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Adolescents' Relational Resources and Health Risky Behaviours during the COVID-19 Pandemic: Online School Burnout and Psychological Well-Being as Mediators

Abstract

The study aimed to examine whether the students' psychological well-being and online school burnout are mediators in the association between relational resources and engaging in risky behaviour by adolescents. 186 primary and secondary school students took part in an online survey. Students' psychological well-being was a mediator in the association between relational resources and socially unacceptable stimulating behaviours, while e-learning burnout mediated the relationship between relational resources and health and life-threatening behaviours. The findings emphasise the critical role of strengthening the students' potential and stress resilience and building a support social network.

Keywords: *online school burnout, psychological well-being, risky behaviours, relational resources*

Introduction

The socio-psychological approaches to adolescent health-risky behaviours allow for getting a deeper insight into the aetiology and consequences of engaging young people in maladaptive activities. In Jessor's problem-behaviour theory (PMT), three major systems of explanatory variables are analysed: the perceived-environment system (i.e., the level of approval of risky behaviours,

support and control), the personality system (i.e., patterns of values, beliefs, attitudes, and expectations), and the behaviour system (problem and conventional behaviours presented by youth) (Jessor, 2014). Together, these influences constitute the current pathology in adolescent life and the potential future health and life-compromising outcomes (McKellar & Sillence, 2020). The Developmental Neuro-Ecological Risk-taking Model (DNERM) proposed the term “risk exposure” to describe the process within which the individual is physically or socially exposed to risk-conducive situations. Defoe (2021) posited that witnessing risky behaviours by others or engaging in these behaviours with others is a form of training ground for youth to adopt and accept it as normal. It directly suggests the crucial role of social bonds and support in preventing youth from risky behaviours. In addition, more evasive and anxious family relations and parental rejection increase maladjustment behaviours (Kohútová et al., 2021). It is worth noticing that the quality of youth relations with peers is considered a risk and protective factor. For example, witnessing other adolescents engage in risky behaviours directly (i.e., in person) or indirectly (online) is a social cue risk exposure because teenagers may start to “normalise” these antisocial behaviours (Defoe, 2021). Moreover, in a study by Kamper et al. (2013), poor quality of adolescents’ friendships mediated the relationship between relational aggression and risky behaviours. Accordingly, the increase in the adolescent’s life stress and failures may also boost the risk of behaviours that deviate from norms (Auerbach et al., 2012). Furthermore, in the PMD theory, social rejection, isolation, and alienation are some of the risk factors for engaging in risky behaviours (McKellar & Sillence, 2020). Satisfying and high-quality relationships with peers positively affect self-esteem, happiness, and life satisfaction and are considered protective factors against health-risky behaviours (Alsarrani et al., 2022). The specificity of social resources depletion during the COVID-19 pandemic also must be considered when analysing youth risky behaviours. Specifically, the increase in adolescents’ tendencies toward self-aggression (self-harm), drug overuse, and adjustment disorders were observed (Liu et al., 2020; Steinhoff et al., 2021). Therefore, this study aims to analyse adolescents’ risky behaviours in the context of school and personal resource depletion by considering ecological perspectives and social contexts.

Research Focus

A vast body of research has investigated the aetiology of adolescents’ risky behaviours, yet to our knowledge, little attention has been paid to student burn-out syndrome and psychological well-being. Moreover, despite the confirmed

interrelation between various types of resources, studies that investigated all of them are scarce. Furthermore, the current research contributes to the existing knowledge by examining the mediation effects of psychological (i.e., psychological well-being) and school-related resources (i.e., e-learning burnout) on the relationship between relational resources and different types of adolescents' risky behaviours during specific ecological context, i.e., global health threat – pandemic COVID-19. Five study hypotheses were formulated:

- H1. Poor relational resources are associated with the higher frequency of adolescents' health risky behaviours.
- H2. Poor relational resources are related to higher online school burnout and lower youth psychological well-being.
- H3. Higher psychological well-being and lower online school burnout are associated with fewer health-risky behaviours presented by adolescents.
- H4. Psychological, relational and school-related environmental resources depletion predict the adolescents' risky behaviours.
- H5. Online school burnout is a mediator in the relationship between relational resources and health-risky behaviours presented by young people.
- H6. Psychological well-being will mediate the relationship between relational resources and adolescents' health risky behaviours.

Research Methodology

Research Sample and Procedure

The data for this survey was collected online with Google Forms during the third wave of the COVID-19 pandemic in 2021. All consents to participate were obtained before the survey with teachers, parents and adolescents from 12 schools in different parts of Poland. 112 females (60%) and 74 males (40%), students of primary (grades 7-8) and high school (grades 1-3) participated in the survey. Of these 186 participants, full data with no missing responses to items related to the scales used in this study were obtained. The mean age of students was 15.93 ± 1.70 years. To reach a power of .95 in bivariate correlation analysis, at least 115 subjects are needed, 164 subjects for the linear multiple regression model with 3 variables (G*Power software), and 150 participants for the mediation model with one mediator (for conditions: (a) $r = 0.4$ between all tested variables) (Schoemann et al., 2017).

Instruments

The E-learning Student Burnout Scale (E-SBS) was developed by Tomaszek and Muchacka-Cymerman (2022). This 22-item questionnaire was designed with

five sub-dimension scores to assess all aspects of distance learning related to the depletion of educational resources. The scale focuses on chronic online learning stressors students faced in the e-school environment. The Cronbach's α was 0.89.

The Psychological Well-Being Scale (PBW)

The Ryff's Psychological Well-Being scale (PBW) was adapted by Karaś and Ciecuch (2017). The scale consists of 18 items to measure subjective well-being and happiness. The Cronbach's alpha was .81.

The health risky behaviours scale (ZR scale)

This scale consists with 31-items that allow for capturing the frequency of four types of risky behaviours, i.e., socially unacceptable behaviours (SUB), life-threatening behaviours (LTB), "Macho" risky behaviours (MRB), Extreme sports (ES) (Łosiak-Pilch, 2018). The Cronbach's α ranged from .63 to .94.

The short 3-item students' relational resources scale (3-item SRR scale)

The adolescents' relational resources were estimated by a short 3-item SRR scale that captures the quality of relationships with the 3 most important social micro-systems, i.e., parents, teachers and classmates. The Cronbach's α was .61, and McDonald's $\omega = .64$. Regarding the small number of items, this value is acceptable as, according to Taber (2018), it scores from .45-.60 indicate good reliability in short scales.

The students were also asked about online risky behaviours: the frequency of sending provocative sexual text messages (PSM).

Statistical Analysis

All analyses were performed using SPSS, version 22, with alpha levels set at $p < 0.05$. The results of the Shapiro-Wilk normality test suggested that all variables except "psychological well-being ($p = 0.200$)" were not normally distributed. However, the sample size over 100 allows the use of parametric statistics, e.g., Pearson's correlation coefficient (r), for bivariate correlation analysis to examine the associations between all examined psychological characteristics. The violation of normal distribution also does not interrupt the results of linear multiple regression, as past studies indicated that large samples are valid for any distribution (Lumley et al., 2002). Levene's test suggested homoscedasticity in almost all variables except psychological well-being ($p = 0.041$); online school burnout $p = .043$ and Macho behaviours, $p = .023$. Regarding this, it is worth mentioning that previous research involving simulations suggests that minor

violations of the homoscedasticity assumption are not a major cause for results to be distorted (Hayes, 2018). Thus, the HC3 Davidson-McKinnon heteroscedasticity-consistent standard error estimator was applied in mediation analysis for Model 4 in macro-PROCESS. The indirect effects were estimated using a bias-corrected bootstrapping method with 5,000 replications, in which 95% bootstrap confidence intervals are obtained (CI).

Research Results

Descriptive Statistics

Results indicated that PBW and RR were statistically significantly positively interrelated ($r = .48, p < .0001$). Moreover, both PBW and RR were significantly negatively associated with E-SBS ($r = -.26, p < .0001$) and LTB ($r = -.26, p < .0001$). A statically significant negative correlation was also found between PBW and SUB, and PSM (both $r = -.14, p < .05$). In addition, RR was significantly positively associated with ES ($r = .25, p < .05$). Each measure of four health risky behaviours and PSM were significantly positively interrelated (r ranged from .34 to .54, $p < .0001$).

Resources as predictors of adolescents' risky behaviours

Five regression models were tested to reveal which type of resource allows for predicting the frequency of risky behaviours among adolescents. The results for socially unacceptable risky behaviours (SUB) indicated a significant single effect on psychological well-being ($\beta = -.19, t = -2.20, p = .029$). The other in9 dependent variables were insignificant predictors (E-SBS, RR). However, total regression model was insignificant $F_{(3, 183)} = 1.80, p = .149, \text{Adj.R}^2 = .01$. The regression model for life-threatening risky behaviours (LTB) was significant ($F_{(3, 183)} = 8.71, p < .0001, \text{Adj.R}^2 = .11$). The online school burnout (E-SBS) significantly predicted dependent variable ($\beta = .19, t = 2.56, p = .011$). The significance of the regression coefficient of the other two independent variables was on the level of tendency (PBW: $\beta = -.14, t = -1.80, p = .073$; RR: $\beta = .15, t = -1.91, p = .058$). The regression model for extreme sports also was insignificant $F_{(3, 183)} = 2.11, p = .111, \text{Adj.R}^2 = .02$). However, the regression coefficient of relational resources was significant ($\beta = .20, t = 2.44, p = .016$). Both regression models which explained "Macho" risky behaviours and online risky behaviours were insignificant (MBR: $F_{(3, 183)} = 1.11, p = .346, \text{Adj.R}^2 = .002$; PSM: $F_{(3, 183)} = 1.80, p = .149, \text{Adj.R}^2 = .01$).

Mediation analysis

In model 1, RR was insignificantly associated with the dependent variable (SUB) (Step 1: total effect $B = .06$, $SE = .02$, $\beta = .02$, $t = .25$, $p = .807$) and positively related to both mediators (Step 2), i.e., PBW (path $a1$ $B = 3.16$, $SE = .57$, $\beta = .48$, $t = 5.53$, $p < .001$) and E-SBS (path $a2$ $B = -2.27$, $SE = .74$, $\beta = -.23$, $t = -3.06$, $p = .003$). Furthermore, only one mediator (PBW) positively predicted SUB with significance (Step 3: the direct effect c' $B = .33$, $SE = .36$, $t = .92$, $p = .358$, and the path $b1$ $B = -.08$, $SE = .04$, $t = -2.02$, $p = .045$, respectively). The bias-corrected bootstrapping method confirmed a significant negative indirect effect of RR on SUB through PBW. Statistics for the indirect effect were as follows: $a1*b1$ $B = -.09$, $BootSE = .04$, $95\%CI [-.19, -.02]$. Analysis for the second mediator was insignificant. The total indirect effect accounted for the overall model was 20%, which indicates that the mediation effect of PBW (an indicator of depletion in psychological resources) plays an important role in the examined association (see Fig. 1).

Model 2 examined the mediation effect for Life-threatening risky behaviours (LTB). As expected, RR significantly negatively exerted the dependent variable (LTB) (Step 1: total effect $B = -.92$, $SE = .31$, $\beta = -.26$, $t = -3.00$, $p = .003$). Moreover, only one mediator, i.e., online school burnout, was significantly positively related to LTB (Step 3) (the direct effect c' $B = -.53$, $SE = .36$, $t = -1.46$, $p = .147$, E-SBS: path $b2$ $B = .06$, $SE = .03$, $\beta = .18$, $t = 2.30$, $p = .022$, respectively). Judging by the effect of the bootstrap method, one significant mediation effect was confirmed ($a2*b2$ $B = -.04$, $BootSE = .02$, $95\%CI [-.09, -.01]$), namely the association between RR and LTB was fully mediated by E-SBS. The model explained 35% of the variances in LTB, which indicates a critical role of depletion in school-related environmental resources in the relationship between relational resources and life-threatening behaviours (see Fig. 2).

Findings from the mediation analysis for "Macho" risky behaviours (MRB) (Model 3) did not confirm any significant direct (Step 1: total effect $B = .22$, $SE = .19$, $\beta = .09$, $t = 1.14$, $p = .257$) or mediation effect (Step 3: the direct effect c' $B = .36$, $SE = .27$, $\beta = .14$, $t = 1.34$, $p = .181$; the total indirect effect: $B = -.06$, $BootSE = .04$, $95\%CI [-.15, .02]$). The model accounted for 14% of the variances in LTB, which may indicate that other aspects of students' functioning play a more important role in explaining the examined association.

Model 4 tested the mediation effect for engaging in extreme sports (ES). The model explained 19% of variances in ES. However, only the direct effect of independent variable (RR) and dependent variable (ES) was significant (Step 1:

total effect $B = .24$, $SE = .11$, $\beta = .20$, $t = 2.11$, $p = .037$). Both mediation effects were insignificant (Step 3: the direct effect $c' B = .32$, $SE = .16$, $\beta = .15$, $t = 2.08$, $p = .039$; the total indirect effect: $B = -.05$, $BootSE = .04$, $95\%CI [-.13,.03]$).

The last model examined mediation effects for online risky behaviours, namely sending provocative sexual text messages. The model explained 17% of variances in PSM. However, no direct effect (Step 1: total effect $B = -.07$, $SE = .04$, $\beta = -.13$, $t = -1.47$, $p = .144$) nor mediation effects were significant (Step 3: the direct effect $c' B = -.03$, $SE = .05$, $\beta = -.07$, $t = -.68$, $p = .496$; the total indirect effect: $B = -.04$, $BootSE = .03$, $95\%CI [-.10,.03]$).

Fig. 1. Mediation model for socially unacceptable behaviours

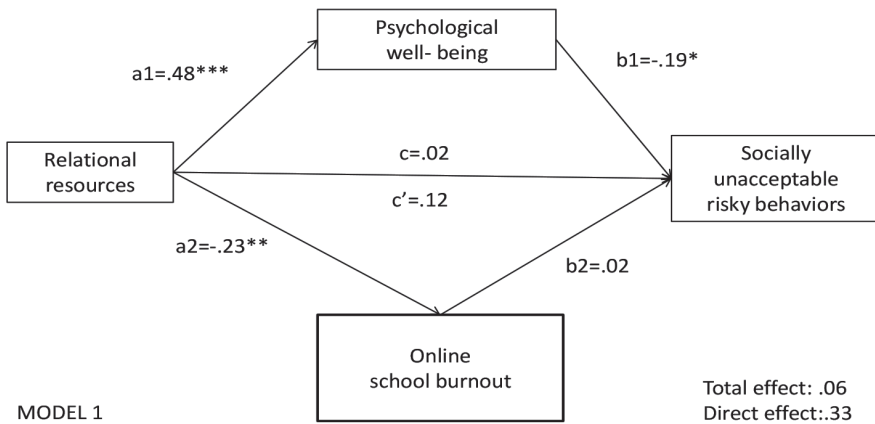
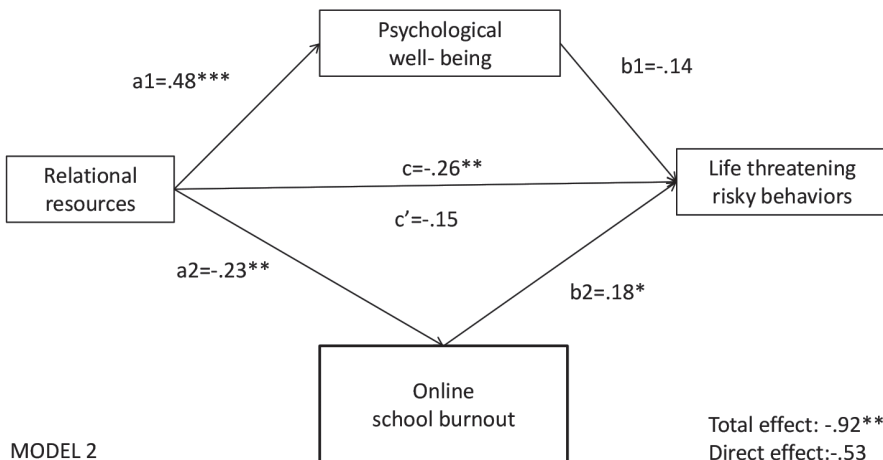


Fig. 2. Mediation model for life-threatening risky behaviours



Discussion

The results of the present research partially confirmed our study hypothesis. Poor quality of adolescents' social relationships with parents, teachers, and classmates was correlated with a higher frequency of life-threatening behaviours. However, relational resources were positively related to engaging in extreme sports and insignificantly associated with socially unacceptable behaviours and Macho-type risky behaviours. In addition, the findings revealed that poor relational resources were significantly related to higher online school burnout and lower youth psychological well-being (H2 was confirmed). Higher psychological well-being was significantly associated with fewer socially unacceptable behaviours, life-threatening behaviours, and online risky behaviours, while lower online school burnout correlated positively only with life-threatening behaviours (H3 was partially confirmed). Psychological resource depletion significantly predicted socially unacceptable behaviours, while school-related environmental resource depletion predicted life-threatening behaviours (H4). Unexpectedly, relational resources positively predicted engaging in extreme sports, while Macho-type risky behaviours and online risky behaviours were not significantly associated with any examined resources. Online school burnout mediated the relationship between relational resources and life-threatening risky behaviours (H5 was partially confirmed), while psychological well-being was a significant mediator of the association between relational resources and adolescents' socially unacceptable behaviours (H6 was partially confirmed).

The empirically confirmed interrelation between different types of resources supported socio-psychological Jessor's concept of linking multiple risk and protective factors of problematic behaviour. The key findings of the current research are that while one factor (poor relational resources) directly affects specific youth risk propensity, it also may be indirectly related to other types of risky behaviours via other resources (psychological well-being and school burnout). Therefore, it is important to divide the direct and indirect predictors of different types of risky behaviours. For this reason, the health-related interventions must include the specificity of the adolescent developmental stage and the type of risky behaviours. The findings also highlighted the role of parents and teachers in minimising health-risky behaviours. These results are consistent with the DNERM model, which posits that *changing* ecological factors interact with an individual's "self-control", which may escalate risky adolescent behaviours (De-foe, 2021). Accordingly, many parents during the COVID-19 pandemic were unable to be a source of support for their children, as they largely claimed that

financial problems were affecting their parenting skills (Imran et al., 2020). Therefore, adolescents should be provided with emotional and physical support by close relatives, but parents should also be provided with the knowledge and skills to help them cope with global threats, i.e., pandemic or war.

In summary, the current findings allow for formulating the following practical suggestions:

1. The interventions to reduce the prevalence of adolescent risky behaviours should include many aspects of their life, including the ecological context, e.g., the experience of the COVID-19 pandemic, family, and school-related environment. The quality of social resources examined in the current research concerned the direct relationships with parents and online (indirect) contacts with classmates and teachers. Thus, on the one hand, there is a need to develop programmes to eliminate online stressors by increasing the digital competence of students and reducing social, offline, and online stressors.
2. The low psychological well-being (PBW) was directly related to socially unacceptable behaviours, and it mediated the association between poor quality of social resources and this type of behaviours. Therefore, it is worth addressing intervention programmes aimed at improving the quality of relationships in the closest environment on the one hand and strengthening self-worth and positive goals and values in life, specifically to youths presenting this type of maladjustment. Accordingly, adolescent should be taught how to deal with difficult emotions, tension and social isolation by enhancing resilience (cognitive and affective self-control).
3. The effect of poor relational resources on life-threatening behaviours was mediated by high online student burnout. Hence, an increase in social isolation during the COVID-19 pandemic predicts an increase in risky behaviour via an e-school environment. These results are consistent with past studies in which loneliness had a significant effect on student burnout (Eris & Barut, 2020), which in turn predicts suicidal ideation (Dyrbye et al., 2008). Furthermore, our study aligns with the commonly accepted thesis that experiencing burnout by young people has severe adverse long-lasting outcomes. In this context, enabling adolescent mental health must include coordinated actions between professionals from different fields, i.e., mental health, upbringing, and school counselling. It is also crucial to equip young people with the necessary life skills necessary for social and emotional development (e.g., recognising and dealing with difficult emotions and burnout symptoms, having a reflective style of making life decisions, and communicating with others).

Research Limitations

It should be noted that this research project has several limitations. The research sample was relatively small, and the study design was cross-sectional. Thus, the generalisation of the results is limited. Considering the complexity of the studied phenomenon, it should be heightened that social resources were estimated in general, without dividing social bonds with peers, parents, and teachers.

Conclusions

The ecological approach to analysing adolescents' risky behaviours is highlighted in this study. Particularly, psychological well-being was associated with socially unacceptable behaviours, while e-learning burnout was associated with health and life-threatening behaviours. Additionally, relational resources were related to risky behaviours indirectly via the abovementioned characteristics. The findings provided valuable information that may serve as a guide in increasing the effectiveness of intervention programs and designing organisational policies tailored to the current needs of students during global crises (i.e., pandemics or wars).

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