Adaptations by Polish secondary school students to Covid-19 restrictions imposed on education participation

Grzegorz Godawa, Ewa Gurba
The Pontifical University of John Paul II in Kracow, Poland
Alicja Senejko
University of Wrocław, Poland

The emergence of the pandemic has disrupted the functioning of societies and individuals, putting health and lives at risk. The pandemic also had an impact on adolescents for whom social isolation, the change in the form of education from face-to-face to remote, and the difficulties arising from developmental changes became stress factors. Functioning in such a difficult situation required the implementation of adaptive measures by secondary school students. The aim of this study was to identify the coping strategies used by secondary school students, and the relationship between reactions to pandemic-related stressful life events with such factors as personality traits, level of stress and types of threats related to Covid-19. The study showed that adolescents coped with the pandemic situation with the most frequently used strategies being planful problem solving, escape-avoidance and seeking social support. Empirically identified strategies used by young people constituted a system of logically and functionally interrelated factors. The findings of the study described provided a basis for presenting practical guidelines for educational practice.

Introduction

There is no shortage of situations in young people's lives that can be defined as difficult (Tsekeris & Stylianoudi, 2017). They are triggered by numerous factors, e.g. social relations, economic conditions, career-related psychological stress, anxiety about finding a job and the necessity of functioning in a highly competitive environment (Bhargava & Trivedi, 2018). The list of factors is constantly being extended due to the changes and events taking place, including those of a global nature. One such item on the list is the Covid-19 pandemic, which was announced on 12 March 2020 by the World Health Organization (World Health Organization, 2020). The emergence of the pandemic has disrupted societies and individuals, posing a threat to health and life. The pandemic has also had an impact on adolescents, but the interest taken in their experiences and needs is insufficient (Townsend, 2020).

Meanwhile, although adolescents are not a high-risk group, they are experiencing the consequences of the impact of the pandemic to such an extent that they are referred to as the 'lockdown generation' (International Labour Organisation, 2020). This means that members of the group are characterised by attributes acquired in the course of their social isolation during which young people suddenly lost their daily routine of going to school, their social interactions and opportunities for physical activity, i.e. a lot of opportunities and activities that prior to the pandemic defined their areas of life and provided the meaning of their lives. Functioning under pandemic circumstances may also be characterised by positive changes of educational significance that occur in adolescents.

They depend to a large extent on young people's adaptability and the conditions in which such adaptation takes place.

Covid-19 pandemic as a difficult situation for young people

Adolescence is a time of shaping new achievements and potential but also, like any period of transition, it marks an exacerbation of various difficulties and challenges faced by developing teenagers. It begins with intensive biological changes related to reaching sexual maturity accompanied, sometimes with a delay, by developmental changes impacting the psyche. Hormonal changes constituting the basis of biological maturation favour the intensification of adolescents' sensitivity to both positive and negative stimuli (Ponczek & Olszowy, 2012). In the former case this may foster an idealistic attitude to reality. while in difficult situations it may lead to an excessive intensification of the stress being experienced. A growing biological resemblance to adults arouses adolescents' aspirations to obtain more freedom in everyday activities, and to be treated as partners by parents (Oleszkowicz, 2006).

Adolescents who demand autonomy from their parents in various spheres of activity often feel at the same time that they are misunderstood by them (Savin-Williams & Small, 1986; Steinberg, 1987), which is one of the causes of the loneliness that they may experience. The autonomy gained creates favourable circumstances for adolescents to explore new aspects of life, but it can also turn out to be a threat when they engage in risky behaviour while seeking novelty and experimenting with life. Mastering new cognitive tools (formal-operational thinking) on the one hand allows for a deeper reflection on one's own life and provides new opportunities to learn about different dimensions of the surrounding reality, and on the other hand, leads to increased criticism and opposition to this reality and the current authority figures (Larson, Richards et al., 1996; Steinberg, 2005).

The situations experienced by adolescents during the pandemic are associated with the impact of stress. Psychological stress can be understood in different ways. It is sometimes identified with a situation or stimulus with specific properties (Holmes & Rahe, 1967; Janis, 1958). Stress can also be referred to human reactions (Cannon, 1928; Selye, 1956; Szabo, 2017). Most commonly, stress is defined with regard to a specific relation between external factors and human characteristics. Richard Lazarus and Susan Folkman understand stress as 'a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being' (Lazarus & Folkman, 1984, p. 19).

Contextual understanding of stress involves a transactional approach to the relation between the person and the environment, based on which primary and secondary evaluations of such a relation are made. This provides the basis for activity aimed at changing the transaction, i.e. coping, also based on giving a difficult, threatening situation a positive meaning, making it a base for development (Folkman, 2010). Stevan E. Hobfoll (1989), on the other hand, proposed a model of collective stress, which he defined as a

reaction to the environment where both the perceived and the actual loss or lack of gain are sufficient to cause stress. The more resources an individual has, the less vulnerable they are to losing them (Hobfoll, 1989). At the same time, they are more likely to trigger a gain spiral even under extreme stress (Kaczmarska & Cury o-Sikor, 2016).

The category of extreme stress is also related to the concept of trauma. It is thought to be associated with critical life events that disturb the foundations of personal and social life, and are usually beyond the individual's control. Typical potential traumatic events include threats to an individual's life and health, accidents, disasters, etc. The current pandemic therefore falls into this category. As a result of it, one can expect a reduced concern for the satisfaction of the higher-order needs and a greater focus on the basic needs (Courtney, Watson & Battaglia, 2020). The outbreak of the pandemic, the social isolation, sudden interruptions in schooling and confinement to the home, extensive use of the Internet and social media can all have multiple consequences for adolescents' lives, causing chronic and acute stress, anxiety about the family, unexpected bereavement, fear for the economic future of the family and the country (Guessoum, 2020; Blackley et al., 2021). As a matter of fact, adolescents in the situation of the Covid-19 pandemic may be subject to potential traumatic events stemming not only from the external social and medical circumstances accompanying the course of the pandemic in the world and in Poland but also from 'identity confusion' to which they are subject, due to normative developmental processes (Erikson, 1968; Senejko, 2020).

Adolescents' stress in the pandemic: A review of research

The issue of the psychological consequences of young people's functioning during the pandemic has also been reflected in research. Results of research on adolescents' reactions during the initial phase of the pandemic were presented by Leilei Liang et al. (2020). It was carried out in China, shortly after the outbreak of coronavirus. They showed that about 40% of respondents reported psychological problems and 14.4% reported PTSD symptoms. The research also revealed negative coping strategies. This is supported by a Chinese study by Caiyun Zhang et al. who highlighted the importance of positive coping strategies and *resilience* as protective factors (Zhang et al., 2020).

Max Margolius et al. (2020) conducted a national study with adolescents in the United States. The findings show that adolescents experience collective trauma and need support with regard to meeting their basic needs, physical and mental health, and learning opportunities (Margolius et al., 2020). Eric A. Waselewski and his team conducted a qualitative study concerning American adolescents' needs and coping strategies during the pandemic. The study showed that a significant proportion of respondents experienced a deficit in meeting their needs and a negative impact of the pandemic on their mental health (Waselewski et al., 2020). Omar Al Omari et al. conducted an international comparative study on stress, depression and anxiety which showed that the occurrence of the Covid-19 pandemic had no significant impact on this triad. But it is important to note that the project was conducted during the initial phase of the pandemic (Al Omari et al., 2020).

The correlation between adolescent stress and increased depression and feelings of loneliness in the context of social media use and family ties, was the main objective of a study by Ellis, Dumas and Forbes (2020) The study revealed that time spent with family and virtually with friends reduces loneliness and depression. In contrast, time devoted to interacting via social media is associated with an increase in depression while time spent directly with family is a factor protecting against it (Ellis et al., 2020). Strategies for coping with the pandemic were indicated in the study by Lilly Shanahan et al. (2020) who highlighted the importance of maintaining a daily routine, engaging in physical activity, positive re-evaluation and other strategies employed (Shanahan et al., 2020). An analysis of the situation of Polish adolescents was conducted by Grzelak et al. who compiled a research report emphasising, inter alia, the positive changes that occurred during the pandemic in the personal and family lives of their respondents (Grzelak et al., 2020).

A brief review of research on the functioning of adolescents during the COVID-19 pandemic indicates the need for further research to deepen the understanding of the difficulties experienced by young people and to identify the coping strategies they use. This will make it possible to provide suggestions for education aimed at strengthening adolescents' resources during subsequent stages of the pandemic as well as other difficult situations they may encounter in life.

Method

Participants

The study involved 406 secondary-school students aged between 14 and 20, of whom 59% were women and 41% men; the average age was 17 years. The participants were pupils of five secondary schools in Krakow; 59% of them live in a big city and 41% in a small town and in the countryside. Of all the respondents, 81% live in couple families, 11% live with their mothers, and the remaining 8% live either with their fathers, grandparents, siblings, or alternately with their mothers and fathers.

Research procedure and research questions

The survey was conducted in April 2020 when the entire Polish society was in compulsory quarantine and lessons went online. An electronic questionnaire for completion was posted on the websites of five of Krakow's secondary schools with the consent of the heads of these schools. The heads had appropriate authorisations from the parents for their children to participate in the study. The survey form was accessible to the pupils for three weeks. Participation in the study was voluntary and fully anonymous. Ethical approval was obtained from the Ethics Committee of the Pontifical University of John Paul II.

As the survey was a pilot one, only two basic research questions were formulated, while hypotheses related to the aforementioned questions were not formulated. The research questions concerned the following issues:

1. What coping strategies did the adolescents in the survey use?
2. What are the relationships between responses to the pandemic-related stressful life events with factors such as personality traits, level of stress and types of COVID-19-related threats?

Research tools

The following research tools were used in the study.

The short IPIP-BFM-20 questionnaire for measuring the Big Five
This is an abbreviated Polish version of Goldberg's IPIP-BFM-50 (Donnellan et al., 2006), used here to measure young people's personality traits. The authors of the Polish version of the questionnaire are Topolewska, Skimina, Strus, Cieciuch and Rowi ski (2014). IPIP-BFM-20 estimates the following personality traits: *extraversion, agreeableness, conscientiousness, emotional stability* and *intellect. Extraversion* describes the level of activity, energy and sociability and social assertiveness. *Agreeableness* expresses a positive attitude towards people, and *conscientiousness,* the level of organisation and reliability in achieving goals and tasks as well as propensity for orderliness and dutifulness. *Emotional stability* defines the level of excitability and emotional balance, emotional resilience and tolerance to frustration. *Intellect* describes intellectual openness, creativity and imagination. The questionnaire contains 20 statements where the respondents specify their level of agreement or disagreement on a 5-point Likert scale (1 – strongly disagree; 5 – strongly disagree). Reliability as measured by Cronbach's alpha for the individual personality traits was as follows: extraversion, Cronbach's α = 0.84; intellect, Cronbach's α = 0.66; emotional stability, Cronbach's α = 0.80; conscientiousness, Cronbach's α = 0.72; agreeableness, Cronbach's α = 0.70.

Sample items for the short IPIP-BFM-20s:
Have a vivid imagination; Get upset easily; Have difficulty understanding abstract ideas.

Perceived Stress Scale (PSS-10)
This was developed by Cohen, Kamack and Mermelstein (1983) and adapted by Juszczy ski and Ogi ska-Bulik (2009), to measure the level of stress. The PSS-10 is used to measure the intensity of stress related to one's own life situation over the past month. It contains 10 questions on various subjective feelings related to personal problems and events, behaviours and ways of coping. Respondents give their answers by entering the appropriate number (0 - never; 1 - almost never; 2 - sometimes; 3 -fairly often; 4 - very often). The overall index, once converted into standardised units, is subject to interpretation according to the properties characterising sten scores. For PSS, Cronbach's α = 0.89.

Sample items for PSS-10: In the last month, how often have you felt that you were unable to control the important things in your life? In the last month, how often have you felt confident about your ability to handle your personal problems? In the last month, how often have you found that you could not cope with all the things that you had to do?

Questionnaire on Types of Covid-19-related Threats (KRZC)
Developed by Ewa Gurba, Grzegorz Godawa and Alicja Senejko, this comprises two parts. The first part consists of 15 items describing some pandemic-related situations that might be perceived as potentially threatening by adolescents. The respondents rated the items on a 5-point scale (1- not at all troublesome; 2 - troublesome to a small degree; 3 - troublesome to a moderate degree; 4 - troublesome to a large degree; 5 - troublesome to a very large degree) to indicate the extent to which each of the situations described, related to the Covid-19 pandemic, was troublesome and threatening to them. Using an exploratory principal components factor analysis (PCA) conducted on 15 items, three factors (five items per factor) were extracted as types (categories) of pandemic-related threats: 1. threats to life (TL); 2. family threats (FT); and 3. threats to lifestyle (TLS). The reliability of this part of the questionnaire was also calculated, which was satisfactory (FT: Cronbach's alpha = 0.79; TL: Cronbach's alpha = 0.80; TLS: Cronbach's alpha = 0.78). Items from the first part of KRZC are included in the Appendix. The KRZC questionnaire included in its second part an open-ended question, 'What are your ways of coping with the COVID-19 situation?' Answers in the form of free narratives were provided by 320 respondents.

Analysis of the research material

Before proceeding to the statistical processing of the research results, the respondents' answers to the statements/questions in the individual questionnaires were estimated according to the empirical indicators, i.e. the keys in the case of questionnaires for which there were psychometric studies of their reliability and accuracy (IPIP-BFM-20, PSS and the first part of the KRZC).

An empirical analysis of the free narratives provided by 320 respondents (second part of the KRZC) was carried out based on the theoretical criteria for the division of ways of coping with the Covid-19 situation developed using the model of coping strategies by Lazarus and Folkman, Dunkel-Schetter and others (Lazarus & Folkman, 1984; Lazarus, 1966). These authors distinguished 8 specific coping strategies. These were: *confrontation* (struggling with adversity to satisfy one's needs, lack of acceptance of the situation and rebelling); *planful problem solving* (a plan of action in response to the stressful situation or event and specific actions); *distancing* (cognitive and behavioural activities focused on pushing the troubles away, avoiding thinking about them); *escape-avoidance* (blocking information about the stressful situation, escaping into a fantasy world, attempting to wait out the problems, engaging in alternative activities); *positive reappraisal* (cognitive attenuation of the stressfulness of the situation); *self-blame* (self-criticism and self-aggression); *self-controlling* (suppression or attenuation of negative emotions); *seeking social support* (seeking help and/or sympathy from other people, the environment or institutions).

For the respondents' answers to the open-ended question in the second part of the KRZC, the empirical indicators were the specific contents of the narratives illustrating the aforementioned theoretical categories of coping strategies. The assignment of the respondents' narratives to the individual Lazarusian categories of coping strategies was

made by three specialists through a joint discussion of the narratives; those that the classifiers had no doubts about were included in the final analyses.

The most frequent typical narratives for each category were the following:

- Confrontation   This is a blatant suppression of freedom;
                       I try to keep up with the lessons although it is quite difficult.

- Planful problem   Using as much time as possible to prepare for the school-leaving exams;
  solving   I don't go out.

- Distancing   I am trying to live a normal life;
                       I listen to music, watch films and series.

- Escape-   It is a time of hibernation for me;
  avoidance   I keep doing things so as not to think about this situation.

- Positive   I have the feeling that it does not concern me and that it will be fine;
  reappraisal   Being isolated from people is like a holiday for me.

- Self-controlling   Strict personal hygiene and isolation;
                       I created a routine for myself and set a training goal for this quarantine.

- Seeking social   I keep in touch with friends through various instant messengers;
  support   I help take care of my siblings and try to help my parents.

Results

Basic numerical and percentage statistics were developed (Table 1) for the coping strategies ordered and emerged, as described above.

Table 1: Characteristics of the specific detailed strategies
(number of selections and percentages) (N=956)

Strategy	No. of selections	Percentage
Confrontation	50	5.2
Planful problem solving	247	**25.8**
Distancing	126	13.2
Escape-avoidance	158	**16.5**
Positive reappraisal	69	7.2
Self-blame	0	0.0
Self-controlling	142	14.9
Seeking social support	164	**17.2**

As shown in Table 1, the strategy of *planful problem solving* received the highest number of selections (25.8%). *Escape-avoidance* and *seeking social support* gained a similar number of choices (17.2%, 16.5%, respectively), while *confrontation* turned out to be the strategy least frequently chosen by the respondents (5.2%). Thus, there was a very wide dispersion in the frequency of strategy choices: *planful problem solving* and *confrontation*, both defined as

problem-focused in Lazarus and Folkman's model. Statistical analysis, however, did not show any occurrence of the strategy of *self-blame* (accepting responsibility) so this strategy was omitted from further analysis.

Correlations between coping strategies and between coping strategies and level of stress and personality traits

In the next step of the statistical analysis, correlations were calculated between the three most frequently manifested coping strategies and the other strategies, personality traits and the stress level experienced. For this purpose, due to the normal distribution of the results, parametric statistics were used, i.e. Pearson's correlation coefficients (r) (with a significance level of $p < 0.05$ for all the correlations referred to).

As it turned out, *planful problem solving* was positively correlated, with medium strength, with the *confrontation* strategy ($r = 0.41$) and weakly and positively with the personality trait of *emotional stability* ($r = 0.11$). *Planful problem solving* was negatively and with weak strength correlated with the *level of stress* ($r = -0.16$) and with the threat type factor of *threats to lifestyle* ($r = -0.13$).

Another of the coping strategies frequently manifested by adolescents, i.e. *seeking social support*, was positively correlated, with weak strength, with the personality traits *intellect* and *agreeableness* ($r = 0.12$ and $r = 0.20$, respectively). On the other hand, no significant correlations were found between the *escape-avoidance* strategy, which was indicated by the young people as frequently as the above-mentioned ones, and the variables considered.

Analysis of predictors of coping strategies: Regression analysis

In order to check which factors taken into account in the survey are predictors of the main three coping strategies in pandemic conditions employed by the adolescents surveyed, regression analysis was conducted. All personality traits (*extraversion*, *emotional stability*, *agreeableness*, *intellect*, and *conscientiousness*) were taken into consideration as potential predictors, i.e. explanatory variables, as well as the three types of pandemic-related threats (*family threats*, *threats to life*, *threats to lifestyle*) and the *level of stress*. The three most common coping strategies used by the young respondents (*planful problem solving*, *escape-avoidance*, and *seeking social support*) were used as explanatory variables while the remaining strategies were included as a set of predictors.

The results of regression analysis showed interesting significant relationships in models that fitted the data well.

Thus, for the *planful problem solving* strategy [$F(2,391)=7.28$; $p=0.0008$], the strongest predictors turned out to be the coping strategies *self-controlling* (beta=0.10; $p=0.00006$) and *level of stress* (beta=-0.16; $p=0.0012$). This means that the higher the *self-controlling* the respondent has and the lower the *level of stress* they experience, the higher is their capacity for *planful problem solving*. The model explained approximately 4% of the variation in the dependent variable ($R^2 = 0.036$).

The coping strategy *escape-avoidance* [$F_{(2,390)}$=14.90; p=0.0000001], on the other hand, is explained by two main predictors. These are the coping strategies *confrontation* (beta=0.19; p=0.0004) and *positive reappraisal* (beta=0.16; p=0.003). This means that people who are able to use the aforementioned strategies are more likely to use the *escape-avoidance* strategies. In this case, the model explained more than 10% of the variation in the dependent variable (R^2=0.102).

The model for the next strategy frequently used by the adolescents surveyed, i.e. *seeking social support* [$F_{(2,390)}$=15.15; p=0.0000001], also identified two main predictors, i.e. the coping strategy *distancing* (beta=0.23; p=0.00002) and the personality trait *agreeableness* (beta=0.18; p=0.0001). This means that adolescents characterised by higher rate of *agreeableness* and use strategies like *distancing* in the circumstances of pandemic threat are more likely to use a strategy like *seeking social support*. And in this case, the model explained more than 10% of the variation in the dependent variable (R^2 =0.104).

Discussion

The main value of the survey was the identification of defence strategies used by high school students in dealing with a pandemic situation. This situation was very difficult for most of them and generated threats to their health and even their own and their relatives' lives. It was precisely this issue that the first research question concerned. For young people, the *lockdown* is particularly burdensome (Ezpeleta et al, 2020; Singh et al, 2020; Guessoum et al., 2020). The reason is that adolescents had to cope with some additional stressors (Commodari & La Rosa, 2020; Ng et al., 2020), such as remote learning, the obligation to stay at home, difficulties staying in touch with peers and the lack of opportunities to freely enjoy the activities to which young people were accustomed, and which were a kind of ritual in their daily lives (walks, social gatherings, going to the cinema, attending discos, meetings in the pub, etc.).

As our study revealed, students cope with the pandemic situation using almost all of the strategies identified by Lazarus and Folkman (1984), except for the *self-blame* strategy. The absence of this strategy is not surprising given that the reasons for the difficult situation are beyond the control of the adolescents surveyed; hence, the consequences in the form of their own behaviours may be projected outside, e.g. onto the characteristics of the exceptional circumstances, and not attributed to oneself.

The results of our study show that the coping strategies that were most frequently used by the adolescents surveyed were effective in helping the majority adapt to the circumstances, regardless of whether these strategies were instrumental, task-focused, problem-focused, or emotion-focused, i.e. focused on regulating distressing emotions (Lazarus, 1966; Roberts & Lopez-Duran, 2019). As it turned out, more than one quarter of adolescents' all coping strategies were strategies referred to as *planful problem solving* which involved application of a plan of action to a stressful situation or event and activation of specific activities focused on achieving one's intentions (Lazarus, 1966). The pandemic situation and the necessity to learn online 'forced', as it were, young people to change their previous

plans and to develop new concepts of functioning, e.g. in terms of learning, keeping in touch with peers or daily regime, etc. (Shanahan et al., 2020).

The next two strategies, i.e. *escape-avoidance* and *seeking social support*, were used with similar considerable frequency in situations experienced as threats. The *escape-avoidance* strategy consisted mainly of escaping into a fantasy world and trying to wait out problems by, for example, engaging in substitute activities, which in the pandemic situation can also be conceived as adaptive activities (Roberts & Lopez-Duran, 2019). According to the respondents' statements, *seeking social support* was not limited to finding peace and comfort or spiritual encouragement through satisfying social relationships (with parents, siblings, friends, peers, pets, etc.). For the adolescents in the study, giving support to others was also important (Steinberg & Lerner, 2004; Somerville, 2013).

Apart from the above-mentioned three main strategies, the set of coping strategies also included others such as *distancing*, i.e. cognitive and behavioural activities focused on pushing away troubles and distancing from the situation. This coping strategy allowed young people to isolate themselves, at least temporarily, for example, from information about the epidemic that might cause unnecessary anxiety to grow even more. In consequence, such temporary isolation from information enabled relaxation and the feeling that there are some issues and aspects of life that are relatively 'uncontaminated' by the pandemic and can be enjoyed with pleasure. Among the coping strategies used also by Krakow's adolescents was *self-controlling*, which accounted for several per cent of adolescents' ways of coping with the pandemic situation. This strategy is mainly focused on suppressing or weakening negative emotions through conscious control activities. The set of coping strategies used by the adolescents to deal with the pandemic situation also included *positive reappraisal*, i.e. a cognitive strategy of reinterpreting the existing situation (here: the pandemic) so that it is experienced as less threatening. Teenagers' cognitive skills, especially the ability to think formally and operationally, are undoubtedly an aid to the successful implementation of this strategy (Young et al., 2019).

By contrast, the strategy referred to as *confrontation* was rarely used in the group of teenagers in the study. This strategy implies active struggle with adversity in order to satisfy one's needs, lack of acceptance of the situation and or even an attitude of rebellion. The fact that these strategies are not common in adolescents' defence repertoire is surprising, given that adolescent rebellion is a normative phenomenon strongly linked to adolescents' need for autonomy (Ganiron, Fajardo, Baniago & Barcelona, 2017). However, if we take into account the fact that opportunities to express defiance are limited during the pandemic due to the *lockdown*, the less frequent use of this strategy will be more understandable. It should also be added that *confrontation* is nevertheless an important predictor of several other coping strategies as we emphasise below in the regression analysis results.

The regression and correlation analyses provide an answer to the second research question. It concerned the relationships between reactions to pandemic-related, stressful life events and factors such as personality traits, level of stress and the types of Covid-19 threats. The regression analysis clearly indicates the existence of certain logical, functional

regularities in this regard. As it turned out, the most frequent predictors of individual coping strategies were other strategies, and among personality traits, the trait of *agreeableness* (Serebryakova et al., 2016; Garrido, 2018). The variable *level of stress* also proved to be significant.

Apart from this, complementary correlation calculations additionally confirmed the relationships between some strategies with *agreeableness* and *extraversion* as well as the *level of stress*, and also indicated their connections with *intellect*, *threats to lifestyle*, and *emotional stability*.

In our analysis, we limit ourselves to a broader discussion of the detected relations with regard to the main three coping strategies most frequently manifested by Polish young people under pandemic circumstances.

And so, for the strategy *seeking social support*, the predictors constituting this variable turned out to be strategies described as *distancing* as well as *agreeableness* and *intellect* as personality traits. Individuals who have a high level of *agreeableness* are usually characterised by a strong pro-social attitude, acquiescence, altruism, trust and collaboration (Costa & McCrae, 1992; Serebryakova et al., 2016; Garrido, 2018). Such individuals cope poorly with tensions, conflicts and rivalries, and therefore it can be predicted that they use the strategy of *seeking social support* in such situations. According to Lazarus's definition, this involves seeking and maintaining contacts that provide a sense of community and are a source of strength. As indicated in the earlier analysis, this strategy also includes seeking genuine help from others as well as drawing strength from the experiences of other people who found themselves in similar life situations.

In the study presented here, this strategy was represented by such behaviours declared by adolescents as seeking and strengthening contacts with family and friends, taking advantage of support and offering support to others. The strategy of *distancing* as a predictor of *seeking social support* means that pupils tried to reduce the number of aversive stimuli and the strength of engagement leading to excessive stimulation (Sladek, Doane, Luecken & Eisenberg, 2016). Passivity in this case is not due to the paralysing effect of anxiety but is the result of a conscious decision and allows one to maintain a sense of relative control over the situation, providing the opportunity to seek help from the circle of loved ones, especially those who are kind, empathetic and show interest. *Agreeableness* favours showing these people mutual help. Moreover, the frequency of use of the strategy *seeking social support* by the adolescents is positively correlated with the intensity of the personality trait *intellect*, which may additionally indicate the significant participation of cognitive processes in the use of this strategy by adolescents. These processes, which ensure mental openness, protect against excessive emotional involvement and help to search for help rationally.

The coping strategy *self-controlling* and the variable pupils' *levels of stress* predict the frequency with which pupils use the strategy referred to as *planful problem solving*. This strategy involves seeking a solution, developing a plan of action and implementing it consistently, based on relevant information about the situation and the possible courses of action

(Folkman et al., 1986). *Planful problem solving* is thus facilitated by the subject's self-awareness, knowledge of actions compliant with the applicable rules, the observance of which is facilitated by *self-controlling*. In the current study, the *planful problem solving* strategy included staying in isolation in compliance with the current regulations, adhering to other pandemic rules, engaging in school duties and household chores, and volunteering for those particularly vulnerable to the effects of the pandemic.

Planful problem solving was also positively correlated with the personality trait *emotional stability* and negatively with the variable *level of stress* and with one of the three threats estimated in the study, i.e. with *threats to lifestyle*. This means that *planful problem solving* was used by respondents especially when the perceived *level of stress* and of *threats to lifestyle* (related to the fact that the teenagers were no longer able to engage in the daily activities that are so important to them, like meeting friends, etc.) decreased and thus facilitated actions based on reasoning. Also *emotional stability*, which characterises people who are poised and calm, and effectively manage stress, contributed to this (Serebryakova et al., 2016; Garrido, 2018).

One of the components of the triad of coping strategies most commonly employed by the young people of Krakow and discussed herein is *escape-avoidance*. Its main predictors turned out to be the strategies of *confrontation* and *positive reappraisal*. The strategy being explained involves attempts to avoid the consequences of stressful events by running away from painful reality to the realm of dreams or by relieving internal stress by passively waiting for events to unfold (Lazarus & Folkman, 1984). The subject procrastinates over their own reactions and waits until there are signs that the circumstances are changing for the better. In the present study, manifestations of this strategy included withdrawal, helplessness, passivity, isolation, displacement or hyperactivity, listening to music and using stimulants, which made it possible to temporarily forget about what was happening around. This was especially fostered by *confrontation* and *positive reappraisal*. The critical judgement of the new reality (which is a symbolic form of confrontation) and, on the other hand, the need to redefine its meaning, may constitute the basis for the implementation of the strategy of *escape-avoidance*, which in the pandemic situation might take the form of at least a symbolic escape from the unaccepted situation and the use of activities that gave it a new, apparently positive, meaning.

Limitations of the study

The study had its limitations. These include the empirical and not questionnaire-based way of identifying coping strategies employed by the adolescents examined. Therefore, the survey being analysed can be treated as a pilot study. Another limitation of the study is that the study population was not randomly selected from the whole territory of Poland but was limited to one city; therefore, the results have limited generalisability to the whole age group.

Conclusions for education

During the Covid-19 pandemic adolescents played a significant role as backstage heroes. They were not included in the highest risk group; yet, they lived through a difficult time. The results obtained are significant not only in the dimension of identifying adolescents' ways of coping with the threats associated with the Covid-19 pandemic, but also have an applicable educational dimension. Referring the results of the study to the educational practice allows us to indicate the following proposals.

1. Secondary-school students have the ability to plan activities, so there is a need to increase the overall participation of young people in organising social life, also in difficult situations. The ability to adapt to new conditions indicates a high potential that can be used to cope with stressful situations. Therefore, adolescents should be allowed to work on tasks and in a planned manner. This is a hint to use methods of upbringing that strengthen and develop these action skills.

2. Young people use action strategies based on rational assumptions. They do not succumb to uncontrolled emotions when using cognitive processes to apply defence strategies. Therefore, young people should be heard in society. The voice of adolescents was missing from the social discussion in the first phase of the pandemic, and it seems that it is not properly heard even now.

3. Adolescents sometimes balance between using the strategies of *distancing* and *escape-avoidance*. The former strategy has a positive educational meaning and therefore it should be enhanced by indicating areas of activity which can provide young people with a break from difficult situations. In educational activities within the family and at school it is worthwhile to develop self-education and self-development as positive responses to stressful situations. This will contribute to the diminishing of the role of the *escape-avoidance* strategy and redefining it towards more space management, triggered by the need to distance oneself from difficult situations.

4. Teenagers seek support, especially from their loved ones, which is why it is important to expand and strengthen the network of these relationships. In the first place, this concerns family ties, whose durability and flexibility provided support to adolescents. Contact with relatives was often the only possible form of direct encounter with another person. Relationships outside of the family are also important, especially contacts maintained through social networking sites, which were even more important during the *lockdown*. This means that educators should pay even more attention to make sure that young people will be able to use the media in a way that protects them from all forms of abuse by other users of the virtual world. This is a call for reliable media education.

5. Adolescents are not only self-centred; they also think about others. Therefore, they need to be allowed to act for others by providing resources and indicating directions. It is important to care for the elderly, both within and outside the family. The interest of

adolescents in this social group is of great educational importance, increasing intergenerational integration and counteracting various forms of ageism, i.e. age discrimination.

References

Al Omari, O., Al Sabei, S., Al Rawajfah, O., Abu Sharour, L., Aljohani, K., Alomari, K., Shkman, L., Al Dameery, K., Saifan, A., Al Zubidi, B., Anwar, S. & Alhalaiqa, F. (2020). Prevalence and predictors of depression, anxiety, and stress among youth at the time of COVID-19: An online cross-sectional multicountry study. *Depression Research and Treatment*, 2020, article 8887727. https://doi.org/10.1155/2020/8887727

Bhargava, D. & Trivedi, H. (2018). A study of causes of stress and stress management among youth. *IRA International Journal of Management & Social Sciences*, 11(3), 108-117. https://doi.org/10.21013/jmss.v11.n3.p1

Blackley, S., Wilson, S., Sheffield, R., Murcia, K., Brown, P., Kok-Sing, T., Cooper, M. & Williams, J. (2021). How have Covid-19-related changes to tuition modes impacted face-to-face initial teacher education students? *Issues in Educational Research*, 31(2), 421-439. http://www.iier.org.au/iier31/blackley.pdf

Cannon, W. B. (1928). Neural organization for emotional expression. In M. L. Reymert (Ed.), *Feelings and emotions: The Wittenberg symposium*. Clark University Press, Worcester, MA (pp 257-269).

Cohen, S., Kamarck, T. & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24(4), 385-396. https://doi.org/10.2307/2136404

Commodari, E. & La Rosa, V. L. (2020). Adolescents in quarantine during COVID-19 pandemic in Italy: Perceived health risk, beliefs, psychological experiences and expectations for the future. *Frontiers in Psychology*, 11, article 559951. https://doi.org/10.3389/fpsyg.2020.559951

Costa, P. T. & *McCrae*, R. R. (*1992*). Normal personality assessment in clinical practice: The NEO Personality Inventory. *Psychological Assessment*, 4(1), 5-13. https://doi.org/10.1037/1040-3590.4.1.5

Courtney, D., Watson, P., Battaglia, M., Mulsant, B. H. & Szatmari, P. (2020). COVID-19 impacts on child and youth anxiety and depression: Challenges and opportunities. *The Canadian Journal of Psychiatry*, 65(10), 688-691. https://doi.org/10.1177/0706743720935646

Donnellan, M. B., Oswald, F. L., Baird, B. M., Lucas, R. E. (2006). The Mini-IPIP Scales: Tiny-yet-effective measures of the Big Five Factors of Personality. *Psychological Assessment*, 18(2), 192-203. https://doi.org/10.1037/1040-3590.18.2.192

Ellis, W. E., Dumas, T. M. & Forbes, L. M. (2020). Physically isolated but socially connected: Psychological adjustment and stress among adolescents during the initial COVID-19 crisis. *Canadian Journal of Behavioural Science*, 52(3), 177-187. https://doi.org/10.1037/cbs0000215

Erikson, E. H. (1968). *Identity, youth and crisis*. New York: W. W. Norton Company.

Ezpeleta, L., Navarro, J. B., de la Osa N., Trepat, E. & Penelo, E. (2020). Life conditions during COVID-19 lockdown and mental health in Spanish adolescents. *International Journal of Environmental Research and Public Health*, 17(19), 7327. https://doi.org/10.3390/ijerph17197327

Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A. & Gruen R. J. (1986). Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes.

Journal of Personality and Social Psychology, 50(5), 992-1003. https://doi.org/10.1037/0022-3514.50.5.992

Folkman, S. (2010). Stress, coping, and hope. *Psycho-Oncology*, 19(9), 901-908. https://doi.org/10.1002/pon.1836

Ganiron, T. S., Fajardo, P., Baniago, P. A. & Barcelona, M. (2017). Evaluating the factors affecting high school student rebellion. *World Scientific News*, 80, 158-176. http://www.worldscientificnews.com/wp-content/uploads/2017/07/WSN-80-2017-158-176.pdf

Garrido, S. (2018). The influence of personality and coping style on the affective outcomes of nostalgia: Is nostalgia a healthy coping mechanism or rumination? *Personality and Individual Differences*, 120, 259-264. https://doi.org/10.1016/j.paid.2016.07.021

Grzelak, S., Siellawa Kolbowska, E., uczka, M., Trafny, M. & Grzelak, A. (2020). *M odzie w czasie epidemii. Komu jest najtrudniej? [Youth during the epidemic. Who struggles most?]*. Instytut Profilaktyki Zintegrowanej. [part 1] https://www.ipzin.org/images/dokumenty/RAPORT_Modziez_w_czasie_epidemii_2020_IPZIN.pdf; [part 2] https://www.ipzin.org/images/dokumenty/RAPORT_Modziez_w_czasie_epidemii_Komu_jest_najtrudniej_2020_IPZIN_Czesc_2.pdf

Guessoum, S. B., Lachal, J., Radjack, R., Carretier, E., Minassian, S., Benoit, L. & Moro, M. R. (2020). Adolescent psychiatric disorders during the COVID-19 pandemic and lockdown. *Psychiatry Research*, 291, article 113264. https://doi.org/10.1016/j.psychres.2020.113264

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, 44(3), 513-524. https://doi.org/10.1037/0003-066X.44.3.513

Holmes, T. H & Rahe, R. H. (1967). The social readjustment rating scale. *Journal of Psychosomatic Research*, 11(2), 213-218. https://doi.org/10.1016/0022-3999(67)90010-4

International Labour Organization (2020). *Youth and COVID-19 in Poland: Impacts on jobs, education, rights and mental well-being*. https://www.ilo.org/budapest/whats-new/WCMS_753138/lang--en/index.htm

Janis, I. L. (1958). *Psychological stress*. New York: Wiley.

Juczy ski, Z. & Ogi ska-Bulik, N. (2009). *NPSR – Narz dzia Pomiaru Stresu i Radzenia Sobie ze Stresem [NPSR – Tools for measuring stress and for coping with stress]*. Warszawa: Pracownia Testów Psychologicznych. https://www.practest.com.pl/npsr-narz dzia-pomiaru-stresu-i-radzenia-sobie-ze-stresem

Kaczmarska, A. & Cury o-Sikora, P. (2016). Problematyka stresu – przegl d koncepcji [Stress issues – a concept overview]. *Hygeia Public Health*, 51(4), 317-321. http://www.h-ph.pl/pdf/hyg-2016/hyg-2016-4-317.pdf

Larson R. W., Richards, M. H., Moneta, G., Holmbeck, G. & Duckett, E. (1996). Changes in adolescents' daily interactions with their families from ages 10 to 18: Disengagement and transformation. *Developmental Psychology*, 32(4), 744-754. https://doi.org/10.1037/0012-1649.32.4.744

Lazarus, R. S. (1966). *Psychological stress and the coping process*. New York: McGraw Hill.

Lazarus, R. S. & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer Publishing Company.

Liang, L., Ren, H., Cao, R., Hu, Y., Qin, Z., Li, C. & Mei, S. (2020). The effect of COVID-19 on youth mental health. *Psychiatric Quarterly*, 91, 841-852. https://doi.org/10.1007/s11126-020-09744-3

Margolius, M., Doyle Lynch, A., Pufall Jones, E. & Hynes, M. (2020). *The state of young people during COVID-19: Findings from a nationally representative survey of high school youth*. America's

Promise Alliance.
https://www.americaspromise.org/sites/default/files/d8/YouthDuringCOVID_FINAL
%20%281%29.pdf [also https://eric.ed.gov/?id=ED606305]

Ng, K., Cooper, J., McHale, F., Clifford, J. & Woods, C. (2020). Barriers and facilitators to changes in adolescent physical activity during COVID-19. *BMJ Open Sport & Exercise Medicine*, 6(1), article e000919. https://doi.org/10.1136/bmjsem-2020-000919

Oleszkowicz, A. (2006). *Bunt młodzieńczy* [*Teenage rebellion*]. Warszawa: Scholar.

Ponczek D. & Olszowy I. (2012). Styl życia młodzieży i jego wpływ na zdrowie [The lifestyle of youth and its impact on health]. *Problemy Higieny i Epidemiologii*, 93(2), 260-268. http://www.phie.pl/pdf/phe-2012/phe-2012-2-260.pdf

Roberts, A. G. & Lopez-Duran, N. L. (2019). Developmental influences on stress response systems: Implications for psychopathology vulnerability in adolescence. *Comprehensive Psychiatry*, 88, 9-21. https://doi.org/10.1016/j.comppsych.2018.10.008

Savin-Williams, R. C. & Small, S. A. (1986). The timing of puberty and its relationship to adolescent and parent perceptions of family interactions. *Developmental Psychology, 22*(3), 342-347. https://doi.org/10.1037/0012-1649.22.3.342

Selye, H. (1956). *The stress of life*. New York: McGraw-Hill. [2nd ed.] https://www.mheducation.com.au/the-stress-of-life-9780070562127-aus

Senejko, A. & Czapiga, A. (2020). Oswojenie traumy odpowiedzią na wyzwania współczesności [Taming the trauma as a response to the challenges of today]. In A. Senejko & A. Czapiga (Eds.), *Oswojenie traumy: Przegląd zagadnień*. Kraków: Impuls (pp 7-19).

Serebryakova, T. A., Morozova, L. B., Kochneva, E. M., Zharova, D. V., Kostyleva, E. A. & Kolarkova, O. G. (2016). Emotional stability as a condition of students' adaptation to studying in a higher educational institution. *International Journal of Environmental & Science Education*, 11(15), 7486-7494. https://eric.ed.gov/?id=EJ1117402

Shanahan, L., Steinhoff, A., Bechtiger, L., Murray, A. L., Nivette, A., Hepp, U., Ribeaud, D. & Eisner, M. (2020). Emotional distress in young adults during the COVID-19 pandemic: Evidence of risk and resilience from a longitudinal cohort study. *Psychological Medicine*, 1-10. https://doi.org/10.1017/S003329172000241X

Singh, S., Roy, D., Sinha, K., Parveen, S., Sharma, G. & Joshi, G. (2020). Impact of COVID-19 and lockdown on mental health of children and adolescents: A narrative review with recommendations. *Psychiatry Research*, 293, article 113429. https://doi.org/10.1016/j.psychres.2020.113429

Sladek, M. R., Doane, L. D., Luecken, L. J. & Eisenberg, N. (2016). Perceived stress, coping, and cortisol reactivity in daily life: A study of adolescents during the first year of college. *Biological Psychology*, 117, 8-15. https://doi.org/10.1016/j.biopsycho.2016.02.003

Somerville, L. H. (2013). Special issue on the teenage brain: Sensitivity to social evaluation. *Current Directions in Psychological Science*, 22(2), 121-127. https://doi.org/10.1177/0963721413476512

Steinberg, L. D. (1987). The impact of puberty on family relations: Effect of pubertal status and pubertal timing. *Developmental Psychology*, 23(3), 451-460. https://doi.apa.org/doi/10.1037/0012-1649.23.3.451

Steinberg, L. & Lerner, R. M. (2004). The scientific study of adolescence: A brief history. *The Journal of Early Adolescence*, 24(1), 45-54. https://doi.org/10.1177/0272431603260879

Steinberg, L. D. (2005). Cognitive and affective development in adolescence. *Trends in Cognitive Sciences*, 9(2), 69-74. https://doi.org/10.1016/j.tics.2004.12.005

Szabo, S., Yoshida, M., Filakovszky, J. & Juhasz, G. (2017). "Stress" is 80 years old: From Hans Selye original paper in 1936 to recent advances in GI ulceration. *Current Pharmaceutical Design*, 23(27), 4029-4041. https://doi.org/10.2174/1381612823666170622110046

Topolewska, E., Skimina E., Strus, W., Cieciuch, J. & Rowiński T. (2014). Krótki kwestionariusz do pomiaru Wielkiej Piątki IPIP-BFM-20 [The short IPIP-BFM-20 questionnaire for measuring the Big Five]. *Roczniki Psychologiczne*, 17(2), 367-402. http://www.ipip.uksw.edu.pl/test.php?id=31

Townsend, E. (2020). Debate: The impact of school closures and lockdown on mental health in young people. *Child and Adolescent Mental Health*, 25(4), 265-266. https://doi.org/10.1111/camh.12428

Tsekeris, C. & Stylianoudi, L. (2017). Youngsters and adolescents in troubled contexts: Worldwide perspectives. *Contemporary Social Science*, 12(3-4), 165-174. https://doi.org/10.1080/21582041.2017.1386261

Waselewski, E. A., Waselewski, M. E. & Chang, T. (2020). Needs and coping behaviors of youth in the U.S. during COVID-19. *Journal of Adolescent Health*, 67(5), 649-652. https://doi.org/10.1016/j.jadohealth.2020.07.043

World Health Organization (2020). *WHO announces COVID-19 outbreak a pandemic.* World Health Organization, 12 March. https://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/news/news/2020/3/who-announces-covid-19-outbreak-a-pandemic

Young, K. S., Sandman, C. F. & Craske, M. G. (2019). Positive and negative emotion regulation in adolescence: Links to anxiety and depression. *Brain Sciences*, 9(4), article 76. https://doi.org/10.3390/brainsci9040076

Zhang, C., Ye, M., Fu, Y., Yang, M., Luo, F., Yuan, J. & Tao, Q. (2020). The psychological impact of the COVID-19 pandemic on teenagers in China. *Journal of Adolescent Health,* 67(6), 747-755. https://doi.org/10.1016/j.jadohealth.2020.08.026

Appendix

The Questionnaire on Types of Covid-19-related Threats (KRZC), the first part, developed by Ewa Gurba, Grzegorz Godawa and Alicja Senejko (English version).

On a scale of 1 to 5, mark the extent to which you are threatened by the Covid-19 situations listed below.

1 - they are not threatening at all;
2 - they are slightly threatening;
3 - they are moderately threatening;
4 - they are largely threatening;
5 - they are very threatening.

1. Limiting or breaking direct contacts with peers.
2. Inability to use various services (e.g. hairdresser, pizzeria).
3. Danger of contracting the coronavirus.
4. Density of people in the place of residence.
5. Loss or possibility of parents losing their job.

6. The necessity to change life plans.
7. Increased parental control through their constant presence.
8. Increased frequency of conflicts with siblings.
9. Inability to move freely.
10. Threat to health and life of relatives (parents, grandparents).
11. Increased number of conflicts with parents.
12. Feeling of loneliness in a lockdown situation.
13. A sense of threat to one's own life.
14. Anticipating that your financial situation will worsen.
15. Intensifying conflicts between parents.

Grzegorz Godawa (corresponding author) is an associate professor in the Insitute of Pedagogy and Family Studies, The Pontifical University of John Paul II in Kracow, Poland. He is interested in the axiological foundations of social life and education as well as in social support. He deals with education on various levels and areas of its implementation.
Email: grzegorz.godawa@upjp2.edu.pl

Ewa Gurba is an associate professor in the Department of Philosophy, The Pontifical University of John Paul II in Kracow, Poland. Her research interests include the development of adolescents and adults, relationships between parents and adolescents, processes to stimulate growth.
Email: gurbaewa@wp.pl

Alicja Senejko is an associate professor in the Institute of Psychology, University of Wrocław, Poland. She deals with the issues of development in adolescence, psychology of identity as well as psychological defence and its role in securing development. Recently, the subject of her research interest is issues of trauma and the possibility of post-traumatic growth.
Email: alicja.senejko@uwr.edu.pl