on the depression scale was significantly higher among adolescents in high school than in primary school ($p < 0.01$).** The average total score on the depression scale was highest among adolescents who belong to minority groups, i.e., those who are not part of the three largest ethnic groups ($M = 11.7$, $SD = 7.2$). The average total score was lowest among adolescents who declared themselves as Turkish ($M = 4.9$, $SD = 4.9$). The results indicated a statistically significant difference in terms of ethnicity. The differences were due to Macedonians compared to Turks, Macedonians compared to others, as well as Turks compared to others ($H = 18.061$, $p = 0.000$).

TABLE 5. ASSOCIATION BETWEEN SOCIODEMOGRAPHIC CHARACTERISTICS AND DEPRESSION

	ADOLESCENTS					CAREGIVERS				
	N	M	SD	U ^H	p	N	M	SD	U ^H	p
Sex										
Male	159	5.0	5.2	22.988	0.000***	147	2.9	3.6	2.864	0.091
Female	344	8.0	6.2			345	4.0	3.9		
Place of residence										
Urban	421	7.1	6.0	1.019	0.313	409	3.8	3.9	2.865	0.091
Rural	85	6.4	6.4			83	3.0	3.4		
Education										
Primary school	81	4.0	5.2	9.453	0.002**	34	3.5	4.5	1.897	0.594
High school	324	7.8	6.1			242	3.3	3.8		
University						152	4.0	3.6		
Other						15	3.7	2.8		
Employment										
Fix-term						220	3.6	4.1	4.579	0.205
Temporary						139	3.8	3.3		
Unemployed						83	4.4	4.1		
Other						49	2.9	3.6		

** $p < 0.01$, *** $p < 0.001$

Table 6 shows the associations between experiences with COVID-19 and depression among respondents. For caregivers, **the average total score of the depression scale was significantly higher among those who reported having a family member with a chronic disease** ($p < 0.001$). Furthermore, **the mean summary score on the depression scale was significantly higher among caregivers who needed mental health services** ($p < 0.01$). Lastly, the average total score of the depression scale was somewhat higher among caregivers who registered mild consequences of the pandemic, but this difference was not statistically significant ($p > 0.05$).

For adolescents, **the average total score of the depression scale was significantly higher among those who reported having a family member with a chronic illness** ($p < 0.05$). Moreover, **the mean total score on the depression scale was significantly higher among adolescents who had a mental health service need** ($p < 0.001$). While the average total score on the depression scale was higher among adolescents who reported serious consequences of the pandemic, this difference was not statistically significant ($p > 0.05$).

TABLE 6. ASSOCIATION BETWEEN EXPERIENCES WITH CHRONIC ILLNESS, HELP-SEEKING, AND DEPRESSION

	ADOLESCENTS					CAREGIVERS				
	N	M	SD	U	p	N	M	SD	U	p
Chronic diseases in family										
Yes	136	8.7	6.2	9.828	0.022*	127	5.7	4.4	21.866	0.000***
No	370	6.4	5.9			365	3.0	3.4		
Need for mental health services										
Yes	39	13.3	8.0	24.968	0.000***	22	7.2	5.8	7.084	0.007**
No	467	6.5	5.5			470	3.5	3.7		

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 7 shows the associations between exposure to family violence and depression among respondents. **The average total score on the depression scale was significantly higher among caregivers who reported exposure to physical or verbal violence** ($p < 0.001$). Similarly, **the average total score on the depression scale is significantly higher among adolescents that reported being exposed to physical or verbal violence** ($p < 0.001$).

TABLE 7. ASSOCIATION BETWEEN FAMILY VIOLENCE AND DEPRESSION

	ADOLESCENTS					CAREGIVERS				
	N	M	SD	U	p	N	M	SD	U	p
Physical violence										
No	477	6.7	5.9	12.825	0.000***	462	3.5	3.6	18.138	0.000***
Yes	29	12.1	6.9			30	7.1	5.5		
Verbal violence										
No	316	5.1	4.9	62.273	0.000***	383	3.0	3.5	39.743	0.000***
Yes	189	10.1	6.4			109	6.3	3.9		

*** p<0.001

4.3.2 ANXIETY

Table 8 shows the associations between sociodemographic characteristics and anxiety among respondents. For caregivers, **the average total score on the anxiety scale was significantly higher among women than men** ($p<0.05$). Moreover, **the average summary score of the anxiety scale was significantly higher among caregivers from an urban environment** ($p<0.05$). While the average total score of the anxiety scale was somewhat higher among caregivers with higher and secondary education and those who are not employed, these differences were not statistically significant ($p>0.05$).

TABLE 8. ASSOCIATION BETWEEN SOCIODEMOGRAPHIC CHARACTERISTICS AND ANXIETY

	ADOLESCENTS					CAREGIVERS				
	N	M	SD	U ^H	p	N	M	SD	U ^H	p
Sex										
Male	159	3.9	4.7	22.988	0.000***	147	2.4	3.0	4.174	0.041*
Female	344	6.8	5.3			345	4.1	4.0		
Place of residence										
Urban	421	6.0	5.2	0.364	0.546	409	3.7	3.8	4.174	0.041*
Rural	85	5.2	5.6			83	3.2	4.1		
Education										
Primary school	81	3.0	4.3	9.453	0.002**	34	3.8	4.3	1.897	0.594
Secondary school	324	6.5	5.3			242	3.3	3.8		
University						152	3.8	3.7		
Other						15	3.0	2.8		

Employment										
Fox-term						220	3.5	3.8	2.548	0.466
Temporary						139	3.8	3.7		
Unemployed						83	4.1	4.3		
Other						49	2.6	3.3		

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

For adolescents, **the average total score of the anxiety scale was significantly higher for women than men** ($p < 0.001$). Slightly higher anxiety scores were found for adolescents from urban areas, but the results did not indicate a statistically significant difference on place of residence ($p > 0.05$). Furthermore, **significantly higher average anxiety scores were reported by adolescents in high school** ($p < 0.01$). While the mean total score on the anxiety scale was highest among adolescents from minority groups, i.e., those who are not part of the three most numerous ethnic groups ($M = 9.2$, $SD = 6.4$), the results do not indicate a statistically significant difference in relation to ethnicity ($H = 6.927$, $p = 0.072$).

Table 9 shows the associations between experiences with COVID-19 and anxiety among respondents. The average total score of the anxiety scale was higher among caregivers who reported the presence of a family member with a chronic illness, but the results did not indicate a statistically significant effect ($p > 0.05$). Similarly, although the average total score on the anxiety scale was higher among caregivers who needed mental health services, the difference was not statistically significant ($p > 0.05$). Lastly, the mean summary score of the anxiety scale was higher among caregivers who reported mild consequences of the pandemic, but the results do not indicate a statistically significant difference ($p > 0.05$).

Regarding adolescents, **the mean total score on the anxiety scale was significantly higher among those who reported having a chronically ill family member** ($p < 0.05$). **The average total score on the anxiety scale was also significantly higher among adolescents who needed mental health services** ($p < 0.001$). The average anxiety total score was higher among adolescents who report serious consequences of the pandemic, but the results did not indicate a statistically significant difference ($p > 0.05$).

TABLE 9. ASSOCIATION BETWEEN EXPERIENCES WITH CHRONIC ILLNESS, HELP-SEEKING, AND ANXIETY

	ADOLESCENTS					CAREGIVERS				
	N	M	SD	U	p	N	M	SD	U	p
Chronic diseases in family										
Yes	136	6.7	5.4	5.281	0.022*	127	5.0	3.9	0.943	0.331
No	370	5.5	5.2			365	3.1	3.7		
Need for mental health services										
Yes	39	9.9	6.4	24.968	0.000***	22	5.5	4.9	2.286	0.130
No	467	5.6	5.0			470	3.5	3.8		

* $p < 0.05$, *** $p < 0.001$

Table 10 shows the associations between exposure to family violence and anxiety among respondents. While the average total score on the anxiety scale was higher among caregivers who reported exposure to physical violence, these results did not indicate a statistically significant difference ($p > 0.05$). However, **caregivers who reported exposure to verbal violence indicated significantly higher summary scores on the anxiety scale ($p < 0.001$).** **The average total score of the anxiety scale was significantly higher among adolescents where physical violence ($p < 0.01$) or verbal violence ($p < 0.001$) was registered.**

TABLE 10. ASSOCIATION BETWEEN FAMILY VIOLENCE AND ANXIETY

	ADOLESCENTS					CAREGIVERS				
	N	M	SD	U	p	N	M	SD	U	p
Physical violence										
No	477	5.6	5.2	7.579	0.006**	462	3.4	3.7	0.849	0.357
Yes	29	9.7	5.4			30	5.9	4.6		
Verbal violence										
No	316	4.3	4.7	43.566	0.000***	383	2.8	3.4	14.363	0.000***
Yes	189	8.2	5.2			109	6.4	4.1		

** $p < 0.01$, *** $p < 0.001$

4.3.3 FEAR OF COVID-19

Table 11 shows the associations between sociodemographic characteristics and fear of COVID-19 among respondents. **The average summary score of the scale of fear of COVID-19 was significantly higher among female than male caregivers** ($p < 0.05$). There was no difference between the mean summary score of the scale of fear of COVID-19 between caregivers from different places of residence ($p > 0.05$). Moreover, while the average summary score of the scale of fear of COVID-19 was somewhat higher among caregivers with higher education, the results did not indicate a statistically significant difference in relation to the level of education ($p > 0.05$). Similarly, caregivers who were employed reported slightly higher mean summary scores on the fear of COVID-19 scale, but the difference was not statistically significant ($p > 0.05$).

The average summary score of the scale of fear of COVID-19 was significantly higher among female adolescents ($p < 0.05$). Again, no difference was found between adolescents living in urban and rural areas ($p > 0.05$). Similarly, although the average total score on the fear of COVID-19 scale was slightly higher among adolescents attending elementary school, the results were not statistically significant ($p > 0.05$). The mean total score on the fear of COVID-19 scale was highest among adolescents who identify as Turkish ($M = 6.6$, $SD = 5.9$), and lowest among adolescent Albanians ($M = 3.0$, $SD = 3.6$). However, the results do not indicate statistically significant difference in relation to ethnicity ($H = 9.114$, $p = 0.098$).

TABLE 11. ASSOCIATION BETWEEN SOCIODEMOGRAPHIC CHARACTERISTICS AND FEAR OF COVID-19

	ADOLESCENTS					CAREGIVERS				
	N	M	SD	U ^H	p	N	M	SD	U ^H	p
Sex										
Male	159	3.3	4.1	4.528	0.033*	147	4.2	4.9	0.016	0.041*
Female	344	4.9	5.2			345	4.9	5.0		
Place of residence										
Urban	421	4.3	4.8	0.188	0.664	409	4.7	5.0	0.016	0.899
Rural	85	4.6	5.3			83	4.8	5.0		
Education										
Primary school	81	5.0	5.7	2.737	0.098	34	4.1	4.6	4.626	0.201
Secondary school	324	4.1	4.6			242	4.9	5.2		
University						152	5.0	4.7		
Other						15	4.5	5.7		

Employment										
Fox-term						220	5.2	5.3	6.173	0.103
Temporary						139	4.2	4.5		
Unemployed						83	4.6	5.0		
Other						49	4.1	4.6		

*p<0.05

4.4 QUALITY OF LIFE

Table 12 shows the average quality of life scores by domain. The results indicate that 46.1% of caregivers considered their quality of life to be good, 38% considered it very good, and 12.2% considered it neither poor nor good. Similarly, 50% of caregivers were satisfied with their health, 37.2% considered it very good, and 10% considered it neither poor nor good. Regarding adolescents, 44.5% of them considered their quality of life very good, 39.1% evaluated it as good and 11.3% as neither poor nor good. Similarly, 55.9% of adolescents rated their health as very good, 28.6% of them as good and 10.1% as neither poor nor good.

TABLE 12. AVERAGE SCORES FOR QUALITY OF LIFE BY DOMAINS

	ADOLESCENTS		CAREGIVERS	
	M	SD	M	SD
Quality of life	4.2	0.9	4.2	0.8
Quality of personal health	4.3	0.9	4.2	0.8
Physical health	4.0	0.7	4.0	0.6
Psychological health	3.4	0.7	4.1	0.6
Social relationships	3.8	0.9	4.1	0.7
Environment	4.0	0.7	3.9	0.6

4.4.1 GENERAL PERCEPTION OF QUALITY OF LIFE

Table 13 shows the associations of general perception of quality of life and sociodemographic characteristics, experience with COVID-19, and exposure to family violence. The average score of the general perception of the quality of life in relation to gender and place of residence of the caregivers were approximately the same and the results did not indicate a statistically significant difference ($p>0.05$). **The average score of the general perception of the quality of life was significantly higher among caregivers with higher education ($p<0.05$). The average score of the general perception of the quality of life was higher among caregivers with other forms of employment, and the lowest among unemployed caregivers.** The results indicated a statistically significant difference in relation to work status ($p<0.01$).

The average score of the general perception of the quality of life among caregivers with a present and absent family member with a chronic illness were similar and the results did not indicate a statistically significant difference ($p>0.05$). **The average score of the general perception of the quality of life was significantly higher among caregivers who did not need mental health services ($p<0.01$).** The average score of the general perception of the quality of life was higher among caregivers where no physical violence was registered, but the results do not indicate a statistically significant difference ($p>0.05$). **The average summary score of the general perception of quality of life was significantly higher among caregivers where no verbal violence was registered ($p<0.001$).**

The average score of the general perception of the quality of life was significantly higher among male adolescents ($p<0.05$). There were no statistically significant differences among adolescents for the general perception of the quality of life in relation to the place of residence ($p>0.05$). Similarly, no statistically significant differences were registered among adolescents for the general perception of quality of life in relation to the level of education ($p>0.05$). The average score of the general perception of the quality of life was highest among adolescents who identified as Macedonians and Albanians ($M= 4.3$, $SD= 0.9$), and lowest among adolescents from other minority groups ($M= 3.5$, $SD= 1.3$). The results indicated a statistically significant difference in relation to the ethnicity of the adolescents ($H= 23.618$, $p= 0.023$).

The average score of the general perception of the quality of life was significantly higher among adolescents who do not report the presence of a family member with a chronic disease ($p<0.01$). Similarly, **the average score of the general perception of the quality of life was significantly higher among adolescents who did not need mental health services ($p<0.01$).** **The average score of the general perception of the quality of life was significantly higher among adolescents where no physical or verbal violence was registered ($p<0.001$).**

TABLE 13. ASSOCIATION BETWEEN GENERAL PERCEPTION FOR QUALITY OF LIFE, SOCIO-DEMOGRAPHIC CHARACTERISTICS, AND FAMILY VIOLENCE

	ADOLESCENTS					CAREGIVERS				
	N	M	SD	U ^H	p	N	M	SD	U ^H	p
Sex										
Male	156	4.3	0.9	11.347	0.022*	147	4.1	0.8	2.034	0.729
Female	342	4.2	0.9			343	4.2	0.8		
Place of residence										
Urban	417	4.2	0.9	8.229	0.083	407	4.2	0.8	2.900	0.964
Rural	84	4.2	0.8			83	4.1	0.9		
Education										
Primary school	80	4.4	0.7	5.816	0.213	34	4.0	0.9	24.549	0.017**
Secondary school	321	4.2	0.9			241	4.1	0.8		
University						152	4.3	0.7		
Other						15	4.3	0.6		
Employment										
Full-term						219	4.1	0.8	27.857	0.005**
Temporary						139	4.3	0.8		
Unemployed						83	3.9	1.0		
Other						48	4.5	0.5		
Chronic diseases in family										
Yes	134	4.0	1.0	12.595	0.013*	126	4.1	0.8	5.607	0.230
No	367	4.3	0.8			364	4.2	0.8		
Need for mental health services										
Yes	39	3.8	1.0	13.616	0.009**	22	3.7	0.8	12.962	0.011**
No	462	4.3	0.9			468	4.2	0.8		
Physical violence										
No	473	4.3	0.8	21.828	0.000***	461	4.2	0.8	8.992	0.061
Yes	28	3.6	1.2			29	3.8	1.0		
Verbal violence										
No	312	4.4	0.8	39.421	0.000***	381	4.3	0.8	22.069	0.000***
Yes	188	3.9	0.9			109	3.9	0.8		

*p<0.05, **p<0.01, ***p<0.001

4.4.2 GENERAL PERCEPTION OF PERSONAL HEALTH

Table 14 shows the associations between the general perception of personal health and sociodemographic characteristics, experience with COVID-19, and exposure to family violence. The average score of the general perception of personal health in terms of gender and place of residence were approximately the same and the results did not indicate a statistically significant difference ($p>0.05$). Similarly, the average score of the general perception of personal health in relation to the level of education of the caregivers were approximately the same and the results did not indicate a statistically significant difference ($p>0.05$). The average score of the general perception of personal health in relation to work status were also approximately the same and the results did not indicate a statistically significant difference ($p>0.05$).

The average score of the general perception of personal health was significantly higher among caregivers who stated that they do not have a family member with a chronic illness ($p<0.01$). The average score of the general perception of personal health was slightly higher among caregivers who did not need mental health services, but the results did not indicate a statistically significant difference ($p>0.05$). The average score of the general perception of personal health was higher among caregivers where no physical violence was registered, but the results did not indicate a statistically significant difference ($p>0.05$). However, **the average summary score of the general perception of personal health was significantly higher among caregivers where no verbal violence was registered** ($p<0.001$).

The average score of the general perception of personal health was significantly higher among male adolescents ($p<0.01$). The average score of the general perception of personal health was somewhat higher among adolescents from an urban environment, but the results did not indicate a statistically significant difference in relation to the place of residence ($p>0.05$). The average score of the general perception of health was higher among adolescents in primary school, but this difference was not statistically significant ($p>0.05$). The average score of the general perception of personal health was highest among adolescents who declare themselves as Macedonians ($M= 4.4$, $SD= 0.9$), and lowest among adolescents who declare themselves as members of other minority groups ($M= 3.8$, $SD= 1.3$). However, no statistically significant difference was registered in relation to ethnicity ($H= 13.823$, $p= 0.312$).

The average score of the general perception of personal health was significantly higher among adolescents who do not report a person with a chronic disease in the family ($p<0.01$). The average score of the general perception of personal health was somewhat higher among adolescents who did not need mental health services, but the results did not indicate a statistically significant difference ($p>0.05$). **The average score of the general perception of personal health was significantly higher among adolescents where no physical or verbal violence was registered** ($p<0.001$).

TABLE 14. ASSOCIATION BETWEEN GENERAL PERCEPTION FOR PERSONAL HEALTH, SOCIO-DEMOGRAPHIC CHARACTERISTICS, AND FAMILY VIOLENCE

	ADOLESCENTS					CAREGIVERS				
	N	M	SD	U ^H	p	N	M	SD	U ^H	p
Sex										
Male	158	4.4	1.0	15.740	0.003**	147	4.2	0.8	2.034	0.841
Female	343	4.3	0.9			345	4.2	0.8		
Place of residence										
Urban	419	4.4	0.9	5.865	0.209	409	4.2	0.8	0.587	0.964
Rural	85	4.2	1.0			83	4.2	0.8		
Education										
Primary school	81	4.5	0.7	4.954	0.292	34	4.2	1.0	14.317	0.281
Secondary school	323	4.3	0.9			242	4.2	0.7		
University						152	4.3	0.7		
Other						15	4.2	0.6		
Employment										
Full-term						220	4.2	0.7	15.159	0.233
Temporary						139	4.2	0.8		
Unemployed						83	4.0	0.8		
Other						49	4.4	0.5		
Chronic diseases in family										
Yes	134	4.0	1.1	16.326	0.009**	127	4.0	0.9	11.423	0.022*
No	370	4.4	0.8			365	4.3	0.7		
Need for mental health services										
Yes	39	4.1	1.2	6.771	0.148	22	4.0	0.9	5.233	0.264
No	465	4.3	0.9			470	4.2	0.8		
Physical violence										
No	476	4.4	0.9	21.443	0.000***	462	4.2	0.8	8.107	0.088
Yes	28	3.7	1.1			30	3.9	0.8		
Verbal violence										
No	315	4.5	0.9	27.818	0.000***	383	4.3	0.7	22.457	0.000***
Yes	188	4.1	1.0			109	3.9	0.9		

*p<0.05, **p<0.01, ***p<0.001

4.4.3 PHYSICAL HEALTH

Table 15 shows the associations between the quality of physical health and socio-demographic characteristics, experience with COVID-19, and family violence. The average score of the physical health domain in relation to the gender of the caregivers was approximately the same and the results did not indicate the existence of a statistically significant difference in relation to the gender of the caregivers ($p>0.05$). **The average score of the physical health domain in relation to the place of residence was higher among caregivers from rural areas** and the results indicated the existence of a statistically significant difference ($p<0.01$). The average scores of the physical health domain were similar in relation to the level of education of the caregivers, and the results did not indicate the existence of a statistically significant difference ($p>0.05$). The average score of the physical health domain in relation to the work status of the caregivers was the lowest among the unemployed caregivers, but the results also did not indicate the existence of a statistically significant difference ($p>0.05$).

The average score of the physical health domain was lower among caregivers who declared the presence of a member with a chronic disease in the family and the results indicated the existence of a statistically significant difference in relation to the presence of a chronic disease in the family ($p<0.01$). **The average score of the physical health domain was higher among adolescents from elementary school** and the results indicated the existence of a statistically significant difference in relation to the level of education ($p<0.01$). The average score of the physical health domain was higher among people who did not need mental health services, but the results did not indicate the existence of a statistically significant difference ($p>0.05$). **The average score of the physical health domain was higher among caregivers who did not report exposure to physical violence** and the results indicated the existence of a statistically significant difference in relation to exposure to physical violence ($p<0.001$). **The average score of the physical health domain was higher among caregivers who did not report exposure to verbal violence** and the results indicated the existence of a statistically significant difference in relation to exposure to verbal violence ($p<0.001$).

The average score of the physical health domain was the highest among male adolescents and the results indicated the existence of a statistically significant difference in relation to gender among adolescents ($p<0.01$). The average score of the physical health domain was higher among adolescents from rural areas, but the results did not indicate the existence of a statistically significant difference ($p>0.05$). The average score of the physical health domain was the highest among adolescents who identified themselves as Macedonians and Turks ($M= 4.0$, $SD= 0.7$), and the lowest among adolescents from other smaller minority groups ($M= 3.6$, $SD= 0.8$). The results indicated the existence of a statistically significant difference in relation to the ethnicity of the adolescents ($H= 49.353$, $p= 0.000$).

The average score of the physical health domain was higher among adolescents where no chronic disease was registered, and the results indicated the existence of a statistically significant difference ($p<0.01$). The average score of the

physical health domain was higher, but not significant ($p>0.05$), among adolescents who did not need a mental health service.

The average score of the physical health domain was higher among adolescents where physical violence was not registered, and the results did not indicate the existence of a statistically significant difference ($p>0.05$). **The average score of the physical health domain was higher among adolescents where verbal violence was not registered**, and the results indicated the existence of a statistically significant difference ($p<0.01$).

TABLE 15. ASSOCIATION BETWEEN QUALITY OF PHYSICAL HEALTH, SOCIODEMOGRAPHIC CHARACTERISTICS, AND FAMILY VIOLENCE

	ADOLESCENTS					CAREGIVERS				
	N	M	SD	U ^H	p	N	M	SD	U ^H	p
Sex										
Male	159	4.2	0.7	14.151	0.003**	147	4.1	0.5	2.213	0.529
Female	344	3.9	0.7			345	4.0	0.7		
Place of residence										
Urban	421	3.9	0.7	3.581	0.310	409	4.0	0.6	12.540	0.005**
Rural	85	4.0	0.8			83	4.1	0.7		
Education										
Primary school	81	4.2	0.7	13.660	0.003**	34	3.9	0.8	4.534	0.872
Secondary school	324	3.9	0.7			242	4.1	0.6		
University						152	4.0	0.7		
Other						15	3.9	0.6		
Employment										
Full-term						220	4.0	0.6	7.009	0.636
Temporary						139	4.0	0.6		
Unemployed						83	3.8	0.6		
Other						49	4.2	0.5		
Chronic diseases in family										
Yes	136	3.8	0.7	11.616	0.009**	127	3.7	0.6	10.751	0.013**
No	370	4.0	0.7			365	4.1	0.6		
Need for mental health services										
Yes	39	3.5	0.8	6.676	0.083	22	3.7	0.7	3.731	0.291
No	467	4	0.8			470	4.0	0.6		

Physical violence										
No	477	4.0	0.7	2.712	0.438	462	4.1	0.6	15.557	0.001***
Yes	29	3.5	0.8			30	3.5	0.8		
Verbal violence										
No	316	4.1	0.7	11.617	0.009**	383	4.1	0.6	17.246	0.001***
Yes	189	3.7	0.7			109	3.7	0.7		

** $p < 0.01$, *** $p < 0.001$

4.4.4 PSYCHOLOGICAL HEALTH

Table 16 shows the associations between the quality of psychological health and sociodemographic characteristics, experience with COVID-19, and exposure to family violence. The average score of the psychological health domain in relation to the gender and place of residence of the caregivers was approximately the same and the results did not indicate the existence of a statistically significant difference in relation to the gender and place of residence of the caregivers ($p > 0.05$). **The average score of the psychological health domain in relation to the level of education was the highest among caregivers with secondary education, and the lowest among caregivers with primary education.** The results indicated the existence of a statistically significant difference in relation to the level of education of the caregivers ($p < 0.01$). The average score of the psychological health domain was the highest among caregivers with another form of employment, but the results did not indicate the existence of a statistically significant difference ($p > 0.05$).

The average score of the psychological health domain was higher among caregivers who do not report the presence of a member with a chronic disease in the family, but the results did not indicate the existence of a statistically significant difference ($p > 0.05$). **The mean score of the psychological health domain was higher among caregivers who did not need mental health services** and the results indicated the existence of a statistically significant difference in relation to the need for mental health services ($p < 0.001$). **The average score of the psychological health domain was higher among caregivers who did not report exposure to physical violence** and the results indicated the existence of a statistically significant difference in relation to exposure to physical violence ($p < 0.001$). **The average score of the psychological health domain was higher among persons where verbal violence was not registered** and the results indicated the existence of a statistically significant difference in relation to exposure to verbal violence ($p < 0.001$).

The average score of the psychological health domain was the highest among male adolescents, but the results did not indicate the existence of a statistically significant difference ($p > 0.05$). The average score of the psychological health domain was the highest among adolescents from rural areas, but the results also did not indicate the existence of a statistically significant difference ($p > 0.05$). The average score of the psychological health domain was the highest among adolescents from elementary school,

but the results did not indicate the existence of a statistically significant difference ($p > 0.05$). The average score of the psychological health domain was the highest among adolescents who declared themselves Macedonian ($M = 3.4, SD = 0.7$), and the lowest among adolescents from other smaller minority groups ($M = 2.9, SD = 0.9$). The results indicated the existence of a statistically significant difference in terms of ethnicity ($H = 20.776, p = 0.014$).

The average score of the psychological health domain was higher among adolescents where no chronic disease was registered in the family and the results indicated the existence of a marginal statistically significant difference ($p < 0.05$). **The average score of the psychological health domain was higher among adolescents who did not need professional help for mental health** and the results indicate the existence of a statistically significant difference ($p < 0.001$). **The average score of the psychological health domain was the highest among adolescents in whom serious consequences are registered** and the results indicated the existence of a statistically significant difference ($p < 0.05$). **The average score of the psychological health domain was lower among adolescents where physical violence was registered**, and the results also indicated the existence of a statistically significant difference ($p < 0.001$).

TABLE 16. ASSOCIATION BETWEEN QUALITY OF PSYCHOLOGICAL HEALTH, SOCIODEMOGRAPHIC CHARACTERISTICS, AND FAMILY VIOLENCE

	ADOLESCENTS					CAREGIVERS				
	N	M	SD	U/H	p	N	M	SD	U/H	p
Sex										
Male	159	3.5	0.7	1.630	0.652	147	4.1	0.5	2.213	0.529
Female	344	3.3	0.7			345	4.2	0.7		
Place of residence										
Urban	421	3.3	0.7	1.984	0.576	409	4.1	0.6	5.446	0.141
Rural	85	3.4	0.7			83	4.2	0.6		
Education										
Primary school	81	3.6	0.6	1.788	0.618	34	3.9	0.9	20.395	0.016**
Secondary school	324	3.3	0.7			242	4.2	0.6		
University						152	4.1	0.5		
Other						15	4.2	0.5		
Employment										
Fix-term						220	4.1	0.6	17.514	0.131
Temporary						139	4.2	0.5		
Unemployed						83	3.9	0.7		
Other						49	4.2	0.5		

Chronic diseases in family										
Yes	136	3.2	0.7	7.537	0.057*	127	4.0	0.6	6.076	0.108
No	370	3.4	0.6			365	4.2	0.6		
Need for mental health services										
Yes	39	2.7	0.8	23.856	0.000***	22	3.9	0.6	23.681	0.000***
No	467	3.4	0.6			470	4.1	0.6		
Physical violence										
No	477	3.4	0.7	8.456	0.037*	462	2.0	0.5	17.846	0.000***
Yes	29	2.7	0.7			30	3.6	0.7		
Verbal violence										
No	316	3.6	0.6	22.304	0.000***	383	4.2	0.5	12.812	0.000***
Yes	189	3.1	0.7			109	3.8	0.6		

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4.4.5 SOCIAL RELATIONSHIPS

Table 17 shows the associations between the quality of psychological health and sociodemographic characteristics, experience with COVID-19, and exposure to family violence. The average score of the social relations domain related to the gender and the place of residence of the caregivers was approximately the same and the results did not indicate the existence of a statistically significant difference in relation to the gender and the place of residence of the caregivers ($p > 0.05$). **The average score of the social relations domain was the highest among people with a different type of education from the above, and the lowest among people with primary education.** The results indicated the existence of a statistically significant difference in relation to the level of education of the caregivers ($p > 0.01$). The average score of the social relations domain was the highest among persons with a work contract, and the lowest among persons who were not employed, but the results did not indicate the existence of a statistically significant difference ($p > 0.05$).

The average score of the social relations domain was higher among caregivers who did not report the presence of a family member with a chronic disease, but the results did not indicate the existence of a statistically significant difference ($p > 0.05$). The average score of the social relations domain was higher among caregivers who did not need mental health services, but the results did not indicate the existence of a statistically significant difference ($p > 0.05$). **The average score of the social relations domain was higher among caregivers who did not report exposure to physical violence** and the results indicated the existence of a statistically significant difference in relation to exposure to physical violence ($p < 0.05$). **The average score of the social relations domain was higher among persons where verbal violence was not registered** and the results indicated the existence of a statistically significant difference in relation to exposure to verbal violence ($p < 0.001$).

The average score in the domain of social relations was the highest among male adolescents and the results indicated the existence of a statistically significant difference in relation to the gender of the adolescents ($p < 0.001$). The average score in the domain of social relations was higher among adolescents from an urban environment, but the results did not indicate the existence of a statistically significant difference ($p > 0.05$). The average score in the domain of social relations was higher among adolescents from elementary school and the results indicated the existence of a marginal statistically significant difference ($p < 0.05$). The average score of the social relations domain was the highest among adolescents who declared themselves as Macedonians ($M = 3.9, SD = 0.7$), and the lowest among adolescents who declared themselves as Albanians ($M = 3.2, SD = 1.0$). The results indicated the existence of a statistically significant difference in terms of ethnicity ($H = 28.375, p = 0.019$).

The average score of the social behavior domain was higher among adolescents where no chronic disease was registered, and the results indicated the existence of a statistically significant difference ($p < 0.05$). The average score of the social behavior domain was higher among adolescents who did not need professional help, but the results did not indicate the existence of a statistically significant difference ($p > 0.05$).

The average score of the social relations domain was higher among adolescents where physical violence was not registered, but the results did not indicate the existence of a statistically significant difference ($p > 0.05$). The average score of the social relations domain was higher among adolescents where verbal violence was not registered, but also the results did not indicate the existence of a statistically significant difference ($p > 0.05$).

TABLE 17. ASSOCIATIONS BETWEEN QUALITY OF SOCIAL RELATIONSHIPS, SOCIODEMOGRAPHIC CHARACTERISTICS, AND FAMILY VIOLENCE

	ADOLESCENTS					CAREGIVERS				
	N	M	SD	U ^H	p	N	M	SD	U ^H	p
Sex										
Male	159	3.9	0.9	20.543	0.001***	147	4.1	0.7	1.608	0.900
Female	344	3.7	0.8			344	4.1	0.7		
Place of residence										
Urban	421	3.8	0.8	8.381	0.136	408	4.1	0.7	8.228	0.144
Rural	85	3.7	0.9			83	4.1	0.8		

Education										
Primary school	81	3.9	0.8	10.645	0.059*	34	3.9	0.9	27.008	0.007**
Secondary school	324	3.7	0.9			242	4.1	0.6		
University						151	4.1	0.6		
Other						15	4.4	0.6		
Employment										
Fix-term						220	4.1	0.7	17.514	0.131
Temporary						139	4.2	0.7		
Unemployed						82	3.9	0.8		
Other						49	4.1	0.6		
Chronic diseases in family										
Yes	136	3.6	0.8	12.655	0.027*	126	3.9	0.8	8.899	0.634
No	370	3.8	0.9			365	4.1	0.7		
Need for mental health services										
Yes	39	3.3		9.769	0.082	22	3.7	0.8	5.730	0.220
No	467	3.8				469	4.1	0.7		
Physical violence										
No	477	3.8	0.8	6.080	0.299	462	4.1	0.7	0.682	0.046*
Yes	29	3.4	0.9			29	3.8	0.8		
Verbal violence										
No	316	3.9	0.8	10.342	0.066	383	4.2	0.7	26.812	0.000***
Yes	189	3.6	0.9			108	3.8	0.7		

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4.4.6 ENVIRONMENT

Table 18 shows the associations between environmental quality and sociodemographic characteristics, experience with COVID-19, and exposure to family violence. The average score of the environment domain in relation to the level of education was the highest among caregivers with another type of education, and the lowest among caregivers with primary education. The average score of the environment domain was the highest among caregivers with another form of employment, and the lowest among caregivers who were not employed. **The results did not indicate the existence of a statistically significant difference in terms of gender, place of residence, level of education and work status of the caregivers ($p > 0.05$).**

The average score on the environment domain was higher among caregivers who did not report the presence of a family member with a chronic disease, but the results

did not indicate the existence of a statistically significant difference ($p>0.05$). The average score of the environment domain was higher among caregivers who did not need mental health services, but the results do not indicate the existence of a statistically significant difference ($p>0.05$). The average score of the environment domain was higher among caregivers who did not report exposure to physical violence, but the results did not indicate the existence of a statistically significant difference in relation to exposure to physical violence ($p>0.05$). The average score of the environment domain was higher among people where verbal violence was not registered, but the results did not indicate the existence of a statistically significant difference in relation to exposure to verbal violence ($p>0.05$).

The average score in the environment domain among male and female adolescents was the same and no statistically significant differences were noted. The average score in the domain environment was higher among adolescents from elementary school, but the results did not indicate the existence of a statistically significant difference ($p>0.05$). The average score of the domain environment was the highest among adolescents who declared themselves as Macedonians ($M= 4.1$, $SD= 0.6$), and the lowest among adolescents who declared themselves as Turks and other minority groups ($M= 3.8$, $SD= 0.7$). However, the results did not indicate the existence of a statistically significant difference ($H= 0.043$, $p= 0.171$).

The average score of the environment domain was higher among adolescents where no chronic disease is registered in the family, but the results did not indicate the existence of a statistically significant difference ($p>0.05$). The average score of the environment domain was higher among adolescents who did not need professional help, and no statistically significant differences were registered ($p>0.05$).

The average score of the environment domain was higher among adolescents where physical violence was registered, but the results did not indicate the existence of a statistically significant difference ($p>0.05$). **The average score of the environment domain was higher among adolescents where verbal violence was not registered**, and the results indicated the existence of a statistically significant difference ($p<0.001$).

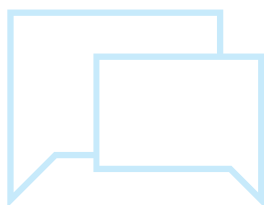
TABLE 18. ASSOCIATIONS BETWEEN QUALITY OF THE ENVIRONMENT, SOCIODEMOGRAPHIC CHARACTERISTICS, AND FAMILY VIOLENCE

	ADOLESCENTS					CAREGIVERS				
	N	M	SD	U ^H	p	N	M	SD	U ^H	p
Sex										
Male	159	4.0	0.7	3.880	0.274	147	3.8	0.6	1.172	0.882
Female	344	4.0	0.6			345	3.9	0.7		
Place of residence										
Urban	421	4.0	0.7	3.378	0.343	409	3.9	0.6	14.654	0.005**
Rural	85	4.1	0.7			83	3.9	0.7		
Education										
Primary school	81	4.1	0.7	3.162	0.367	34	3.6	0.9	18.829	0.092
Secondary school	324	4.0	0.6			242	3.9	0.6		
University						152	3.9	0.6		
Other						15	4.1	0.6		
Employment										
Fix-term						220	3.9	0.6	16.363	0.175
Temporary						139	3.9	0.6		
Unemployed						83	3.6	0.8		
Other						49	4.0	0.5		
Chronic diseases in family										
Yes	136	3.9	0.7	4.684	0.196	127	3.7	0.6	13.939	0.007**
No	370	4.1	0.6			365	3.9	0.6		
Need for mental health services										
Yes	39	0.7	0.7	5.435	0.142	22	3.7	0.7	1.012	0.907
No	467	0.6	0.6			470	3.9	0.6		
Physical violence										
No	477	4.0	0.6	3.543	0.315	462	3.9	0.6	3.117	0.538
Yes	29	3.5	0.7			30	3.5	0.6		
Verbal violence										
No	316	4.1	0.6	15.544	0.001***	383	4.7	4.0	7.485	0.112
Yes	189	3.8	0.6			109	4.3	3.6		

p<0.01, *p<0.01

5.

DISCUSSION



The main study goal was to collect data on the sociodemographic characteristics and mental health of adolescents and their caregivers during the COVID-19 pandemic. The current study is the first study of this kind in North Macedonia, and according to our knowledge, in the surrounding countries as well.

Since the COVID-19 pandemic was declared a global public health emergency, many children and youth around the world, as well as their families, have experienced dramatic disruptions in their daily lives. But the greatest support for adolescents and their caregivers was that received from their families. On the other hand, significantly more adolescents, compared to caregivers, found support in friends. This confirms the notion of peer support in times of crises for adolescents, what is crucial for the development of friendship.

Significantly more adolescents (7.7%) than their caregivers (4.5%) affected by COVID-19 have a need for mental health services. But more than half of those who needed mental health services, including adolescents and caregivers, still did not seek it. This might be due to restricted information about where to seek help, lack of mental health services for children and adolescents throughout the country, and/or stigmatization of help-seeking in these particular services.

The prevalence of mental health symptoms among caregivers and adolescents in the general population, levels of depression and anxiety determined in this cross-sectional study cannot be directly compared with previous findings in the country before the pandemic. However, the prevalence of depression at 10.4% and anxiety at 6.1% of caregivers is similar to that in Knudsen's study in Norway 2019–2020²⁷, but lower than the study in the Czech Republic in 2020²⁸. In the study of Marić and colleagues²⁹, during

27 Knudsen AKS, Stene-Larsen K, Gustavson K, Hotopf M, Kessler RC, Krokstad S, Skogen JC, Øverland S and Reneflot A. Prevalence of mental disorders, suicidal ideation and suicides in the general population before and during the COVID-19 pandemic in Norway: a population-based repeated cross-sectional analysis. *The Lancet Regional Health – Europe* 4. 2021; 100071.

28 Winkler P, Formanek T, Mlada K, Kagstrom A, Mohrova Z, Mohr P and Csemy L. Increase in prevalence of current mental disorders in the context of COVID-19: analysis of repeated nationwide cross-sectional surveys. *Epidemiology and Psychiatric Sciences*. 2020; 29: e173.

29 Marić NP, Lazarević JB, Priebe S, Mihić LJ, Pejović-Milovančević M, Terzić-Šupić Z, Tošković O, Vuković O, Todorović J, Knežević G. Covid-19-related stressors, mental disorders, depressive and anxiety symptoms: a cross-sectional, nationally-representative, face-to-face survey in Serbia, *Epidemiology and Psychiatric Sciences*. 2021

2021, performed on a representative sample of 1203 adult respondents, found that the prevalence of any mental disorder was 15.2%, of mood disorders was 4.6%, of anxiety disorders was 4.3% and of substance abuse was 8.0%. The authors state that the study did not show that the prevalence of mental disorders exceeded the pre-COVID-19 pandemic level reported in the literature.

Regarding the adolescent population in the period before the COVID-19 pandemic, data from epidemiological studies on the mental health of children and youth worldwide indicated that 13.4% of children under the age of 18 had some kind of mental health disorder. Anxiety disorders were present in 6.5%, depressive disorders in 2.6%, hyperactivity in 3.4% and conduct disorders in 5.7% of them³⁰. Our data from 2019 point in the direction of a higher prevalence of anxiety among children. In North Macedonia, the MICS study³¹ shows that risk factors for mental health increase significantly with age in the period of school age and adolescence (from 5 to 18 years): school difficulties, peer violence, family dysfunction, neglect, physical and sexual abuse, use of tobacco, alcohol and drugs, pathological internet use and early pregnancy. According to the same study, 9.3% of children aged 5-17 have anxiety disorders, and 1.8% of children have depressive disorders.

Since the COVID-19 pandemic was declared a global public health emergency, children and youth around the world have experienced dramatic disruptions in their daily lives. Depression and anxiety have increased during the pandemic as a result of prolonged social isolation, school closures for most of the time, disruption of leisure activities, interests and sports and the ever-increasing turn to the virtual world and online activities. Uncertainty, disruption in daily habits and concern for the health and well-being of family and loved ones, loss of close family members due to death during the pandemic, are likely to be associated with an increase in general anxiety and depression among young people.

In recent meta-analyses worldwide during the pandemic, rates of clinically elevated symptoms of depression and anxiety among youth were 25.2% and 20.5%³². This means that one in four young people globally experience clinically elevated depressive symptoms and one in five experience significantly elevated anxiety symptoms. A comparison of these findings with those before the pandemic (6.5% for anxiety and 2.6% for depression) indicates that the mental health difficulties of young people during the pandemic have increased more than fourfold, especially in the first year of the pandemic and especially more in girls and in older children and adolescents. In another comparative meta-analysis by Wang and colleagues³³, the standard mean difference

30 Polanczyk G, Salum G, Sugaya L, Caye A, Rohde I. Annual Research Review: A meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. *Journal of Child Psychology and Psychiatry*. 2015; 1-21.

31 State Statistical Office and UNICEF. 2018-2019 North Macedonia Multiple Indicator Cluster Survey and 2018-2019 North Macedonia Roma Settlements Multiple Indicator Cluster Survey, Survey Findings Report. Skopje, North Macedonia: State Statistical Office and UNICEF. 2020

32 Racine N, McArthur BA, Cooke JE, Eirich R, Zhu J, Madigan S. Global Prevalence of Depressive and Anxiety Symptoms in Children and Adolescents During COVID-19 A Meta-analysis, *JAMA Pediatrics*. 2021; 175: 1-11.

33 Wang S, Chen L, Ran H, et al. Depression and anxiety among children and adolescents pre and post COVID-19: A comparative meta-analysis. *Front. Psychiatry*. 2020; 13: 917552.

of the anxiety score (before and after the pandemic) was 0.12. According to the authors, this represents a significant increase compared to the period before the pandemic. The standard mean difference for the depression score was 0.17 and 0.23, which is also significantly elevated compared to the pre-pandemic period. In a retrospective cross-sectional study³⁴, conducted in Germany during 2020, compared to the same period in 2019, it shows that the number of children and adolescents (from 2-17 years old) with depressive and anxiety symptoms has increased (by 9% in anxiety states, by 12% in depressive states). The increase is significantly greater in girls compared to boys. The research shows that anxiety increased by 13% in girls and 5% in boys, while depression increased by 19% in girls and 1% in boys.

In our study, about 30% of adolescents have moderate to severe symptoms of depression, and almost half of adolescents (48.4%) have felt moody or sad for a long time in the past year. A quarter of adolescents registered thoughts of harming themselves (25.5%), while in the last month, 8.7% of adolescents had thoughts of harming themselves. 42.1% of adolescents have moderate to severe symptoms of anxiety. A wide range of anxiety disorders such as social anxiety, generalized anxiety and panic disorders are in focus.

This study shows that girls are more affected by both anxiety and depressive disorders (as in previous studies) which may primarily be due to biological susceptibility, lower level of self-esteem, higher rate and greater sensitivity to violence, gender inequality, etc. Older children and adolescents are also more affected due to the biological vulnerability of puberty and hormonal changes that affect brain activity³⁵, and additionally due to social factors³⁶ – isolation and physical distancing that affect young people, especially due to the fact that they rely heavily on peer relationships.

Depression and generalized anxiety are the most common mental health problems among young people. Depressive symptoms, which include feelings of sadness, loss of interest and pleasure in activities, as well as disruption of regulatory functions such as sleep and appetite, are significantly present. Generalized symptoms of anxiety in young people are manifested as a pronounced feeling of worry, fear, and high levels of excitement, and are often accompanied by somatic symptoms, pain, tightness, etc.

Multiple studies show that COVID-19 has a negative impact on parents' mental health³⁷ and it has been documented that parents' anxiety and depression can be

34 Kostev K, Weber K, Riedel-Heller S, von Vultée C, Bohlken J. Increase in depression and anxiety disorder diagnoses during the COVID-19 pandemic in children and adolescents followed in pediatric practices in Germany. *European Child & Adolescent Psychiatry*. 2021; 26: 1-7.

35 Oldehinkel AJ, Bouma EM. Sensitivity to the depressogenic effect of stress and HPA-axis reactivity in adolescence: a review of gender differences. *Neuroscience & Biobehavioral Reviews*. 2011;35(8):1757-70.

36 Marie R, Journault AA, Cernik R, Welch P, Lupien S, McDermott B, Moxon JV, Sarnyai Z. A Cross-Sectional Study Investigating Canadian and Australian Adolescents' Perceived Experiences of COVID-19: Gender Differences and Mental Health Implications. *International journal of environmental research and public health*. 2022;19(7):4407.

37 Calvano C, Engelke L, Di Bella J, Kindermann J, Renneberg B, Winter SM. Families in the COVID-19 pandemic: parental stress, parent mental health and the occurrence of adverse childhood experiences—results of a representative survey in Germany. *Eur Child Adolesc Psychiatry*. 2021; 1:1–13.

passed on to children³⁸. In our research, 10.4% of caregivers had depressive symptoms, and 6.1% had anxiety symptoms, while 22.4% faced difficulties caused by the negative impact of these symptoms. Parents are considered a model of identification for their children, and what is even more significant in conditions of increased stress due to the pandemic, parental depression and anxiety are transferred to them with greater intensity³⁹.

A recent UNICEF study⁴⁰ has shown that in addition to the direct effect of the pandemic and other social factors that the pandemic deepened, they contribute to the deterioration of mental health, such as: poverty, increasing the frequency of family violence and violence against children, peer violence and violence on the Internet. The same study shows that almost 73% of children in North Macedonia aged 1-14 are exposed to some type of abuse, and 7% of children experience severe forms of violence. Negative childhood experiences, abuse and violence are strong risk factors, affecting later mental and physical health.

One epidemiological study on the prevalence of abuse and neglect in childhood in the Balkan countries⁴¹ has shown that 64% of children in North Macedonia were exposed to psychological violence, and 51% of them to physical violence. In our research, inter-partner relationships of caregivers are dominated by verbal violence, as well as a significant degree of verbal violence directed at their children. The intensity of mental health problems is shown to be significantly higher among adolescents and caregivers exposed to physical and verbal violence. One exception, however, is anxiety among caregivers, which is more closely related to exposure to verbal violence, rather than physical violence.

Mental health problems significantly worsen, in the context of the COVID-19 pandemic, when it comes to living with a family member with a chronic illness. Both caregivers and adolescents living with a family member with a chronic illness had higher levels of depression, anxiety, as well as a significantly higher need for mental health services. Caregivers and female adolescents show significantly higher levels of fear of COVID-19, which potentially contributes to increased levels of anxiety and depression.

The general perception of quality of life among caregivers appears to be related to their work status, the experience of physical and verbal violence, and the need for mental health services. The perception is better among those who are employed, who have not been exposed to violence and who have not needed mental health services. A

38 Aktar E, Nikoli M, Bgels SM. Environmental transmission of generalized anxiety disorder from parents to children: Worries, experiential avoidance, and intolerance of uncertainty. *Dialogues Clin Neurosci*. 2017; 19:137–47.

39 Heinrichs N, Cronrath A L, Degen M, & Snyder DK. The link between child emotional and behavioral problems and couple functioning. *Family Science*, 2011; 1(3-4), 152-172.

40 Petreski M, Petreski B, Tomovska – Misoska A, Gerovska – Mitev M, Parnardzieva – Zmejškova M, Dimkovski V, Morgan N. *The Social and Economic Effects of COVID-19 on Children in North Macedonia: Rapid Analysis and Policy Proposals* UNICEF. 2020

41 Nikolaidis, G., Petroulaki, K., Zarokosta, F., et al. Lifetime and past-year prevalence of children's exposure to violence in 9 Balkan countries: the BECAN study. *Child and adolescent psychiatry and mental health*. 2018; 12(1): 1-15.

similar situation exists with the general perception of personal health, physical health, psychological health, and social relationships, which is better among caregivers who were not exposed to physical and verbal violence. The general perception of quality of life among adolescents is also affected by experiences of physical and verbal violence and the need for mental health services, but also to gender roles (being male), and living with a family member with a chronic disease. The results were similar situation with regard to the general perception of personal health, physical health, psychological health, and social relationships. These areas were rated better among male adolescents, among those who had not been exposed to physical violence, had no need for mental health services, and who did not live with a chronically ill family member.

As a particularly vulnerable group in terms of the development of mental health problems, belonging to minority groups stands out, especially belonging to minorities that do not belong to larger ethnic communities. Until now, it is known that in North Macedonia the functioning of families in terms of the successful healthy functioning of adolescents aged 11, 13 and 15 is strongly dependent on the environmental and socio-economic status of the family⁴². The study points out that children from marginalized communities show poorer socio-emotional early development, have a lower rate of enrollment in primary education and poorer school achievements. A small percentage of parents in these communities also use disciplinary approaches that are nonviolent.

Life satisfaction is continuously negatively evaluated among children in North Macedonia and according to other available studies. These data rank adolescents in the country at the bottom among 42 European countries, where, on the other hand, life satisfaction is continuously growing. Similarly, Girls report less physical activity, less socialization outside of school, more frequent use of electronic media, and less support from family and friends. Adolescents from low socioeconomic status report poorer health and less satisfaction with life.

In conditions of significantly accentuated social stress, such as the COVID-19 pandemic, which affects directly but also indirectly, emphasizing gender, social and economic inequality, the negative consequences begin in childhood and adolescence and extend into adulthood. These effects work through neurobiological pathways that are sensitive to stress and negative life circumstances, amplify and destabilize development and lead to serious mental health concerns.

A number of findings that emerged from this report were unexpected, either because they were not in line with other international studies conducted during the COVID-19 pandemic, or because they did not confirm our hypotheses. For example, while the prevalence of a potential clinical diagnosis of either depression or anxiety in adolescents was comparable to other international studies⁴³. Caregivers expressed rates of depression (around 10%) and anxiety (around 6%) that were comparable to

42 HBSCM. How healthy and equal do youth live in Macedonia: Health-related behaviors in adolescents aged 11, 13 and 15. Skopje: Center for psychosocial and crisis action Malinska. 2017

43 Racine, N., McArthur, B. A., Cooke, et al. Global Prevalence of Depressive and Anxiety Symptoms in Children and Adolescents During COVID-19: A Meta-analysis. *JAMA Pediatrics*. 2021; 175(11): 1142-1150.

pre-pandemic statistics⁴⁴. However, we did not observe an increase in these rates, while internationally prevalence rates of around 50% were reported for depression and 25% for anxiety⁴⁵. Differences in assessing symptoms between studies, as well as differences in national context could at least partly explain this finding. However, more research is needed to confirm this. Moreover, the common finding that prevalence rates of depression are higher for women⁴⁶ could not be confirmed by our results. While this is not in line with our hypothesis, some studies have shown equalizing of distributions of mental health problems between genders during the COVID-19 pandemic, although these studies largely focus on adolescent populations⁴⁷.

44 Lim, G. Y., Tam, W. W., Lu, Y., et al. Prevalence of Depression in the Community from 30 Countries between 1994 and 2014. *Scientific Reports*. 2018; 8(1): 2861

45 Shah, S. M. A., Mohammad, D., Qureshi, M. F. H., et al. Prevalence, Psychological Responses and Associated Correlates of Depression, Anxiety and Stress in a Global Population, During the Coronavirus Disease (COVID-19) Pandemic. *Community Ment Health J*. 2021; 57(1): 101-110.

46 Kuehner C. Why is depression more common among women than among men? *Lancet Psychiatry*. 2017; 4(2): 146-158.

47 Rao, M. E., Rao, D. M. The Mental Health of High School Students During the COVID-19 Pandemic. *Frontiers in Education*. 2021; 6.

6. STUDY LIMITATIONS



The results of this research are subject to certain limitations. The cross-sectional design of this study limits the generalizability of the results and may not be fully representative of adolescents and their parents in the country. The current study also did not compare results with other age categories of youth and adults.

The sample was taken through public schools, which showed interest in participating in the study, which may contribute to selection bias. The number of respondents from ethnic groups is also low and does not allow generalization of the results regarding members of minority ethnic groups. The percentage of female respondents (caregivers and adolescents) is higher due to the greater involvement of mothers-caregivers in the care of children and the possible greater motivation of female adolescents to take part in the research.

The answers were based on questionnaires, which the respondents filled out themselves. The potential weaknesses of surveys such as this lie in the fact that respondents are more likely to actually provide answers that would be considered socially desirable and acceptable, rather than responding to sensitive questions.

A potential weakness of studies retrospectively assessing experiences from the previous two years is the possibility of biased recollection of events, such as the possibility of over-reporting the most recent and most serious experiences. The possibility of differential memory exists, depending on the nature and importance of the events. However, while such recall bias can be present in retrospective cross-sectional studies, the extent to which this actually influences research results is not yet understood well or highly depends on the study context⁴⁸. Moreover, we employed a carefully developed study design and used validated instruments, which at least partly reduces risk of bias. Future studies could provide additional information to accompany our results. For example, these could be drawn from medical records (e.g., on the prevalence of depression and anxiety).

48 Chouinard E, Walter S. Recall bias in case-control studies: an empirical analysis and theoretical framework. *J Clin Epidemiol.* 1995 Feb;48(2):245-54.

The experience with conducting the current study has pointed to some lessons learned. First, the findings indicate the importance of gathering evidence-based data on vulnerable populations in the context of health emergencies and conducting epidemiological research, especially information about the mental health of adolescents, caregivers, women, ethnic minority groups, and persons of low socioeconomic status. Second, the findings indicate the importance of assessing different forms of abuse and neglect as risk factors for poor mental health. Third, special attention needs to be given to the cultural adaptation of assessment instruments and their pilot testing with participants of different age groups and socioeconomic backgrounds. Fourth, additional effort needs to be directed towards information-sharing and sensitization of school personnel and representatives of national institutions on mental health research practices with caregivers, children, and adolescents.

7.

CONCLUSIONS



The aim of this study was to collect data on the sociodemographic characteristics and mental health of adolescents and their caregivers during the COVID-19 pandemic in North Macedonia. Data were processed to determine prevalence rates and risk factors associated with impaired mental health and quality of life among adolescents and their caregivers nationwide. Through assessing mental health data as well as risk factors, the current report addresses issues related not only to mental health problems, but also provides some insight into the extent to which children's rights are observed. The latter relates particularly to gender equality, socioeconomic background, and protection from (family) violence.

A significantly higher percentage of all respondents are female, as well as the caregivers who declared themselves as mothers. Adolescents and caregivers mostly live in an urban environment and declare themselves as Macedonians. Households often consist of extended families and include an additional member in addition to caregivers and youth. Most respondents have experienced infection in themselves or a family member, as well as financial and emotional consequences of COVID-19. According to the surveyed caregivers, they consider the greatest support received from the family, while adolescents from family and friends.

First, the study indicates that female adolescents and caregivers report greater fear of COVID-19. But the data indicate that the impact of the indirect consequences of the virus on mental health and quality of life plays a key role, rather than the impact of the fear of COVID-19. Rates of depression, anxiety, and dysfunction caused by depressive symptoms are almost twice as high among adolescents compared to their caregivers. Almost half of adolescents report feeling down or sad during the past year. Rates of depression are higher among adolescent females and those enrolled in secondary education. Higher rates of anxiety and depression are also noted among adolescents and caregivers who reported having a member with a chronic illness in the family. It is interesting that the intensity of anxiety is higher in families living in urban areas. Of particular importance is the fact that a significant number of caregivers and adolescents have suicidal thoughts, which requires appropriate social and health measures.

Of importance is also data on a large number of respondents who needed a mental health service but did not access it or did not receive it. Among them, the symptoms of depression and anxiety are significantly higher compared to those who did not recognize the need for such services. As a particularly vulnerable group in terms of the devel-

opment of mental health problems, belonging to minority groups stands out, especially belonging to minorities that do not belong to larger ethnic communities.

Inter-partner relationships of caregivers are dominated by verbal violence, as well as a significant degree of verbal violence directed at their children. The intensity of mental health problems is shown to be significantly higher among adolescents and caregivers exposed to physical and verbal violence. As an exception, it can be noted that anxiety among caregivers is more closely related to exposure to verbal violence than to physical violence.

Regarding the quality of life and personal health, an interesting fact is that caregivers with higher education and with another type of employment (mostly private business) declare the highest quality of life and personal health. Among adolescents, the difference in terms of gender is highlighted, where female adolescents report a poorer quality of life and personal health. Physical health is shown to be better for caregivers in rural areas, while male adolescents are more satisfied with social relationships compared to female adolescents. It is interesting that the quality of personal health is evaluated as better among students in primary school, but among caregivers with only primary education, personal health is rated the lowest, compared to those with a higher level of education. Again, exposure to violence stands out as a significant factor in the perception of quality of life and personal health among caregivers and adolescents.

Life satisfaction is continuously negatively evaluated among children in North Macedonia and according to other available studies. Girls report less physical activity, less socialization outside of school, more frequent use of electronic media, and less support from family and friends. Adolescents from low socioeconomic status also report poorer health and less life satisfaction.

The study highlights the need to invest in appropriate emergency measures, resources and action/strategic plans in the protection and improvement of mental health and well-being among adolescents and their caregivers. Of particular importance is the development of policies and measures that are gender sensitive, but also accessible and effective for individuals from socially vulnerable groups in our society.

8.

RECOMMENDATIONS



1. Development and implementation of a national strategy and action plan for the promotion of mental health and the prevention of mental health problems of children and adolescents, with particular focus on gender and other specificities, as well as on children and adolescents under social risk and the ones with disabilities;

Primary/ universal prevention:

- Awareness raising and conducting public campaigns for strengthening the mental health of children and adolescents, reducing stigma related to mental health problems and help-seeking;
- Delivering programs for mental health promotion and prevention of mental health problems in children and adolescents in primary health protection, primary and secondary schools, rural and urban areas, and between ethnic groups;
- Conducting gender-sensitive programs for the prevention of depression, anxiety, suicidality and self-harm in children and adolescents in primary and secondary schools (with special focus on gender differences, various cultural and gender needs, as well as in dealing with depression and anxiety in girls and women);

Selective prevention:

- Supporting and developing different modalities of mental health services for children and adolescents, and strengthening existing services;
- Developing of and ensuring the availability of technologically assisted services for mental health in children and adolescents (digital programs for stress management, dealing with negative life experiences, online psychological support services etc.);
- Monitoring vulnerable categories of children and adolescents, especially the ones living with chronically ill family member, the ones who required mental health support, and children and adolescents exposed to violence;

- Developing peer-support programs and strengthening positive peer relations;
 - Adapting technologically assisted mental health programs in improving the access to care for youth and caregivers;
2. Prevention of violence towards and between children and adolescents in all areas of society;
 3. Developing, adapting, evaluating, and supporting parenting evidence-based programs as primary prevention programs in strengthening child and adolescent mental health, and preventing violence towards children and adolescents;
 - Conducting family support programs that will include parents/ caregivers of different ages, will focus on the child's socio-emotional development, the parent-child relationship, as well as promoting healthy lifestyles, building resiliency, and using nonviolent discipline strategies;
 - Development of national parenting programs for parents/ caregivers of children to 9 years of age, younger adolescents to 14 years of age, and older adolescents to 18 years of age;
 4. Strengthening inter-institutional cooperation between sectors of health and social protection, education, governmental and nongovernmental organizations, and other groups (e.g., youth organizations, parents/ caregivers etc.), in the effort to represent, support and adapt health policies on local and national level, directed towards the child and adolescent wellbeing, as well as their family's wellbeing;
 5. Strengthening data-collection and needs-assessment capacities, through the continuous development and support of an integrated system for monitoring child and adolescent mental health within the national electronic system (MojTermin), managed by the electronic health administration under the Ministry of health;
1. Necho M, Tsehay M, Birkie M, Biset G, Tadesse E. Prevalence of anxiety, depression, and psychological distress among the general population during the COVID-19 pandemic: A systematic review and meta-analysis. *International Journal of Social Psychiatry*. 2021; 67(7): 892-906.
 2. Merikangas KR, Nakamura EF, Kessler RC. Epidemiology of mental disorders in children and adolescents. *Dialogues in clinical neuroscience*. 2022.
 3. Solmi M, Estradé A, Thompson T, Agorastos A, Radua J, Cortese S, Dragioti E, Leisch F, Vancampfort D, Thygesen LC, Aschauer H. Physical and mental health impact of COVID-19 on children, adolescents, and their families: The Collaborative Outcomes study on Health and Functioning during Infection Times-Children and Adolescents (COH-FIT-C&A). *Journal of Affective Disorders*. 2022; 299: 367-76.
 4. GBD 2019 Diseases and Injuries Collaborators. Global burden of 369 diseases and injuries in 204 countries and territories, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019. *Lancet*. 2020; 396(10258): 1204-1222

9.

REFERENCES



5. Kessler RC, Berglund P, Demler O, et al. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*. 2005; 62(6): 593-602.
6. Liu Q, He H, Yang J, et al. Changes in the global burden of depression from 1990 to 2017: Findings from the Global Burden of Disease study. *J Psychiatr Res*. 2020; 126; 134-140.
7. Yang X, Fang Y, Chen H. Global, regional, and national burden of anxiety disorders from 1990 to 2019: results from the Global Burden of Disease Study 2019. *Epidemiology and psychiatric sciences*. 2021; 30: e36.
8. Purtle J, Nelson KL, Yang Y, et al. Urban–rural differences in older adult depression: A systematic review and meta-analysis of comparative studies. *American Journal of Preventive Medicine*. 2019; 56(4): 603-613.
9. Lever-van Milligen BA, Verhoeven JE, Schmaal L, et al. The impact of depression and anxiety treatment on biological aging and metabolic stress: study protocol of the Mood treatment with antidepressants or running (MOTAR) study. *BMC Psychiatry*. 2019; 19(1): 425.
10. König H, König HH, Konnopka A. The excess costs of depression: a systematic review and meta-analysis. *Epidemiology and psychiatric sciences*. 2019; 29: e30.
11. Cuijpers P, Smit F, Oostenbrink J, et al. Economic costs of minor depression: a population-based study. *Acta Psychiatrica Scandinavica*. 2007; 115(3): 229-236.
12. Santomauro DF, Mantilla Herrera AM, Shadid J, et al. Global prevalence and burden of depressive and anxiety disorders in 204 countries and territories in 2020 due to the COVID-19 pandemic. *The Lancet*. 2021; 398(10312): 1700-1712.
13. Hafstad GS, Augusti EM. A lost generation? COVID-19 and adolescent mental health. *The Lancet Psychiatry*. 2021; 8(8): 640-641.
14. Auerbach RP, Mortier P, Bruffaerts R, et al. WHO World Mental Health Surveys International College Student Project: Prevalence and distribution of mental disorders. *J Abnorm Psychol*. 2018; 127(7): 623-638.

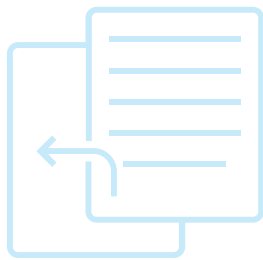
15. Ding K, Yang J, Chin MK, Sullivan L, Demirhan G, Violant-Holz V, Uvinha RR, Dai J, Xu X, Popeska B, Mladenova Z. Mental health among adults during the COVID-19 pandemic lockdown: a cross-sectional multi-country comparison. *International Journal of Environmental Research and Public Health*. 2021;18(5): 2686.
16. Ramey HL, Lawford HL, Berardini Y, Caimano S, Epp S, Edwards C, Wolff L. It's Difficult to Grow Up in an Apocalypse: Children's and adolescents' experiences, perceptions, and opinions on the COVID-19 pandemic in Canada. *Innocenti Research Report, UNICEF Office of Research - Innocenti, Florence*. 2022.
17. Wainberg, M. L., Scorza, P., Shultz, J. M., et al. Challenges and Opportunities in Global Mental Health: a Research-to-Practice Perspective. *Curr Psychiatry Rep*. 2017; 19(5): 28.
18. Ristevska-Dimitrovska G, Batic D. The impact of COVID-19 on mental health of healthcare workers and police/army forces in the Republic of North Macedonia. *Eur Neuropsychopharmacol*. 2020; 40: S479.
19. Mancevska S, Gligoroska JP, Velickovska LA. Levels of anxiety and depression in second year medical students during COVID-19 pandemic spring lockdown in Skopje, North Macedonia. *Research in Physical Education, Sport and Health*. 2020.
20. State statistical office of Republic of North Macedonia. Census of the population, households, and housing in Republic of North Macedonia. 2021; makstat.gov.mk
21. Carvajal L, Ahs JW, Requejo JH, Kieling C, Lundin A, Kumar M, Luitel NP, Marlow M, Skeen S, Tomlinson M, Kohrt BA. Measurement of Mental Health Among Adolescents at the Population Level: A Multicountry Protocol for Adaptation and Validation of Mental Health Measures. *Journal of Adolescent Health*. 2022.
22. World Health Organization. Preventing child maltreatment: a guide to taking action and generating evidence. World Health Organization; 2006.
23. Kroenke K, Spitzer RL. The PHQ-9: a new depression diagnostic and severity measure. *Psychiatric annals*. 2002; 32(9): 509-15.
24. Manea L, Gilbody S, McMillan D. Optimal cut-off score for diagnosing depression with the Patient Health Questionnaire (PHQ-9): a meta-analysis. *Cmaj*. 2012; 184(3): 191-6.
25. Johnson JG, Harris ES, Spitzer RL, Williams JB. The patient health questionnaire for adolescents: validation of an instrument for the assessment of mental disorders among adolescent primary care patients. *Journal of Adolescent Health*. 2002; 30(3): 196-204.
26. Nandakumar AL, Vande Voort JL, Nakonezny PA, Orth SS, Romanowicz M, Sonmez AI, Ward JA, Rackley SJ, Huxsahl JE, Croarkin PE. Psychometric properties of the patient health questionnaire-9 modified for major depressive disorder in adolescents. *Journal of child and adolescent psychopharmacology*. 2019; 29(1): 34-40.

27. Spitzer RL, Kroenke K, Williams JB, Löwe B. A brief measure for assessing generalized anxiety disorder: the GAD-7. *Archives of internal medicine*. 2006; 166(10): 1092-7.
28. Ahorsu DK, Lin CY, Imani V, Saffari M, Griffiths MD, Pakpour AH. The fear of COVID-19 scale: development and initial validation. *International journal of mental health and addiction*. 2020; 27:1-9.
29. Skevington SM, Lotfy M, O'Connell KA. The World Health Organization's WHO-QOL-BREF quality of life assessment: psychometric properties and results of the international field trial. A report from the WHOQOL group. *Quality of life Research*. 2004; 13(2): 299-310.
30. StatSoft Inc. (2004) STATISTICA (Data Analysis Software System), Version 7.
31. Knudsen AKS, Stene-Larsen K, Gustavson K, Hotopf M, Kessler RC, Krokstad S, Skogen JC, Øverland S and Reneflot A. Prevalence of mental disorders, suicidal ideation and suicides in the general population before and during the COVID-19 pandemic in Norway: a population-based repeated cross-sectional analysis. *The Lancet Regional Health – Europe* 4. 2021; 100071.
32. Winkler P, Formanek T, Mlada K, Kagstrom A, Mohrova Z, Mohr P and Csemy L. Increase in prevalence of current mental disorders in the context of COVID-19: analysis of repeated nationwide cross-sectional surveys. *Epidemiology and Psychiatric Sciences*. 2020; 29: e173.
33. Marić NP, Lazarević JB, Priebe S, Mihić LJ, Pejović-Milovančević M, Terzić-Šupić Z, Tošković O, Vuković O, Todorović J Knežević G. Covid-19-related stressors, mental disorders, depressive and anxiety symptoms: a cross-sectional, nationally-representative, face-to-face survey in Serbia, *Epidemiology and Psychiatric Sciences*. 2021
34. Polanczyk G, Salum G, Sugaya L, Caye A, Rohde I. Annual Research Review: A meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. *Journal of Child Psychology and Psychiatry*. 2015; 1-21.
35. State Statistical Office and UNICEF. 2018-2019 North Macedonia Multiple Indicator Cluster Survey and 2018-2019 North Macedonia Roma Settlements Multiple Indicator Cluster Survey, Survey Findings Report. Skopje, North Macedonia: State Statistical Office and UNICEF. 2020
36. Racine N, McArthur BA, Cooke JE, Eirich R, Zhu J, Madigan S. Global Prevalence of Depressive and Anxiety Symptoms in Children and Adolescents During COVID-19 A Meta-analysis, *JAMA Pediatrics*. 2021; 175: 1-11.
37. Wang S, Chen L, Ran H, et al. Depression and anxiety among children and adolescents pre and post COVID-19: A comparative meta-analysis. *Front. Psychiatry*. 2020; 13: 917552.

38. Kostev K, Weber K, Riedel-Heller S, von Vultée C, Bohlken J. Increase in depression and anxiety disorder diagnoses during the COVID-19 pandemic in children and adolescents followed in pediatric practices in Germany. *European Child & Adolescent Psychiatry*. 2021; 26: 1-7.
39. Oldehinkel AJ, Bouma EM. Sensitivity to the depressogenic effect of stress and HPA-axis reactivity in adolescence: a review of gender differences. *Neuroscience & Biobehavioral Reviews*. 2011;35(8):1757-70.
40. Marie R, Journault AA, Cernik R, Welch P, Lupien S, McDermott B, Moxon JV, Sarnyai Z. A Cross-Sectional Study Investigating Canadian and Australian Adolescents' Perceived Experiences of COVID-19: Gender Differences and Mental Health Implications. *International journal of environmental research and public health*. 2022;19(7):4407.
41. Calvano C, Engelke L, Di Bella J, Kindermann J, Renneberg B, Winter SM. Families in the COVID-19 pandemic: parental stress, parent mental health and the occurrence of adverse childhood experiences—results of a representative survey in Germany. *Eur Child Adolesc Psychiatry*. 2021; 1:1–13.
42. Aktar E, Nikoli M, Bgels SM. Environmental transmission of generalized anxiety disorder from parents to children: Worries, experiential avoidance, and intolerance of uncertainty. *Dialogues Clin Neurosci*. 2017; 19:137–47.
43. Heinrichs N, Cronrath A L, Degen M, & Snyder DK. The link between child emotional and behavioral problems and couple functioning. *Family Science*, 2011; 1(3-4), 152-172.
44. Petreski M, Petreski B, Tomovska – Misoska A, Gerovska – Mitev M, Parnardzieva – Zmejкова M, Dimkovski V, Morgan N. The Social and Economic Effects of COVID-19 on Children in North Macedonia: Rapid Analysis and Policy Proposals UNICEF. 2020
45. Nikolaidis, G., Petroulaki, K., Zarokosta, F., et al. Lifetime and past-year prevalence of children's exposure to violence in 9 Balkan countries: the BECAN study. *Child and adolescent psychiatry and mental health*. 2018; 12(1): 1-15.
46. HBSCM. How healthy and equal do youth live in Macedonia: Health-related behaviors in adolescents aged 11, 13 and 15. Skopje: Center for psychosocial and crisis action Malinska. 2017
47. Racine, N., McArthur, B. A., Cooke, et al. Global Prevalence of Depressive and Anxiety Symptoms in Children and Adolescents During COVID-19: A Meta-analysis. *JAMA Pediatrics*. 2021; 175(11): 1142-1150.
48. Lim, G. Y., Tam, W. W., Lu, Y., et al. Prevalence of Depression in the Community from 30 Countries between 1994 and 2014. *Scientific Reports*. 2018; 8(1): 2861

49. Shah, S. M. A., Mohammad, D., Qureshi, M. F. H., et al. Prevalence, Psychological Responses and Associated Correlates of Depression, Anxiety and Stress in a Global Population, During the Coronavirus Disease (COVID-19) Pandemic. *Community Ment Health J.* 2021; 57(1): 101-110.
50. Kuehner C. Why is depression more common among women than among men? *Lancet Psychiatry.* 2017; 4(2): 146-158.
51. Rao, M. E., Rao, D. M. The Mental Health of High School Students During the COVID-19 Pandemic. *Frontiers in Education.* 2021; 6.
52. Chouinard E, Walter S. Recall bias in case-control studies: an empirical analysis and theoretical framework. *J Clin Epidemiol.* 1995 Feb;48(2):245-54.

ANNEXES



ANNEX A INCEPTION REPORT

BACKGROUND AND SCOPE

The World Health Organization (WHO) declared the novel Coronavirus disease (COVID-19) a pandemic on 11 March 2020. Consequently, countries globally began taking measures to contain the virus. The growing scientific literature over the past period indicates that the health, social, and financial impact of COVID-19 had concerning psychological effects on the general population and family functioning throughout the world [1]. The most commonly reported psychological symptoms are anxiety and depression, with adolescents pointed as a particularly vulnerable group for mental health problems [2]. Research indicates that assessing the mental health impact of the COVID-19 pandemic on families is an important tool in planning adequate responses to health crises [3]. However, such data is currently not available on a national level in North Macedonia.

The scope of this study therefore focuses on prevalence rates of common mental health problems during the COVID-19 pandemic and associated risk factors in adolescents (age 12-18) and their caregivers. This limits generalizability of the findings to these specific groups, i.e., families with adolescent children. Other groups, for example single households and families with young children, are outside the scope of this study. However, the specific scope was chosen to target groups that carry a particularly heavy burden as a result of the COVID-19 pandemic, as indicated by a recent UNICEF flagship report [4].

AIMS AND OBJECTIVES

The study aims to collect sociodemographic and mental health data from adolescents and their caregivers in relation to the COVID-19 pandemic on a national level. The collected data will be analyzed to determine prevalence rates and major risk factors associated with poor mental health and quality of life outcomes in adolescents and caregivers in North Macedonia.

SPECIFIC OBJECTIVES

- To determine prevalence rates of common mental health problems in adolescents and primary caregivers during the COVID-19 pandemic;
- To identify risk factors for most common mental health problems in adolescents and primary caregivers during the COVID-19 pandemic;
- To identify risk factors for poor quality of life outcomes in adolescents and primary caregivers during the COVID-19 pandemic;
- To offer evidence-based recommendations for mental health prevention and intervention strategies;

POPULATION

IN- AND EXCLUSION CRITERIA

The sample will consist of adolescents (ages 12-18) and their primary caregivers (ages 18 \geq). Additional inclusion criteria for adolescents and caregivers are 1) living in the same household, 2) having access to a telephone, 3) sufficient competence in the Macedonian or Albanian language, and 4) providing written informed consent. No specific exclusion criteria are assessed.

SAMPLE SIZE CALCULATION

The minimum required sample size for the prevalence study is calculated on an expected prevalence rate of common mental health problems, such as depression and anxiety, of 30% [5], precision $\tau_2 = .05$ and confidence level $\alpha = .95$. Therefore, at least 646 participants need to be recruited (323 primary caregivers, 323 adolescents). This sample size is also sufficient for the investigation of risk factors. However, in anticipation of considerable survey dropout, sampling can continue beyond this minimum sample size. Lastly, the sample size can be considered feasible, as there are currently around 144.855 adolescents aged 12-18 in North Macedonia, based on a recent census [6].

STUDY DESIGN

The proposed study represents a cross-sectional observational study on a national representative sample of adolescents and their caregivers. In collaboration with the Bureau for Development of Education, recruitment will be done through primary and secondary schools from pre-selected cities/ towns, which are representative of different regions of North Macedonia, as well as the inclusion of adolescents and caregivers of different socioeconomic backgrounds. The sampling framework will be based on classrooms, selected to cover the majority of age groups of the target population. Accordingly, the classrooms of a primary school are expected to cover ages 12-14 (grades VII to IX), while the classrooms of a high school are expected to cover ages 15-18 (years I to IV). Table 1 shows the minimum required recruitment numbers by location.

TABLE 1. RECRUITMENT STRATEGY WITH MINIMUM SAMPLE SIZE BY LOCATION

Location	School	Adolescents (N)	Primary caregivers (N)
Skopje area	Primary school	27	27
	Secondary school	27	27
Kumanovo area	Primary school	27	27
	Secondary school	27	27
Gostivar area	Primary school	27	27
	Secondary school	27	27
Bitola area	Primary school	27	27
	Secondary school	27	27
Stip area	Primary school	27	27
	Secondary school	27	27
Strumica area	Primary school	27	27
	Secondary school	26	26
Total N		323	323

STUDY TEAM

The study will be led by four senior researchers and two junior researchers as a core team. A total of 20 field researchers will be recruited and trained in informed consent procedures, data collection, revision of collected data for completeness, and data entry. Field researchers will include early career psychiatrists, psychiatry residents, psychologists, and social workers. They will be available through telephone or face-to-face contact to the participants, in order to offer support with the informed consent procedure and in filling out the surveys. Profiles of the senior and junior researchers are provided in Appendix A.

PROCEDURES

The study will be implemented in both Macedonian, Albanian, and Turkish language, and the series of questionnaires will be translated in the three languages. The trans-cultural translation and adaptation process of the instruments will follow several steps: translation and adaptation by bilingual experts; mental health expert review; focus group discussions; cognitive testing; triangulation and integration of qualitative findings; interviews conducted by trained mental health professionals and researchers.

Information regarding the study will be disseminated through field researchers to primary caregivers and adolescents. Representatives from the Bureau of Development of Education, school personnel, primary caregivers, and adolescents will receive information on the study aims and procedures beforehand through the researcher team. Field researchers will obtain basic contact information (name, phone number and/or email) from adolescents and primary caregivers who provide written informed consent. Personal identifiable information, such as names and email addresses, will only be used to contact participants and are stored independently from data on the main study parameters.

Following consent, a paper-based version of the survey will be distributed to the participants and collected from them by field researchers. Table 2 shows a timeline of the proposed activities. Responses from adolescents and their individual caregivers will be connected through unique four-digit numerical codes. Before the start of data collection, the instruments and procedure will be piloted in one classroom. Based on the data and experiences with the pilot phase, the research team will consider adaptations to the design and procedures.

TABLE 2. TIMELINE OF PROPOSED ACTIVITIES

Timeframe (2022)	Activity	Responsible actor
<i>February</i>	Literature review and adaptation of measures	Senior and junior researchers
<i>March – April</i>	Ethical approval and approval from Ministry of Education (Bureau for Development of Education)	Senior and junior researchers
<i>March</i>	Training of junior researchers	Senior and junior researchers
<i>April</i>	Information sharing with selected schools and school personnel	Senior and junior researchers
<i>April – May</i>	Recruitment of participants	Field researchers
<i>April – June</i>	Data collection and entry	Field researchers
<i>July – August</i>	Data analysis	Senior and junior researchers
<i>August – September</i>	Report preparation	Senior and junior researchers
<i>October</i>	Dissemination of results	Senior and junior researchers

STUDY VARIABLES

SOCIODEMOGRAPHICS

Sociodemographic information will be collected through self-report from adolescents and caregivers on age (numeric); sex (categorical); location (open ended); ethnicity (categorical); education level (categorical); employment status (categorical); number of persons in household (numeric); family experience with COVID-19 (categorical), presence of chronic diseases in the family (categorical), and need for mental health services during the pandemic (categorical). Both adolescents and caregivers will be asked to rate the frequency of interpersonal violence (ordinal) and harsh parenting practices (ordinal). Caregivers specifically will also indicate their relationship to the child (categorical). The selected questions are provided in Appendix B.

MENTAL HEALTH

Symptoms of depression in caregivers will be assessed using the Patient Health Questionnaire (PHQ-9). The PHQ-9 is a self-report questionnaire assessing the presence and severity of depressive symptoms in adults. It scores 9 items on a 4-point Likert scale from “not at all” to “nearly every day”. Total scores range from 0-27, where higher scores indicate more severe depressive symptoms [7]. Cut-off scores are also available for the PHQ-9 [8].

Symptoms of depression in adolescents will be assessed using the PHQ-9 version modified for adolescents (PHQ-9M). The PHQ-9M is a self-report questionnaire assessing the presence and severity of depressive symptoms in adolescents. It scores 9 items on a 4-point Likert scale from “not at all” to “nearly every day”. Total scores range from 0-27, where higher scores indicate more severe depressive symptoms. In addition, the PHQ-9M assesses the duration of depression throughout the year, functional impairment related to depression, as well as suicidal ideation and behavior [9]. Cut-off scores are also available for the PHQ-9M [10].

Symptoms of anxiety in adolescents and caregivers will be assessed using the Generalized Anxiety Disorder Assessment (GAD-7). The GAD-7 is a self-report questionnaire assessing the severity of anxiety symptoms. It scores 7 items on a 4-point Likert scale from “not at all” to “nearly every day”. Total scores range from 0-21, where higher scores indicate more severe anxiety symptoms [11]. Cut-off scores are also available for GAD-7 in adults [11] and adolescents [12].

Fear related to the COVID-19 pandemic will be assessed using the Fear of COVID-19 Scale (FCV-19S). The FCV-19S is a self-report questionnaire consisting of 7 items with answer options on a 5-point Likert scale from “strongly disagree” to “strongly agree”. Total scores range from 7-35, where higher scores indicate more severe fear related to COVID-19. The questionnaire will assess COVID-19 related fear in both caregivers and adolescents [13].

QUALITY OF LIFE

Quality of life will be assessed using the WHO Quality of Life Scale (WHOQOL-BREF). WHOQOL-BREF is a self-report questionnaire assessing quality of life in four domains (physical health, psychological, social relationships, environment), and it also contains items on the overall perception of health and quality of life. It scores 26 items on a 5-point Likert scale from “disagree” to “extremely agree”, where higher scores indicate higher quality of life [14]. The selected questionnaires are provided in Appendix B.

DATA ANALYSIS

Data will be analyzed by a biostatistician from the Faculty of Medicine, University Ss Cyril and Methodius, Skopje. Data will be described by calculating counts and percentages for categorical variables, and means (M) and standard deviations (SD) for continuous variables. Associations between sociodemographic data, mental health, and quality of life outcomes will be examined with independent sample t-tests, Chi-square tests, ANOVA, and regression analyses. Analyses will be performed on an aggregate level, as well as comparatively for specific sub-groups (e.g. women/men). Statistical significance will be set at $\alpha = 0.95$. Specifically, prevalence rates of mental health conditions will be calculated as the proportion of the total samples (adolescents, caregivers) presenting with moderate-severe depression or anxiety, according to established cut-off points on self-report measures (PHQ-9, PHQ-9M, GAD-7). Specific attention will be given to the investigation of gender differences through logistic regression analyses. Risk factors for mental health symptoms and reduced quality of life will be investigated through multivariate regression analyses with selected risk factors (e.g., gender, child maltreatment, fear of COVID-19) entered as predictors. A research matrix is provided in Appendix C.

ETHICAL CONSIDERATIONS

Prior to recruitment and data collection, the study will obtain legal and ethical approval from the Faculty of Medicine, University Ss Cyril and Methodius, Skopje. Ethical considerations will be considered during the entire study process. The relevant study documentation (questionnaires, informed consent form, information letter) will be submitted for approval at the ethical committee at the Faculty of Medicine, University Ss. Cyril and Methodius Skopje. The University Clinic of Psychiatry - Skopje will ask the Ministry for Education and Science for permission to recruit participants at primary and secondary schools.

As stipulated in UNEG Norms and Standards, the researchers will be sensitive to beliefs, manners and customs and act with integrity and honesty in their relationships with all stakeholders, will ensure that their contacts with individuals are characterized by respect, will protect the anonymity and confidentiality of individual information, and they will disclose actual or potential conflicts of interest.

Participants are not involved in research development, design, nor selection of outcome measures. Stakeholders support and facilitate the communication with schools and relevant personnel, support the recruitment of participants, and provide feedback on the research design and procedures.

INFORMED CONSENT PROCEDURES

The process of identifying adolescents and caregivers from different ages, place of residence, and educational levels will follow a standard procedure, in order to ensure an informed consent to participate in the study (information letter presenting the process, protection of privacy and information confidentiality, followed by a verbal communication regarding the questions in the instruments). Participation in the research is voluntary and opinions will be presented in the report in an anonymous manner.

Verbal and written informed consent will be asked from caregivers, as well as adolescents aged 14 and above. Verbal and written informed consent will be asked from caregivers of adolescents aged 12-13. The informed consent form will be accompanied by an information letter, in order to inform caregivers and adolescents about the purpose and procedures of the study. It will also contain contact information and emergency helpline numbers in case of need. The survey will be completed anonymously, without the inclusion of identifiable personal information, and the possibility of withdrawing from the study at any time will be explained as an option. The information letter and informed consent form are provided in Appendix D.

RESEARCH MONITORING

Safety, ethics, and data protection research practices will be monitored by an advisory board, which is independent of the research team and the content of the research project. The advisory board members attend and participate in scheduled meetings with the team and independently, provide regular guidance, insight, and recommendations regarding research-related practices, resources, duties, priorities, and communications. The advisory board is composed of three members, selected based on their professional experience and recognized excellence in the field of mental health research and practice in the country. The profile of the advisory board members is provided in Appendix A.

QUALITY CONTROL

Quality control of the entire research process (including research design, data collection, analysis, interpretation, and dissemination of data) will be monitored by an international consultant. The international consultant is selected based on their international and regional experience in mental health research. The profile of the international consultant is provided in Appendix A.

DONOR

The research donor is not and will not be involved in the research design, data collection, analysis, and interpretation of data. The donor will provide guidance regarding the structure of the final project report, but will not participate in writing

the research results. The donor will assist in the communication with collaborators, as well as the dissemination of results to local and international stakeholders and policy makers.

RISKS AND MITIGATION STRATEGIES

Risk	Impact	Probability	Risks mitigation strategies
Barriers that could cause delays and hinder the implementation of envisaged activities including data collection	Low	Low	The current situation with COVID-19 is expected to have low to very limited impact on implementation of activities. The impact is mostly expected on the format, e.g., some meetings/ trainings held via online platform instead of usual meetings and trainings. All the measures imposed by the authorities will be followed and the team will ensure that data collection approach is in line with the COVID-19 and infection prevention measures keeping in view COVID-19 situation in the country. In support to data collection, a total of 20 field researchers will be recruited and trained in data collection.
Anonymity and confidentiality	Medium	Low	All the information collected during the process will be done in accordance with the ethical standards in research, evaluation, data collection and analysis. The research will follow ethical standards in undertaking the research activities as described in the ethical standards section of the proposal.
Insufficient cooperation and participation of the relevant institutions and actors	Medium	Low	During the implementation of the planned activities the team needs to consult different national institutions to obtain the necessary data and information. Given the reputation of UNICEF and the University Clinic of Psychiatry - Skopje it is not expected that there will be any difficulties in this regard. However, the team will communicate with UNICEF and seek support in obtaining participation and involvement of relevant actors. Activities will also be planned in coordination with the Bureau for Development of Education, Ministry of Education and Science, which will allow easier access to schools and responsible personnel.

REFERENCES

1. Necho, M., Tsehay, M., Birkie, M., Biset, G. and Tadesse, E., 2021. Prevalence of anxiety, depression, and psychological distress among the general population during the COVID-19 pandemic: A systematic review and meta-analysis. *International Journal of Social Psychiatry*, 67(7), pp.892-906.
2. Merikangas, K., Nakamura, E. and Kessler, R., 2009. Epidemiology of mental disorders in children and adolescents, *Dialogues in Clinical Neuroscience*, 11(1), pp.7-20.
3. Solmi, M., Estradé, A., Thompson, T., Agorastos, A., Radua, J., Cortese, S., Dragioti, E., Leisch, F., Vancampfort, D., Thygesen, L.C. and Aschauer, H., 2022. Physical and mental health impact of COVID-19 on children, adolescents, and their families: The Collaborative Outcomes study on Health and Functioning during Infection Times-Children and Adolescents (COH-FIT-C&A). *Journal of affective disorders*, 299, pp.367-376.
4. United Nations Children's Fund, *The State of the World's Children 2021: On My Mind – Promoting, protecting and caring for children's mental health*, UNICEF, New York, October 2021.
5. Zhang, S.X., Miller, S.O., Xu, W., Yin, A., Chen, B.Z., Delios, A., Dong, R.K., Chen, R.Z., McIntyre, R.S., Wan, X. and Wang, S., 2022. Meta-analytic evidence of depression and anxiety in Eastern Europe during the COVID-19 pandemic. *European Journal of Psychotraumatology*, 13(1), p.2000132.
6. Republic of North Macedonia State Statistical Office, 2021. *Census of Population, Households and Dwellings in the Republic of North Macedonia*. Available at: makstat.gov.mk
7. Kroenke, K. and Spitzer, R.L., 2002. The PHQ-9: A new depression and diagnostic severity measure. *Psychiatric Annals*, 32, pp. 509-521.
8. Manea, L., Gilbody, S. and McMillan, D., 2012. Optimal cut-off score for diagnosing depression with the Patient Health Questionnaire (PHQ-9): a meta-analysis. *CMAJ: Canadian Medical Association journal = journal de l'Association medicale canadienne*, 184(3), pp.191–196.
9. Johnson, J. G., Harris, E. S., Spitzer, R. L., and Williams, J. B., 2002. The Patient Health Questionnaire for adolescents: validation of an instrument for the assessment of mental disorders among adolescent primary care patients. *Journal of Adolescent Health*, 30, pp.196–204.
10. Nandakumar, A.L., Vande Voort, J.L., Nakonezny, P.A., Orth, S.S., Romanowicz, M., Sonmez, A.I., Ward, J.A., Rackley, S.J., Huxsahl, J.E. and Croarkin, P.E., 2019. Psychometric properties of the patient health questionnaire-9 modified for major depressive disorder in adolescents. *Journal of child and adolescent psychopharmacology*, 29(1), pp.34-40.
11. Spitzer, R.L., Kroenke, K., Williams, J.B.W. and Löwe, B., 2018. A brief measure for assessing generalized anxiety disorder. The GAD-7. *Archives of Internal Medicine*, 166(10), pp. 1092-1097.

12. Mossman, S.A., Luft, M.J., Schroeder, H.K., Varney, S.T., Fleck, D.E., Barzman, D.H., Gilman, R., DelBello, M.P. and Strawn, J.R., 2017. The Generalized Anxiety Disorder 7-item (GAD-7) scale in adolescents with generalized anxiety disorder: signal detection and validation. *Annals of clinical psychiatry: official journal of the American Academy of Clinical Psychiatrists*, 29(4), p.227.
13. Ahorsu, D. K., Lin, C. Y., Imani, V., Saffari, M., Griffiths, M. D., & Pakpour, A. H., 2020. The Fear of COVID-19 Scale: Development and Initial Validation. *International Journal of Mental Health and Addiction*, pp. 1–9.
14. World Health Organization, 2004. The World Health Organization's WHOQOL-BREF quality of life assessment: psychometric properties and results of the international field trial. A report from the WHOQOL group. *Quality of Life Research*, 13(2), pp. 299-310.

ANNEX B

STUDY INSTRUMENTS

SOCIODEMOGRAPHIC QUESTIONS

1. What is your age? (numeric)
2. What is your sex? (male/ female)
3. What is your relationship to the child? (mother, father, legal guardian, other)
4. What is your place of residence? (open ended)
5. What is your ethnicity? (Macedonian, Albanian, Turkish, Roma, Bosniak, Serbian, Other)
6. What is your highest level of completed education? (Student in primary education, Student in secondary education, Completed primary education, Completed secondary education, Completed university, Other)
7. What is your working status? (Employed on an indefinite contract, Employed on a definite contract, Unemployed, Other)
8. How many persons live in your household who are below age 18? (numeric)
9. How many persons live in your household who are age 18 and above? (numeric)
10. What was your family's experience with COVID-19 (please select all that apply)? (I got infected; A member of my family got infected; I was hospitalized; A member of my family was hospitalized; A member of my family died; A member of my family had financial difficulties; A member of my family had emotional difficulties; Other)
11. Including yourself, if applicable, is there a member in your family with a chronic disease (e.g. heart problems, diabetes, dementia, cancer etc.)? (Yes/ No)
12. From whom did you receive the most support during the COVID-19 pandemic? (Family, Partner; Friends; Professional care; Other)
13. Did you or a family member needed mental health support during the COVID-19 pandemic? (Yes/ No)
14. Did you or a family member visited a mental health professional during the COVID-19 pandemic (e.g. psychologist and/or psychiatrist)? (Yes/ No)

FAMILY RELATIONS (CAREGIVER)

1. During the COVID-19 pandemic, how often did you hit or push your partner? (Never, Rarely, Sometimes, Often, Very often, I do not have a partner)
2. During the COVID-19 pandemic, how often did your partner hit or push you? (Never, Rarely, Sometimes, Often, Very often, I do not have a partner)

3. During the COVID-19 pandemic, how often did you yell or insult your partner?
(Never, Rarely, Sometimes, Often, Very often, I do not have a partner)
4. During the COVID-19 pandemic, how often did your partner yell or insult you?
(Never, Rarely, Sometimes, Often, Very often, I do not have a partner)
5. During the COVID-19 pandemic, how often did you use the following discipline practices in dealing with your child's behavior:
 - a. Hitting or pushing (Never, Rarely, Sometimes, Often, Very often)
 - b. Yelling or insulting (Never, Rarely, Sometimes, Often, Very often);
 - c. Taking something away, e.g. phone, internet, games, TV, going out
(Never, Rarely, Sometimes, Often, Very often);
 - d. Talking about behaviors and their consequences
(Never, Rarely, Sometimes, Often, Very often)

FAMILY RELATIONS (ADOLESCENT)

1. During the COVID-19 pandemic, how often did your parents hit or push each other?
(Never, Rarely, Sometimes, Often, Very often, My parent does not have a partner)
2. During the COVID-19 pandemic, how often did your parents yell or insult each other?
(Never, Rarely, Sometimes, Often, Very often, My parent does not have a partner)
3. During the COVID-19 pandemic, how often did your parent use the following discipline practices in dealing with your behavior:
 - a. Physical punishment (Never, Rarely, Sometimes, Often, Very often)
 - b. Yelling or insulting (Never, Rarely, Sometimes, Often, Very often);
 - c. Taking something away, e.g. phone, internet, games, TV, going out (Never, Rarely, Sometimes, Often, Very often);
 - d. Talking about behaviors and their consequences
(Never, Rarely, Sometimes, Often, Very often)

GENERAL HEALTH QUESTIONNAIRE (PHQ-9)

Over the last 2 weeks, how often have you been bothered by any of the following problems? (Use "✓" to indicate your answer)		Not at all	Several days	More than half the days	Nearly every day
1	Little interest or pleasure in doing things	0	1	2	3
2	Feeling down, depressed, or hopeless	0	1	2	3
3	Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4	Feeling tired or having little energy	0	1	2	3
5	Poor appetite or overeating	0	1	2	3
6	Feeling bad about yourself or that you are a failure or have let yourself or your family down	0	1	2	3
7	Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8	Moving or speaking so slowly that other people could have noticed? Or the opposite - being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9	Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all	Somewhat difficult	Very difficult	Extremelly difficult
----------------------	--------------------	----------------	----------------------

PATIENT HEALTH QUESTIONNAIRE - MODIFIED FOR TEENS (PHQ-9M)

Over the last 2 weeks, how often have you been bothered by any of the following problems?		Not at all	Several days	More than half the days	Nearly every day
1	Little interest or pleasure in doing things?	0	1	2	3
2	Feeling down, depressed, irritable, or hopeless?	0	1	2	3
3	Trouble falling asleep, or staying asleep, or sleeping too much?	0	1	2	3
4	Feeling tired or having little energy?	0	1	2	3
5	Poor appetite, weightloss, or overeating?	0	1	2	3
6	Feeling bad about yourself - or that you are a failure or have let yourself or your family down?	0	1	2	3
7	Trouble concentrating on things, such as school work, reading, or watching TV?	0	1	2	3
8	Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual?	0	1	2	3
9	Thoughts that you would be better off dead or of hurting yourself in some way?	0	1	2	3
10	If you are experiencing any of the problems on this form, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?	Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult
11	In the past year, have you felt depressed or sad most days, even if you felt OK sometimes?	Yes	No		
12	Has there been a time in the past month when you have had serious thoughts about ending your life?	Yes	No		
13	Have you ever, in your whole life, tried to kill yourself or made a suicide attempt?	Yes	No		

GENERALIZED ANXIETY DISORDER ASSESSMENT (GAD-7)

Over the last 2 weeks, how often have you been bothered by the following problems?		Not at all	Several days	More than half the days	Nearly every day
1	Feeling nervous, anxious or on edge	0	1	2	3
2	Not being able to stop or control worrying	0	1	2	3
3	Worrying too much about different things	0	1	2	3
4	Trouble relaxing	0	1	2	3
5	Being so restless that it is hard to sit still	0	1	2	3
6	Becoming easily annoyed or irritable	0	1	2	3
7	Feeling afraid as if something awful might happen	0	1	2	3

FEAR OF COVID-19 SCALE (FCV-19S)

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	I am most afraid of Corona	1	2	3	4	5
2	It makes me uncomfortable to think about Corona	1	2	3	4	5
3	My hands become clammy when I think about Corona	1	2	3	4	5
4	I am afraid of losing my life because of Corona	1	2	3	4	5
5	When I watch news and stories about Corona on social media, I become nervous or anxious.	1	2	3	4	5
6	I cannot sleep because I'm worrying about getting Corona.	1	2	3	4	5
7	My heart races or palpitates when I think about getting Corona.	1	2	3	4	5

WORLD HEALTH ORGANIZATION QUALITY OF LIFE WHOQOL-BREF)

Please read the question, assess your feelings, for the last two weeks, and circle the number on the scale for each question that gives the best answer for you.

		Very poor	Poor	Neither poor nor good	Good	Very good
1	How would you rate your quality of life?	1	2	3	4	5
		Very dissatisfied	Fairly Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
2	How satisfied are you with your health?	1	2	3	4	5

The following questions ask about how much you have experienced certain things in the **last two weeks**.

		Not at all	A Small amount	A Moderate amount	A great deal	An Extreme amount
3	To what extent do you feel that physical pain prevents you from doing what you need to do?	1	2	3	4	5
4	How much do you need any medical treatment to function in your daily life?	1	2	3	4	5
5	How much do you enjoy life?	1	2	3	4	5
6	To what extent do you feel your life to be meaningful?	1	2	3	4	5
7	How well are you able to concentrate?	1	2	3	4	5
8	How safe do you feel in your daily life?	1	2	3	4	5
9	How healthy is your physical environment?	1	2	3	4	5

		Not at all	Slightly	Somewhat	To a great extent	Completely
10	Do you have enough energy for everyday life?	1	2	3	4	5
11	Are you able to accept your bodily appearance?	1	2	3	4	5
12	Have you enough money to meet your needs?	1	2	3	4	5
13	How available to you is the information you need in your daily life?	1	2	3	4	5
14	To what extent do you have the opportunity for leisure activities?	1	2	3	4	5

		Not at all	Slightly	Moderately	Very	Extremely
15	How well are you able to get around physically?	1	2	3	4	5

The following questions ask you to say how good or satisfied you have felt about various aspects of your life over the over the **last two weeks**.

		Very dissatisfied	Fairly dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
16	How satisfied are you with your sleep?	1	2	3	4	5
17	How satisfied are you with your ability to perform your daily living activities?	1	2	3	4	5
18	How satisfied are you with your capacity for work	1	2	3	4	5
19	How satisfied are you with yourself?	1	2	3	4	5
20	How satisfied are you with your personal relationships?	1	2	3	4	5
21	How satisfied are you with your sex life?	1	2	3	4	5

22	How satisfied are you with the support you get from your friends?	1	2	3	4	5
23	How satisfied are you with the conditions of your living place?	1	2	3	4	5
24	How satisfied are you with your access to health services?	1	2	3	4	5
25	How satisfied are you with your transport?	1	2	3	4	5

The following question refers to **how often** you have felt or experienced certain things in the last two weeks.

		Never	Infrequently	Sometimes	Frequently	Always
26	How often do you have negative feelings such as blue mood, despair, anxiety or depression?	1	2	3	4	5

ANNEX C

INFORMATION LEAFLET (IN MACEDONIAN)

Наслов:	Влијанието на пандемијата COVID-19 врз менталното здравје на семејствата во Северна Македонија
Главен истражувач:	Доц. Д-р Стојан Бајрактаров, ЈЗУ УК за Психијатрија - Скопје
Етичко одобрение:	Етичка комисија, Медицински факултет, Универзитет „св Кирил и Методиј“ Скопје
Спонзор:	УНИЦЕФ

Поканети сте да учествувате во истражување за влијанието на пандемијата со COVID-19 врз менталното здравје на семејствата во Северна Македонија. Ве молиме одвојте време да ги прочитате информациите од овој документ. Доколку некој термин не ви е јасен, ве молиме обратете се до истражувачот кој ви го подели овој информативен документ.

Која е целта на истражувањето?

Истражувањето има за цел да дознае повеќе за менталното здравје на адолесцентите и нивните родители во врска со пандемијата со COVID-19. Преку собраните податоци очекуваме повеќе да дознаеме за менталното здравје и влијателните фактори на семејствата во Северна Македонија поврзани со пандемијата со COVID-19.

Кој може да учествува во истражувањето?

Во истражувањето може да учествуваат млади на возраст од 12-18 години, заедно со еден нивен полнолетен родител/ старател (18 години и повеќе). Потребно е младото лице и родителот/ старателот да живеат во исто домаќинство, да имаат пристап до телефон и да дадат согласност за учество. Во истражувањето се очекува да учествуваат над 636 млади и нивните родители/ старатели од повеќе градови/ региони во Северна Македонија. Младите и нивните родители/ старатели ќе бидат контактирани преку основните и средни училишта во државата.

Што се очекува од мене во ова истражување?

Доколку земете учество во истражувањето, ќе ви биде доставен формулар со прашања кој се очекува да го пополните на само и да го вратите назад кај истражувачот. Ќе ви бидат поставени прашања поврзани со вашата позадина, живот, искуства и односи со членови на семејството во последниот период. На поставените прашања се очекува да ги одберете одговорите кои најдобро ве опишуваат.

Колку време ќе ми биде потребно во ова истражување?

За пополнување на целосниот формулар со прашања ќе би требаат околу 20 минути. Со пополнување на формуларот и негово враќање на истражувачот, вашиот придонес кон истражувањето завршува.

Кој ќе ги види информациите што ќе ги споделам?

Вашите споделени информации ќе бидат анонимни. Ние ќе ги зачуваме сите формулари на безбедно место и во компјутерска датотека. Само истражувачкиот тим ќе има пристап до овие материјали. Вашето име и вашите лични податоци нема да бидат наведени на ниту едно место на формуларите. Вашиот пополнет формулар ќе има идентификациски код, кој нема да биде поврзан со вашето име или други лични информации. Добиените информации ќе бидат комбинирани со другите семејства и вашиот формулар нема да биде разгледуван индивидуално.

Што ќе се случува со информациите што ќе ги споделам?

Податоците што ќе се добијат од истражувањето ќе бидат објавени во научни списанија или ќе бидат презентирани на научни собири. Никогаш нема да бидат споделени ваши информации кои би го откриле вашиот идентитет без ваша согласност.

Што се случува доколку одлучам да не учествувам?

Вие може да одлучите да го прекинете вашето учество во секое време, без да понудите било какво образложение. Ваквата одлука ќе нема никакви последици врз вас или вашето семејство. Истражувачот навремено ќе сподели нови потенцијални информации, кои може да влијаат на вашиот интерес за продолжување со истражувањето. Ве молиме известете го истражувачот во случај да одлучите да го прекинете вашето учество.

Дали ќе имам некаква придобивка од моето учество?

Вие можеби нема да имате лична придобивка од учеството, но може да придонесете кон информации за менталното здравје на семејствата во државата и со тоа да ги подобрите услугите што ќе произлезат од сознанијата на истражувањето.

Дали ќе бидам изложен на некој ризик со моето учество?

Ризиците од оваа студија не се поголеми од она што се случува во вашиот секојдневен живот. Истражувањето нема да користи интервенции кои би наштетиле на вашето здравје. Исто така, не очекуваме дека вашето учество би довело до други законски или неформални ризици. Во случај на соочување со евентуален проблем за време на вашето учество, ќе биде обезбедена можност да се обратите за натамошна помош или советување. Во овој документ се наведени и дополнителни информации за контакт во случај на потреба.

Дали имам некои финансиски обврски или надоместоци за моето учество?

Истражувањето е бесплатно и немате никакви финансиски обврски поврзани со вашето учество. Исто така, не се предвидени финансиски надоместоци за вашето учество.

Со кој можам да стапам во контакт во случај на прашања поврзани со моето учество?

За време на траењето на истражувањето, во случај да имате прашања поврзани со истражувањето, вашите права или имате дополнителни потреби, ве молиме обратете се до одговорното лице:

Одговорен истражувач: Доц. Д-р. Стојан Бајрактаров

Телефонски број: 070 275 306

Е-пошта: stojan.bajraktarov@gmail.com

Што треба да направам доколку сакам да учествувам во истражувањето?

- Потпишете го формуларот за согласност.
- Можете да почекате 3 дена за да одлучите дали сакате да учествувате.

Дополнителни телефонски броеви за итни случаи:

Брза помош: **194**

Полиција: **192**

Линија за жртви на семејно насилство: **141 700**

Линија за жени и деца жртви на семејно насилство: **02 15 700**

Линија за бесплатна правна помош на деца и млади: **0800 12222**

Линија за помош од трговија со луѓе: **0800 11111**

УНИЦЕФ бесплатна линија за родители: **075 230 530**

INFORMED CONSENT FORMS (IN MACEDONIAN)

Согласувајќи се со условите на студијата, изјавувам дека:

- Јас разбираам дека учеството во ова истражување е доброволно.
- Некој од тимот разговараше со мене околу информациите од овој документ и одговори на моите прашања.
- Јас разбираам дека информациите кои ги давам (без личните податоци) може да бидат комбинирани со искуствата на други семејства од државата.
- Јас се согласувам да учествувам во истражувањето.

Јас знам дека:

- Јас можам да се откажам во било кој дел од истражувањето без последици.
- Јас можам да се јавам до одговорното контакт лице (Доц. Д-р Стојан Бајрактаров, тел. 070 275 306) доколку имам прашања за истражувањето, моите права или доколку имам дополнителна потреба поврзана со истражувањето.

Дата (ден/месец/година):

Име и потпис на истражувач (кој го приложува документот):

Потпис на учесникот:

За истражувачот:

Да, лицето се согласува за учество

Не, лицето не се согласува за учество

Копија од Информираната согласност му е дадена на учесникот.

Родител/ старател на адолесцент на возраст од 12-13 години

Согласувајќи се со условите на студијата, изјавувам дека:

- Јас разбираам дека учеството во ова истражување е доброволно.
- Некој од тимот разговараше со мене околу информациите од овој документ и одговори на моите прашања.
- Јас разбираам дека информациите кои моето дете ги дава (без личните податоци) може да бидат комбинирани со искуствата на други семејства од државата.
- Јас се согласувам моето дете (возраст 12-13 години) да учествува во истражувањето.

Јас знам дека:

- Моето дете може да се откаже во било кој дел од истражувањето без последици.
- Јас можам да се јавам до одговорното контакт лице (Доц. Д-р Стојан Бајрактаров, тел. 070 275 306) доколку имам прашања за истражувањето, моите права, правата на моето дете или доколку имам дополнителна потреба поврзана со истражувањето.

Дата (ден/месец/година):

Име и потпис на истражувач (кој го приложува документот):

Потпис на родител/ старател:

За истражувачот:

Да, лицето се согласува за учество

Не, лицето не се согласува за учество

*Копија од Информираната согласност му е дадена на родителот/
старателот.*

ANNEX D

TERMS OF REFERENCE (TOR) ADVISORY BOARD

ROLE OF THE BOARD

The Advisory Board will provide critical oversight and advice to the researchers across the study. The group will offer guidance and recommendations on research practices, resources, duties, priorities, communication, recording and reporting of suspected adverse events, data handling, and record keeping.

More specifically, the board will be responsible for the following tasks:

- Advise the overall conduct and progress of the research
- Advise the development of research questions, methods, findings and outputs
- Provide oversight of data quality
- Advise on ethics issues
- Ensuring the confidentiality of information shared within meetings
- Advise on data handling and record keeping
- Advise on recording and reporting of suspected adverse events

MEMBERSHIP

- The board will consist of 3 members with a minimum of a Masters degree
- Membership will include academics and practitioners with research and educational interests in the topics being investigated for the project
- It is anticipated that membership of the group will last for the duration of the research project

MEETINGS

- The group will meet on a biweekly basis throughout the course of the project for 2 hours per meeting
- Meetings will be held at the University Clinic of Psychiatry – Skopje
- Communication throughout the project can be done email, phone and Internet

ANNEX E

TERMS OF REFERENCE (TOR) PEER REVIEW BOARD

ROLE OF THE BOARD

The process of peer review consists of a system of expert review of scientific work by peers. The Peer Review Board will offer peer reviews of the draft report. They will provide constructive feedback and provide guidance for improvement of the final report from the research and scientific writing perspective.

More specifically, the board will be responsible for the following tasks:

- To be a consultative resource for the research team
- To ensure high research and writing quality
- To offer expert review of the scientific/ research-related work
- To provide feedback and suggestions for improvement of the report

MEMBERSHIP

- The board will consist of 3 members with a minimum of a Masters degree
- Members should be able to demonstrate relevant experience and competence in publishing scientific research in the topics being investigated for the project
- It is anticipated that membership of the group will last for the duration of the research project

MEETINGS

- The group will meet from the development of the first draft of the report
- Meetings will be held at the University Clinic of Psychiatry – Skopje
- Communication throughout the project can be done email, phone and Internet