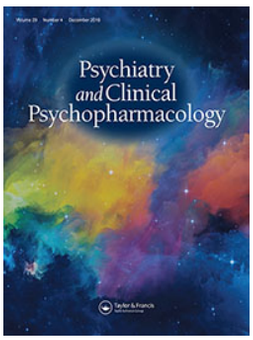

Psychiatry and Clinical Psychopharmacology

ISSN: 2475-0573 (Print) 2475-0581 (Online) Journal homepage: https://www.tandfonline.com/loi/tbcp21

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To cite this article: Necati Serkut Bulut, Gresa Çarkaxhiu Bulut, Neşe Yorguner Küpeli, Herdem Aslan Genç, İlter Aktaş, Vacide Yaşar, Mehmet Can Aktaş & Volkan Topçuoğlu (2019) Living in difficult conditions: an analysis of the factors associated with resilience in youth of a disadvantaged city, Psychiatry and Clinical Psychopharmacology, 29:4, 587-596, DOI: 10.1080/24750573.2018.1505281

To link to this article: https://doi.org/10.1080/24750573.2018.1505281

Published online: 03 Aug 2018.

PSYCHIATRY AND CLINICAL PSYCHOPHARMACOLOGY
2019, VOL. 29, NO. 4, 587–596
https://doi.org/10.1080/24750573.2018.1505281

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Living in difficult conditions: an analysis of the factors associated with resilience in youth of a disadvantaged city

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ABSTRACT

OBJECTIVE: Children and adolescents facing difficult life circumstances due to social, economic and cultural adversity, form a disadvantaged group in terms of social functioning and healthy psycho-social development. The goal of this study was to evaluate the psychological resilience of high school students in Muş City – which was ranked last in the general life index among 81 provinces according to 2015 data from the Turkish Statistical Institute – and to examine different dimensions of psychological resilience in relation to a variety of variables including adverse life events and demographic characteristics.

METHOD: The study sample consisted of 1025 students from the 10th and 11th grades of five different high schools operating in the city centre of Muş. Participants were asked to fill in a socio-demographic questionnaire, the List of Adverse Life Events and the 59-item Resilience and Youth Development Module (RYDM). A series of correlational and descriptive analyses were then performed.

RESULTS: Correlational analyses revealed that among the demographic factors, low economic status, a criminal record and poor academic performance were associated with poor psychological resilience, while among adverse life events, the deterioration of parental economic status, frequent arguments between parents as well as a history of mental illness and alcohol/substance abuse in the family were also linked to low levels of psychological resilience. It was also determined that girls had higher scores on internal assets of RYDM (empathy, problem solving, self efficacy, communication and cooperation, goals, self awareness and educational aspirations), while exposure to a larger number of adverse life events negatively affected internal resilience assets. Finally, trauma exposure, just as the low RYDM scores, seems to be associated with frequent arguments between parents, alcohol/substance abuse in the family, male gender and a criminal record. However, there was no significant relationship between psychological resilience and trauma alone.

CONCLUSION: Interventions to improve psychological resilience, which is a dynamic process, need to be comprehensive and multi-dimensional. In this context, it is crucial to elucidate the factors associated with the psychological resilience of children and adolescents exposed to a specific risk factor, such as adverse living conditions. In order to improve our understanding of psychological resilience and youth development in Turkey and to determine specific needs for interventions, future studies on various risk groups in different pilot cities – as in the example of Muş – are needed.

ARTICLE HISTORY
Received 18 March 2018
Accepted 24 July 2018

KEYWORDS
Resilience; adverse life events; adolescent; risk groups; trauma; protective factors

Introduction

Resilience has become a subject of increasing research in the developmental psychology and psychiatric literature in recent years. The term "resilience", which originates from the latin verb "resilire" (to leap back), is described in the Oxford English Dictionary as the ability to withstand or recover quickly from difficult conditions [1].

The usage of the term in the scientific literature varies among disciplines; for example in physics, it refers to the the ability of a material –such as metal – under tension to regain its original shape without undergoing deformation. Its use in the psychology literature is rather unclear. Despite the lack of of a commonly accepted definition, it is admissible that the psychological resilience consists of three main components which are commonly emphasized: a) adversity and/or risky situations, b) positive adaptation, and c) protective factors [2].

Over the last three decades, dozens of different theories have been proposed concerning psychological

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resilience. Earlier studies have led to a paradigm shift from looking at risk factors that led to psychosocial problems, to the identification of strengths of an individual. In this period, researchers have rather focused on developmental assets, emphasizing the importance of positive resources and promotive factors that enable children and youth to overcome their challenging life circumstances such as poverty and parental mental illness. These factors included individual characteristics (e.g. good self-esteem, an easy temperament, and planning skills) as well as larger social system factors that provide protection such as schools and communities [3]. From 1990s onwards, the focus has been shifted away from the identification of protective factors to the understanding of the processes through which individuals were overcoming difficulties. Although our understanding of the human reactions and functioning in adverse circumstances has evolved significantly over the past two decades, one of the main problems in the field of research is the ongoing discrepancies concerning the definiton and conceptualization of resilience; so that it has variously been defined as an individual trait, a dynamic process, an outcome of the life course, or a broad conceptual domain that involves all these elements [4–7].

Despite this conceptual ambiguity, the psychological resilience can nevertheless be considered as an adaptation process that is shaped by the interaction of protective and risk factors against adversity. This definition implies that psychological resilience is not just a personality trait. For example, in one model, the "triad of protective factors" includes individual characteristics (e.g. intelligence quotient, temperament), the family (e.g. predictable and effective parenting), environmental factors (e.g. safe neighbourhood, effective school) as well as conditions resulting from the interaction between them [8].

Identifying the mechanisms by which these factors reduce or eliminate the present risk plays a great importance on better understanding how some individuals facing adversity foster better adaptation than others. Information on how to improve resilience will help increase the effectiveness of preventive interventions concerning schools, community and family services [9–11].

Despite their increase in recent years, studies on the resilience are still limited in number in our country. Extensive research on large samples is needed to elucidate risk factors, individual and environmental protective factors and potential mechanisms associated with resilience in children and adolescents who live in adverse conditions.

The main focus of this study was to comprehensively evaluate different dimensions of psychological resilience in the youth of Muş city -which was ranked last in the general life index among 81 cities according to 2015 data from the Turkish Statistical Institute (TSI)- in regards to a variety of variables including adverse life events and demographic characteristics. Based on the premise that socio-demographic features, adverse life events and resilience traits (including psychological and environmental factors) are closely interrelated, our primary aim was to provide a more elaborate analysis of this complex interaction and to determine possible correlations between specific subsets of these variables. In broad sense, a positive correlation between negative socio-demographic characteristics, the multitude of adverse life events and lower resilience levels was predicted. Our secondary aim was to provide a detailed and descriptive cross-sectional profile of the high-school students in Muş.

Due to the particular position of the city in the TSI ranking, adolescent students in the high schools of Muş have to struggle with significantly difficult circumstances compared with their peers living in other cities, in terms of a) social (78th rank in social life opportunities, 0 m^2 shopping-centre area per 1,000 people, 25.7% of social life satisfaction), b) cultural (cinema and theatre spectatorship ratio is 9.1%, 77th rank on education) and c) economic constraints (income: 77th, housing: 76th rank etc.). Hence, in the present study, the significant adversity related to poor social, cultural and economic status of the city was adopted as the common risk factor regarding the resilience of the sample. It was aimed to determine the demographic factors and adverse life events that might be associated with different aspects of resilience.

Method

Sample

The study sample consisted of a total of 1025 students from the 10th and 11th grades of five different high schools (Ibni Sina Anatolian High School, Fatma Aliye Vocational and Technical Anatolian High School, Muş Science High School, Alparslan Health Vocational High School, Selahaddin Ayyubi Religious High School) operating in the city centre of Muş. A questionnaire was deemed to be invalid if the number of missing or invalid answers exceeded 20% of the total number of items. Accordingly, of the 1025 students, the data of 17 -with one or more invalid questionnaire- were excluded from the correlational analyses. Among these, the data of five students whose all three questionnaires were invalid were totally discarded. Eventually, the remaining data from eligible 1008 students were included in correlational analyses. In line with the information received from the Muş Provincial Directorate of National Education, it was aimed to increase the representativeness of the study sample by choosing educational institutions located in different regions of the city, with students from different socio-economic groups. Participants' demographic characteristics including their institutions,

gender distribution, mean age and other features are shown in Table 1.

Procedure

The data were collected by the researchers under the supervision of the teachers and the psychological counsellors, with special authorization from Muş Provincial Directorate of Education, between November 2016 and February 2017. The purpose of the study was explained to the students before the procedure and those who agreed to participate in the study were included in the research. All the volunteers were informed in detail about how to fill out the questionnaires; other necessary explanations were also made during the application. The scales were administered to the students in groups during 40 min of class time. Questionnaire items that were answered inappropriately or incompletely were not included in the statistical analysis for the relevant parameters. The ethical committee approval of the study was granted from the Marmara University Faculty of Medicine Clinical Research Ethics Committee with the protocol dated 07.10.2016 and number 09.2016.528.

Table 1. Detailed demographic characteristics of the sample.

		n	%
School	*Health Vocational High School*	*260*	*25.8*
	Religious High School	*198*	*19.6*
	Anatolian High School	*174*	*17.3*
	Vocational and Technical High School	*193*	*19.1*
	Science High School	*183*	*18.2*
Class	*10*	*434*	*43.1*
	11	*574*	*56.9*
Gender	*Female*	*567*	*56.5*
	Male	*437*	*43.5*
Age	*15 and below*	*142*	*17.5*
	16–17	*627*	*77.4*
	18 and above	*41*	*5.1*
Place of birth	*Centre*	*607*	*60.6*
	Town or village	*394*	*39.4*
Place of residence	*Centre*	*508*	*51.2*
	Town or village	*485*	*48.9*
Academic success	*Appreciation / high honour / honour Certificated*	*670*	*68.5*
	Non certificated	*289*	*29.5*
	Responsible transition / class repetition	*20*	*2*
Maternal education status	*Illiterate*	*457*	*46*
	Primary school	*443*	*44.6*
	High school	*74*	*7.5*
	College	*19*	*1.9*
Maternal occupational status	*Unemployed*	*957*	*96.6*
	Employed	*34*	*3.4*
Paternal education status	*Illiterate*	*90*	*9.1*
	Primary school	*547*	*55.4*
	High school	*230*	*23.3*
	College	*121*	*12.2*
Paternal occupational status	*Unemployed*	*245*	*25.8*
	Employed	*706*	*74.2*
Kinship between parents	*Available*	*397*	*40.3*
	Non-available	*589*	*59.7*
Number of siblings	*4 and less*	*345*	*35.4*
	5–7	*443*	*45.4*
	8 and more	*187*	*19.2*
Use of cigarette	*Available*	*79*	*8.0*
	Non-available	*910*	*92.0*
Use of substance/alcohol	*Available*	*74*	*7.4*
	Non-available	*921*	*92.6*
Story of mental illness/ treatment	*Available*	*46*	*4.6*
	Non-available	*956*	*95.4*
Medikal illness	*Available*	*100*	*10.0*
	Non-available	*904*	*90.0*
Criminal record/ disciplinary punishment	*Available*	*61*	*6.3*
	Non-available	*904*	*93.7*
Economic status	*High*	*204*	*21.3*
	Moderate	*678*	*70.6*
	Low	*78*	*8.1*

Assessment

Socio-demographic characteristics questionnaire

The questionnaire was prepared by the researchers and consisted of 19 items including special items that were suggested to relate with adverse life events and resilience (age, gender, academic performance, parental age, parental education and working status, number of siblings etc.) as well as additional items designed to provide a cross-sectional aspect of the demographic characteristics of the high school students in Muş. Statistics on these additional items were not included in the correlation analysis and were shared with Muş Provincial Directorate of National Education.

List of adverse life events

List of *Adverse Life Events* (ALE), which was previously developed for use in a thesis study, consists of a total of 19 items, including various adverse life events concerning the children themselves, their school-friend environment, and their family [12]. Based on the studies of De Wilde et al. (1992) on the relationship between children's and adolescents' suicidal behaviour and several life events, the list was designed by the researcher to investigate the existence of significant events in the life of the adolescent [13,14].

The item no 2 in the list screens for the exposure to traumatic events in line with its definition in DSM IV (i.e. experiencing or witnessing an event or events involving actual or threatened death, crime, serious accident, violence, rape), while remaining items screen for other potential adverse life events (such as loss of a close friend, moved house or changed school, a history of mental illness in the family, frequent arguments between parents etc.) which are likely not as severe as trauma.

Participants who filled the list were asked to respond "yes" or "no" to each adverse life event item, the total number of adverse life events (total ALE) answered as "yes" for each participant was also calculated. Along with the 2nd item (trauma), nine other selected items [5,7,8,10,13–17], as well as the total number of ALE, were included in the correlation analyses, while the remaining were used in the descriptive statistical analyses.

Resilience and youth development module

To assess psychological resilience, we used the Resilience and Youth Development Module (RYDM),

which was developed by Wested (a research, development, and service agency for the The California Department of Education) and was adapted to Turkish by Cem Ali Gizir [10,15].

RYDM was developed to define and assess individual and environmental protective factors (internal and external assets) associated with positive youth development. In the original version of the scale, environmental resources or systems supporting the successful and healthy development of adolescent are examined through 11 external protective factors identified by 33 items; whereas 6 internal protective factors are assessed by 18 items. RYDM also includes 5 optional items that measure school connectedness [15,18]. The scale uses a four-point Likert-type rating, ranging from "not true" to "very true".

According to the validity and reliability study conducted by Gizir on 872 adolescents, the Turkish version of the scale consists of a total of 16 assets: nine external factors (school caring relationships and high expectations, school meaningful participation, community caring relationships and high expectations, community meaningful participation, peer caring relationships, peer high expectations, home caring relationships, home high expectations, and home meaningful participation) determined by 31 items; and seven internal factors (empathy, problem solving, self efficacy, communication and cooperation, goals, self awareness and educational aspirations) determined by 17 items. The internal consistencies as estimated by Chronbach alpha for the nine latent variables of RYDM-External Assets were ranged from .55 to .85, whereas the internal consistencies as estimated by Chronbach alpha for the seven factors of RDYM-Internal Assets were ranged from .50 to .78, indicating that the reliability evidence for RYDM-Internal and External Assets were reasonably satisfactory [10].

Statistical analysis

Microsoft Office Excel (2007) was used for data entry and SPSS 17.0 (SPSS Inc. released 2008. SPSS Statistics for Windows, Version 17.0, Chicago: SPSS Inc.) was used for data analysis. A series of bivariate analyses were conducted to determine the relations within and between the demographic factors, negative life events, and psychological resilience. Dependent variables were defined as the type and/or the total number of adverse life events; as well as the internal and external assets and the overall scores of the RYDM.

The Mann–Whitney U Test was used to compare two independent groups without normal distribution, in terms of a quantitative variable; Kruskal–Wallis H Test was used in comparing more than two independent groups with no normal distribution, in terms of a quantitative variable; a chi-square test was used to examine the relationship between two qualitative (categorical) variables and a regression test was used to examine whether the dependent variable was affected by independent variables or variables. The results were evaluated with 95% confidence interval and $p < .05$ (2-sided) significance level.

Results

Demographic characteristics

The detailed demographic characteristics of the sample and the distribution of students by schools are shown in Table 1. Accordingly, 56.5% ($n = 567$) of the 1008 participants, whom questionnaires were accepted as valid, consisted of females and 43.5% ($n = 437$) of males. 46% ($n = 457$) of mothers and 9.1% ($n = 90$) of fathers of the participants were not literate; and 96.6% ($n = 957$) of the mothers and 25.8% ($n = 245$) of the fathers were unemployed. 40.3% ($n = 397$) of the participants stated that there was a kinship between their parents. Regarding the number of children, it was revealed that 35.4% ($n = 345$) of the participants were four or less, 45.4% ($n = 443$) of them were five to seven and 19.2% ($n = 187$) of them were eight or more siblings.

The interrelationships among the demographic characteristics are shown in Table 3. According to the Chi-square test, there was a significant relationship between the number of siblings and mother's educational status ($p < .001$). Accordingly, as the education level of mothers increased, the number of siblings decreased. There was also a significant relationship between the number of siblings and the financial status of the family ($p < .001$). As the number of siblings increased, the proportion of families with "good" financial status decreased, while those with "moderate or low" status increased.

The distribution of adverse life events is shown in Table 2. 26.8% of the participants did not report any while 54% of them reported exposure to one to three, 17.9% to four to nine, and 0.78% to 10 or more of ALE. The most frequently reported ALE was stated as the death of a family member (25.1%); whereas the lowest reported ALE was the divorce of parents (1.07%). Exposure to trauma (as defined in the second item of the list) was reported in 8.8% of the sample.

The interrelationships among the adverse life events are shown in Table 3. According to the Chi-square correlation test, there was a significant relationship between trauma exposure and alcohol/substance use in the family ($p = .001$). Accordingly, a history of alcohol/substance use in the families of participants with trauma exposure was higher than those without. Exposure to trauma was also significantly associated with frequent arguments between parents ($p < .001$).

Table 2. The distribution of adverse life events and total number of ALE ($n = 1020$).

Adverse Life Events	*n*	%
1. Serious disease, surgery	137	13.4
2. Exposure to or witnessing crime, accident, injury, sexual abuse/rape	90	8.8
3. Serious illness or accident of a close friend	170	16.6
4. Death of a close friend	219	21.4
5. Changing city while moving	105	10.2
6. Change of school	210	20.5
7. Use of substance/alcohol in the family	88	8.6
8. Mental disorder in the family	61	5.9
9. Serious illness. accident in family	197	19.3
10. Death in the family	257	25.1
11. Arrest in the family	72	7.0
12. Abandonment of house by siblings	28	2.7
13. Frequent argument between parents	66	6.4
14. Parental separation / divorce	11	1.07
15. Step-parent	24	2.35
16. Frequent absence of parents at home	80	7.8
17. Unemployment of parents	59	5.7
18. Financial deterioration / monetary loss	156	15.2
19. Parental judicial problems	42	4.1
Total number of ALE		
None	274	26.8
1–3	551	54.0
4–6	157	15.3
7–9	30	2.9
10 and more	8	0.78

The relationships between demographic characteristics and adverse life events are shown in Table 3. There was a significant relationship between the total number of ALE and the maternal education status ($p < .05$). Surprisingly, students whom mothers were post-graduated ($n = 19$) had the highest average scores on total ALE, while those with mothers graduated from elemantary schools ($n = 443$) had the lowest.

There was a statistically significant difference regarding the total number of ALE between those who had a criminal record and those who did not ($p < .001$). That is, the average number of the total ALE of those who had a criminal record was the highest. There was also a statistically significant difference in the total number of ALE between the groups whose families had different financial status ($p < .001$). As the financial status of the family worsened, the average number of total ALE increased. According to the Chi-square test, a significant relationship between trauma exposure and gender was found ($p = .003$). The majority (58%) of the group without trauma exposure were female while the majority (58.6%) of the group with a history of trauma were male. A significant relationship was also found between trauma exposure and a history of criminal record ($p < .001$). Accordingly, the ratio of those with a history of criminal records was higher in the trauma exposure group than those who did not report trauma.

The relationships between the internal and external factor mean scores of psychological resilience is shown in Table 4. According to the Chi-square correlation test, mean scores of external factors (nine factors determined by 31 items) and internal factors (seven factors determined by 17 items) were significantly correlated ($p < .001$). In other words, as the external factors' average score increased, the internal factors' scores also tended to increase.

The relationships between demographic characteristics and psychological resilience is shown in Table 4. There was a significant relationship between the RYDM overall scores and the academic success ($p < .001$). Majority of the students (51.7%) with a low RYDM overall score were reported as non-certificated, whereas the majority of those with a moderate (49.7%)

Table 3. The (inter)relationships between demographic characteristics and adverse life events.

Correlation analysis		Result	*p*	Effect size
Interrelationships between the demographic characteristics	*Type of school x alcohol/substance use*	8.976*	.062	
	Gender x alcohol/substance use	0.141*	.708	
	Economic status x alcohol/substance use	2.247*	.325	
	Place of residence x alcohol/substance use	0.313*	.855	
	Economic status x number of siblings	22.519*	**<.001**	0.311
	Kinship between parents x number of siblings	4.961*	.291	
	Maternal education status x number of siblings	135.286*	**<.001**	0.374
Interrelationships between the adverse life events	*Frequent argument between parents x trauma*	12.434*	**<.001**	0.109
	Parental separation x trauma	* –	.246	
	Step-parent x trauma	* –	.130	
	Family alcohol/substance use x trauma	10.160*	**.001**	0.099
Relationships between demographic characteristics and adverse life events	*Type of school x number of ALE*	7.207**	.125	
	Place of residence x number of ALE	2.874**	.238	
	Criminal record x number of ALE	42.771**	**<.001**	0.044
	Economic status x number of ALE	21.563**	**<.001**	0.022
	Alcohol/substance use x number of ALE	32860.5***	. 602	
	Academic success x number of ALE	3.641**	. 303	
	Maternal education status x number of ALE	8.001**	.046	0.008
	Paternal education status x number of ALE	6.583**	.086	
	Kinship between parents x number of ALE	1.462**	.481	
	Number of siblings x number of ALE	1.016**	.602	
	Gender x number of ALE	122110.5***	.690	
	Gender x trauma	8.899*	.003	0.089
	Criminal record x trauma	38.246*	**<.001**	0.198
	Alcohol/substance use x trauma	0.813*	.367	
	Alcohol/substance use x Family alcohol/substance use	0.128*	.721	

* *Chi-square test,* **Kruskal-Wallis H Test, ***Mann-Whitney U test.

Table 4. The relationships between the sub-dimesions of of psychological resilience and demographic characteristics

Correlation analysis		Result	*p*	Effect size
The relationships between the internal and external factor mean scores of RYDM	*RYDM internal factors' mean x RYDM external factors' mean*	250.122*	**<.001**	0.498
The relationships between demographic characteristics and RYDM scores	*Type of school x internal RYDM*	28.607*	**<.001**	0.166
	Type of school x external RYDM	20.932*	.007	0.140
	Type of school x overall RYDM	11.988*	.152	
	Place of residence x overall RYDM	7.902*	.095	
	Academic success x overall RYDM	42.016*	**<.001**	0.207
	Maternal education status x overall RYDM	9.933*	.127	
	Paternal education status x overall RYDM	10.357*	.110	
	Maternal occupational status x overall RYDM	.660*	.719	
	Paternal occupational status x overall RYDM	1.644*	.440	
	Kinship between parents x overall RYDM	2.239*	.692	
	Number of siblings x overall RYDM	6.666*	.155	
	Alcohol/substance use x overall RYDM	1.790*	.409	
	Criminal record x overall RYDM	9.649*	.008	0.096
	Economic status x overall RYDM	13.349*	.010	0.116
	Gender x internal RYDM	112066.0**	.009	0.006
	Gender x external RYDM	118576.0**	.243	
	Gender x overall RYDM	118366.5**	.165	

* *Chi-square* test. **Mann-Whitney U test.

or high (57.7%) RYDM score completed the academic year with a certificate of appreciation.

Overall scores of RYDM showed a significant relationship with crime record and the economic status of the family. As the overall score of RYDM increased, the rate of criminal record decreased ($p = .008$), while the ratio of those with a good financial status increased ($p = .01$).

Finally, it was determined that RYDM's internal factors' scores were significantly different between genders and that girls had higher scores regarding internal assets of resilience ($p = .009$).

The relationships between adverse life events and resilience dimensions are shown in Table 5. According to the Kruskal–Wallis test, there was a significant relationship between the total number of ALE and the internal factors' and overall scores of RYDM. As the internal factors' and overall scores increased, the mean number of total ALE tended to decrease ($p = .044$ and $p = .013$, respectively). However, there was no significant relationship between the total number of ALE and the external factors of RYDM.

A history of mental illness in the family (ALE item 8) and alcohol/substance use in the family (ALE item 7) were found to be associated with both external and internal factors dimensions of RYDM. As the mean score of external factors increased, the proportion of those with a history of mental disorder or alcohol/substance use in their family tended to decrease ($p = .005$ and $p = .005$, respectively). Similarly, as the mean score of the internal factors increased, the proportion of those who do not have mental disorder or alcohol-substance use history in their family tended to increase ($p = .015$ and $p = .003$, respectively).

Frequent arguments between parents (item 13 on ALE) attracts attention as another factor showing a significant relationship with all dimensions of RYDM. Accordingly, as the external, internal factors' and the overall scores of psychological resilience increased, the proportion of the adolescents with frequent arguments between their parents decreased significantly ($p < .001$; $p = .028$ and $p = .001$, respectively).

Lastly, the economic loss in the family (ALE item 18) was found to be related to both the external and internal factors' as well as to the overall scores. It was found that as the external and internal factors' and the overall scores increased, the proportion of those with economic impairment in the family decreased ($p < .001$; $p = .001$ and $p < .001$, respectively).

Discussion

In this study, it was aimed to provide an analysis of the complex interactions between the socio-demographic characteristics, the adverse life events and the resilience traits of the adolescent students in

Table 5. The relationships between adverse life events and RYDM.

	Internal RYDM			External RYDM			Overall RYDM		
	χ^2	*p*	Effect size	χ^2	*p*	Effect size	χ^2	*p*	Effect size
Adverse Life Events									
Number of ALE	6.260	**.044**	0.006	3.238	.198		8.685	**.013**	0.008
Change of city	.593	.743		.210	.901		2.415	.299	
Mental disorder in the family	8.367	**.015**	0.137	10.620	**.005**	0.099	15.935	**<.001**	0.122
Death in the family	2.417	.299		3.030	.220		.232	.890	
Unemployment of parents	5.238	.073		.479	.787		2.647	.266	
Financial deterioration /monetary loss	15.191	**.001**	0.122	19.231	**<.001**	0.137	18.868	**<.001**	0.134
Trauma	2.844	.844		2.045	.360		3.187	.203	
Use of alcohol/substance in the family	11.731	**.003**	0.104	10.685	**.005**	0.099	16.943	**<.001**	0.126
Frequent argument between parents	7.164	**.028**	0.083	16.875	**<.001**	0.126	13.384	**.001**	0.113

Muş (which was ranked last in the general life index among 81 cities), as well as to draw a descriptive cross-sectional profile of the youth of the city. The main findings revealed by correlational analyses may be summarized as follows: In terms of demographic features, lower socio-economic status, criminality and lower academic achievement were associated with reduced resilience. In terms of adverse life events, reduction in parental economic status, inter-parental conflict and familial history of mental illness and alcohol/substance use were found to be related to lower resilience levels. The multitude of adverse life events were associated with reduced, whereas female gender was associated with higher scores in internal resilience assets. Finally, resilience were not found to be associated with trauma itself.

Children and adolescents facing difficult life circumstances due to social, economic and cultural adversity, form a disadvantaged group regarding the social functioning and healthy psychosocial development. Moreover, psychosocial interventions and treatment services targeting children and their families in those groups remain largely insufficient. Therefore, comprehensive researches are strongly needed to clarify factors associated with psychological resilience and to develop low-cost strategies that will help improve resilience in individuals exposed to difficult life circumstances. Such an approach, which extends beyond the etiological perspective of psychopatology, may also provide a better understanding of resilience in the face of certain adversities and vulnerabilities [16].

A striking finding concerning the demographic data is the high number of children (siblings) in families. According to the World Bank's report on fertility rate in 2015, the average number of births per woman was 2.45 for the whole world; 1.8 for the United States and the United Kingdom; 3, 4.4, 1.7 for our border neighbours Syria, Iraq, and Iran respectively; while for Turkey, the average ratio was 2.1. [17]. According to the reports of TSI (2016), the total fertility rate is 3.35 in Muş, which was ranked 5th among 81 cities [19]. Considering that in the sample of our study, approximately 45% of the participants have five to seven, and 20% have eight or more siblings, these values appear to be dramatically high. This discrepancy is likely to be related to the polygamy (informal marriage of men with more than one woman), which is widespread in the region.

In our study, there was a negative correlation between the number of children in the family and the educational status of the mother. Moreover, as the number of children (siblings) increased, the family's economic status declined. This finding is consistent with the high fertility rates reported in societies with poor socioeconomic and educational status; and probably stems from a cyclical relationship between these factors [20].

Trauma experience is a substantial risk factor for the development of acute and long-term psychopathology. 8.8% of the participants declared that they were exposed to a traumatic event as defined in the 2nd item of the list of adverse life events. Trauma exposure was found to be significantly related to "frequent argument between parents" and "alcohol/drug use in the family" which are also enlisted as ALE items. On the other hand, the divorce of the parents or having a stepparent were not associated with trauma. In a similar study conducted on 1420 children and adolescents studying in the North Carolina-USA, parental psychopathology and family relationship problems were enlisted as factors associated with exposure to trauma and other adverse life events [21].

Another striking finding in our study was that the trauma exposure was significantly lower in girls than in boys. In the North Carolina study, which also examined the subtypes of traumatic events, there was no difference between genders for the mean number of traumatic events; however, it has been reported that girls were significantly more likely than boys to report sexual abuse, coercion and rape, whereas learning about events causing the death or severe injury of someone else, was more frequent in males [21]. In a review of the research on the distribution of traumatic and other stressful life events according to various variables, it was reported that traumatic (e.g. life threatening) events were more frequent in men, while men and women differed more consistently on types rather than on overall numbers of stressful events [22].

The relatively low rate of trauma exposure reported in girls in our study seems likely to be related to not specifying subtypes of trauma as well as to the sociocultural characteristics of the study sample. Exposure to traumatic events was also associated with a history of criminal records.

A history of criminal records and poor economic status, which were enlisted among the demographic factors, were found to be associated with the total number of ALE. Poor economic status has been reported as a risk factor for traumatic experiences such as sexual abuse and other adverse life events in earlier studies [22,23]. Another surprising finding was that the total number of ALE increased in parallel with the maternal education level. While the average number of ALE for the whole sample was 2.02, it increased to 3.05 for those whose mothers had a university degree. Many studies in the literature indicate that the high socioeconomic and educational status of parents plays a protective role against the child's exposure to adverse life events [24,25]. This finding in our study may be related to the accumulation of some of the items on the ALE list, due to the specific socioeconomic structure of the city. For example, in the whole sample, the rate of a history of "moved house" was 10.2%, while it was 31.5% for those with university graduate mothers. It is

important to note that, as an adverse life event, moving or displacement may also have a particular significance in regards to the socio-demographic characteristics of certain cities in the region. For example, it may turn to a traumatic experience as in the example of people who were subjected to internal displacement from rural dwellings to the city centre of Diyarbakır [26]. However, a history of forced displacement was not assessed as a separate item in the present study.

In our study, resilience and youth development was assessed using RYDM, which was designed as a comprehensive instrument to evaluate the multiple dimensions of individual and environmental factors as well as their interactions. For the whole sample, there was a significant relationship between the internal assets consisting of seven factors (empathy, self efficacy, problem solving, communication and cooperation, goals, self awareness and educational aspirations) and the external assets consisting of nine factors (related with school, community, peers, and home). This implies that the internal and external assets that determine resilience are not isolated but possibly interacting dynamic processes. As to comparison by genders, the girls had significantly higher scores in the internal assets of RYDM than boys; however, this difference was not reflected in external factors' and overall scores. In consistency with our findings, a recent study from our country reported that internal factors including empathy, goals and educational aspirations were higher in adolescent girls than the boys who live in poverty [27]. Similarly, in many previous studies, it has been reported that among children at risk, girls are more likely to have higher resilience [2,9,28]. It is not clear whether this bias stems mostly from biogenetic or sociocultural differences between genders. However, several other biogenetic factors have been shown to play a defining role in the shaping of individual protective factors such as temperament, intelligence or even stress-coping styles [29].

Low scores in overall resilience -which consists of the assessment of the internal and external assets together- showed a significant correlation with a history of criminal records and poor economic status. Remaining parameters (education level, working status, number of siblings, alcohol/substance use, etc.) were, however, not found to be associated with RYDM.

This indicates that adverse economic conditions, as emphasized in many past studies, emerge as a substantial risk factor that threatens resilience and healthy psychological development [30]. Although it is not possible to determine the causal relationship between the resilience and criminality, it seems plausible that the defects in the adolescent's development might have increased the tendency to violate social rules and commit a crime. Finally, high levels of resilience (overall scores of RYDM) were also found to be associated with high academic success. Academic success (or school performance) is an important parameter which has been adopted as an index of functionality in many previous studies on children and adolescents. There are numerous studies in the literature that emphasize a positive relationship between psychological resilience and academic achievement [31–33]. For example, in a study conducted on immigrant Latino students, it was reported that despite specific risk factors, students with higher levels of personal and environmental protective factors had a higher academic achievement than those with lower levels of protective resources [34].

When it comes to the relationship between adverse life events and resilience (Table 5), firstly, it was observed that the total number of ALE was significantly correlated with the internal factors' and overall scores of RYDM. In other words, in individuals who experienced a greater number of adverse life events, internal factors dimension of the psychological resilience seems to be more significantly affected.

Alcohol/substance use in the family and frequent arguments between parents were significantly correlated with resilience (internal, external factors' and overall scores of RYDM), just as they were in trauma. However, there was no relationship between trauma and resilience. This latter finding is in line with a recent study that reported that the presence of childhood trauma did not have an effect on psychological resilience in patients with major depression [35].

Another striking finding was that alcohol/substance use of the adolescents themselves was not associated with trauma or RYDM; whereas the alcohol/substance use in the family was found to be associated with both trauma and low resilience scores (internal, external factors'and overall scores of RYDM).

In a follow-up study that investigated the roles of individual, family and environmental factors on the resilience of maltreated children, it was reported that among children who were subject to maltreatment, those whose parents had substance use problems were less likely to be resilient, whereas boys with parents with relatively few symptoms of antisocial personality were more likely to be resilient [36]. These findings, taken together with ours, suggest that the alcohol/substance use and the tendency to violence (frequent arguments, antisocial behaviours etc.) in the families of children and adolescents at risk, negatively affect resilience.

In our study, a history of mental illness in the family was also associated with low scores in all dimensions of RYDM. Similarly, in the North Carolina study, a familial history of mental illness was emphasized as the only risk factor that significantly increased exposure to traumatic events for both genders [16]. Although the findings of different studies show consistency regarding the role of mental disorders in the family, the limits of the concept remain unclear as entities like substance use disorder and antisocial personality disorder can

arbitrarily be excluded from the scope of mental illness. Similarly, in our study, we only questioned about the presence of a mental illness in the family, but not the diagnoses or their severity.

Lastly, the economic loss in the family has been identified as another adverse life event that negatively affected resilience as reflected by lower scores in all dimensions of RYDM. This finding is in line with the significant relationship between the "poor economic status" listed among the demographic items and low RYDM scores.

In our study, moving/changing city was not found to be related to resilience. However, migration is considered to be potential risk factor for psychopathology and is also associated with lower resilience levels [37–39]. For instance, second-generation immigrant children and adolescents were found to have higher rates of psychiatric disorders and lower functionality scores compared to their counterparts [40]. This discrepancy seems to be largely due to the socio-economic characteristics of Muş which is considered a city of emigration rather than immigration.

All results taken together, in our study sample which is considered to be exposed to adverse living conditions in terms of social, economic and cultural constraints, the factors that were found to threaten the resilience of the adolescents can be conceptualized as follows: 1) Adolescents whose parents have poor economic status, experience financial loss, or have frequent arguments; those who have a history of mental illness or alcohol/substance use in their families, as well as those who have a history of criminal records or low academic achievement are likely to be less resilient (lower internal, external factors'or overall scores in RYDM). 2) Female gender seems to be a protective factor regarding internal assets of resilience such as empathy, self-efficacy and problem-solving. Exposure to a greater number of adverse life events, on the other hand, emerges as a risk factor that negatively affects the internal assets dimension of resilience. 3) Trauma exposure, just as low RYDM scores, seems to be associated with frequent arguments between parents, alcohol/substance use in the family, male gender, and a history of criminal records; however, there was no significant relationship between the trauma exposure and the RYDM scores alone.

The results of the present study should be considered within the methodological limitations. Data collection was based on the use of self-report questionnaires, which may be largely influenced by subjective factors including the participants' compliance and their ability to correctly understand the questions and make accurate self-assessments. Another limitation is that the ALE list used in this study tends to assess the subtypes and the number of adverse events rather then the magnitude or the frequency of the exposure. Accordingly, the case of adolescents who were extensively exposed to a single or a few types of adverse events might have been underestimated. Finally, the statistical analyses used in this study may have disregarded the multi-level nature of the data, and thus may have caused Type I errors.

Conclusion

The interventions to improve resilience, which is defined as a multifactorial and dynamic process, need to be similarly multidimensional and comprehensive. In this context, it is critical to primarily elucidate the factors that relate to the resilience of children and adolescents exposed to a specific risk factor. Therefore, it will be possible to develop more effective and large-scale strategies based on the use of both the risk-reduction (removing or avoiding problematic situations) and the resilience development approaches (the acquisition of skills and capacities of coping with high-risk environments). In order to improve our understanding of psychological resilience and youth development in Turkey, and to determine specific needs for interventions, future studies on various risk groups in different pilot cities, as in the example of Muş, are needed.

Acknowledgments

We thank all the students who volunteered to participate in the study and Muş Provincial Directorate of National Education for its cooperation.

Disclosure statement

No potential conflict of interest was reported by the authors.

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