

Quantitative methods applied in the analysis of teenagers problems

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Abstract

The theme of the article is the study of teenagers problems based on quantitative methods, the scientific approach is divided into two parts: the part of knowledge and the practical approach. During the first part we describe the problems of adolescents based on national and international literature, and during the second part we use some quantitative methods (diagnosis, regression and investigation) we aim to achieve an in-depth analysis of the addressed topic. Through the diagnosis we highlight changes in numerical terms of the number of adolescents, and also their problems: poverty and delinquency.

Regression functions are used to show the nature, direction and intensity of the relationship between a number of causal variables and the outcome variable. The investigation aims to identify the extent to which cultural values of the country leave their mark on the perception of the importance of family and friends for teens. The main conclusions of the research points out the fact that the decrease in the number of Romanian teenagers their problems still persist.

Keywords: *adolescent, problems, obesity, aggression*

JEL Classification: *C 01, C12*

1. The knowledge part

Supporting young people and creating favorable conditions (European Commission, 2007) in order to develop their skills, to participate actively in society is essential for economic and social development of the European Union, particularly in the context of globalization, knowledge-based economics and aging societies, it is crucial that every young person is fulfilling their potential (Walthe A, Stauber B, 2009). The adolescence is a stage of emotional and intellectual personality restructuring, a process of individualization and physiological change. It is difficult to say at present time what is the end of teenage years judging by the extent of their personalization process. It constitutes a privileged field for studying psychological change. (http://www.medtorrents.com/download/Dictionar_de_psihologie-Roland_Doron-Humanitas.pdf). Tomorrow's Society relies on young people. Teenagers represent the foundation and for this they must be prepared to assume their quality towards the family, community and society which will enhance their development. Experts have played a vital role in the consolidation by generating basic knowledge also having an applicability character, the likelihood that adolescents become citizens able to make commitments is increasingly higher.

Stages of adolescence (Albu E, 2007):

1. Pre-teens. This is a step of biological maturity stabilization.
2. Adolescence itself or the great adolescence (from 16/18 to 20 years). It is characterized by an intensive intellectualization (development of abstract thinking)
3. Prolonged adolescence (from 18/20 to 25 years) includes youth already integrated into the labor market and students.

From the psychological perspective of adolescence, it is marked by the enablement and flourishing of the sexual instinct, shaping the socio-professional interests, the desire for freedom and autonomy, amplification of affective life. The intelligence diversifies, increase of the power of abstract thinking, specifying particular skills.

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The function of adolescence is to recognize the entire range of existing virtues, every possibility that will allow individuals to choose a path and engage in adult life. On the other hand is to discover more closely each human being he's surrounded by, himself and others and to establish new relations with the entourage: distancing from parents, and getting closer to their peers (friendship, love). Adolescents have rich social and dynamic virtues (Sillamy N, 1998). Recent studies using MRI analysis indicates that a wave of overproduction of gray matter on the thinking part of the brain occurs just before puberty. This thickening of gray matter appears around the age of 11 in girls and 12 in boys, after which the gray matter thins (Giedd J, Blumenthal J, 1999). There were identified some significant differences in the cognitive development of adolescents that concluded that their confidence in certain cognitive skills and abilities differ. Teen girls are more inclined to reading and social skills, while boys tend to feel more confident on the athletic side and math skills (Gentra J, 2002). An important issue for teens is obesity. Their predisposition to obesity can be inherited. Changes in society have led teenagers to consume fatty foods regularly, only when the sporting activity is reduced. Starting from DEX, obesity comes from the French word 'obese', is overgrowth of the body weight through an abnormal fattening due to accumulation of fat in various organs and tissues (<http://www.bjmures.ro/bd/P/001/09/P00109.pdf>)

There is a number of environmental factors that contribute to obesity in adolescents (Rosenbaum, James, 2001):

1. The school stores sell products that are rich in fat,
2. Low income communities offer limited access to healthy food,
3. Adolescents live sedentary lives. Teens spend most of the school day in front of a TV or computer screen,
4. Physical education programs were reduced.

Optimum nutrition is the intake of nutrients that (Pasca M, 2009):

- a. helps us achieve emotional balance and mental performance;
- b. helps us achieve optimal mental performance;
- c. Is associated with low incidence of health disease - ratio;
- d. is associated with a long healthy lifestyle.

Aggression, another problem that teenagers face generate internal conflicts, conflicts regarding power or obligations, conflicts in families and couples, social conflicts. Without exception, people want more than anything to be loved and accepted. They want to feel that they have control over their own lives, but also know that they have a reliable support when life situations far outweigh their power to overcome the obstacles (Ispas C, 2011). In recent years different patterns of delinquency and antisocial behavior were observed (such as shoplifting, drug abuse, school dropout, robbery or breaking the rules of society) For most teenagers this behavior has an unidentified cause (Moffitt T, 1993). Psychology specialists draw attention to the resistance to change of young people. This should be seen as a function used in development. If a community is able to provide the relationships, resources, and commitment at the same time it can provide supports to adapt to change (Perry C, 2000).

The figure below shows the support and opportunities for teens.



Figure 1. Support oportunities for teens

Source: McNeely C, Blanchard J, The Teen Years Explained: A Guide to Healthy Adolescent Development Center for Adolescent Health Johns Hopkins Bloomberg School of Public Health 615 N. Wolfe St., 2009.

Social support is seen as a protection for the adolescent from the impact of stress. There are a variety of ideas regarding sources of stress of teenagers. Even if their call for support has been demonstrated as functional strategy to cope with stress it was not applied by them. This, in turn, didn't help prevent the development of social-effective interventions (Camara M, Bacigalupe G, Padillahe P). The effects of a major disaster as seen by teens may vary depending on the extent to which it disrupts family and community functioning. The impact of the disaster may stimulate fears of loss of family relationships, peers and school life. Teens struggle to find their own identity. Signs announcing that young people face problem (Speier H, 2004):

- withdrawal and isolation;
- physical complaints (eg, headaches or stomach aches);
- depression and sadness;
- antisocial behavior (eg theft, aggressive behavior or acting out);
- school problems (eg disruptive behavior or avoidance);
- decline in academic performance;
- sleep disorders (eg withdrawal in heavy sleep, sleep terrors, or insomnia);
- confusion;
- risk-taking behavior;
- alcohol and other drugs;
- avoidance.

2. Study on the problems teenagers

2.1. Research methodology

The purpose of research - to identify the problems adolescents face.

Objectives:

1. The extent to which changes are manifested in terms of numbers of adolescents according to statistics last year;
2. Observing the problems facing the Romanian teenagers;
3. Knowing the nature and direction of the link between education and delinquency, poverty and delinquency,
4. The degree of importance of friends and family for teens.

Assumptions:

H1 - dynamic analysis of the number of teenagers in recent years reflects an involution trend;

H2 - Between education reflected by the rate of early school leaving and delinquency indicator reflected by the people sentenced to life imprisonment or rehabilitation centers there is a correlation;

H3 - poverty rate has no influence on the crime phenomenon among teenagers Romanian;

H4 - For most adolescents in Romania, Germany, Australia, Japan and the United States family and friends are important.

Organizing the research

Research focused on the analysis of secondary sources. As quantitative methods the simple linear regression and the questionnaire were used. The first method Romanian teenagers were used with the data from the National Statistics Institute. The second method - which is basically a comparative analysis of the perception of individuals on the importance of family and friends (Romania, Germany, Australia, Japan and the USA). This questionnaire was developed and applied by the representatives of the World Values Survey, and the data was retrieved and processed.

2.2. The results obtained

2.2.1. Statistics of adolescents in the country

The number of adolescents are shown in Tables 1 and 2.

Table 1. POPULATION BY RESIDENCE at 1st of July by age groups

Ages and age groups	Years						
	1992	2010	2011	2012	2013	2014	2015
	UM: Number of people						
10-14 years	1887927	1158990	1156951	1151916	1139003	1128849	1124802
15-19 years	1909028	1255343	1220401	1178188	1165882	1150170	1152902

Source: <http://statistici.insse.ro/shop/index.jsp?page=tempo2&lang=ro&context=66>

The data found in the table reflects the fact that the number of adolescents in the two age ranges from 1992 to 2015 reflect a stage of involution.

Table 2. Average number of members of a household by age and age groups and main social categories, by sex and area

AIG - Age and age groups of the members of the household included in the selective research	Years
	Year 2000
	Number of people
Total	2,672
Under 14 years	0,384
14 years	0,041
15 years	0,04

Source: <http://statistici.insse.ro/shop/index.jsp?page=tempo2&lang=ro&context=66>

According to statistics – the number of teenagers per household is 2.67.

Statistics of the adolescent problems can be seen in Tables 3 and 4.

Table 3. Persons definitively convicted in penitentiaries and rehabilitation centers by the length of sentences

Punishment duration	Years				
	Year 2010	Year 2011	Year 2012	Year 2013	Year 2014
	UM: Number of people				
Life sentence	145	149	150	148	161

Source: <http://statistici.insse.ro/shop/index.jsp?page=tempo2&lang=ro&context=66>

From 2010 until 2014 the number of crimes punishable with the life sentence in reeducation centers and prisons has increased by 16.

Table 4. The relative poverty rate by age groups

Age groups	Years			
	2010	2011	2012	2013
	UM: Percents			
0-17 years	31,3	32,9	34,6	32,1

Source: <http://statistici.insse.ro/shop/index.jsp?page=tempo2&lang=ro&context=66>

Adolescent poverty rate for the same reference period shows an average of 30%.

2.3. Quantitative methods of analysis of the teenager problems

2.3.1. Regression

In all cases it is applied the first-degree linear function using the correlation coefficient r .

The relationship between the rate of people dropping out school and juvenile delinquency

Table 5. Data Calculation

Years		x	y	xy	xx	xyy
2010	18.4	145	2668	338.56	49091.2	21025
2011	17.5	149	2607.5	306.25	45631.25	22201
2012	17.4	150	2610	302.76	45414	22500
2013	17.3	148	2560.4	299.29	44294.92	21904
Sum	70.6	592	10445.9	1246.86	184431.37	87630

$r = -0.8832601$ strong inverse link

x-rate of people who drop out of school early

y- Persons definitively convicted in penitentiaries and rehabilitation centers punished by life sentence

The link between education and poverty

Table 6. Calculating data

years	x	y	xy	xx	xyy	yy
2010	18.4	36.7	675.28	338.56	12425.15	1346.89
2011	17.5	35.8	626.5	306.25	10963.75	1281.64
2012	17.4	37.9	659.46	302.76	11474.6	1436.41
2013	17.3	34.1	589.93	299.29	10205.79	1162.81
Sum	70.6	144.5	2551.17	1246.86	45069.3	5227.75

$r = 0.306209$ - weak link

x- rate of people who drop out of school early

y- rate of severe material deprivation, by age groups

The link between poverty and delinquency

Table 7. Data Calculation

years	x	y	xy	xx	xyy	yy
2010	31.3	145	4538.5	979.69	142055.1	21025
2011	32.9	149	4902.1	1082.41	161279.1	22201
2012	34.6	150	5190	1197.16	179574	22500
2013	32.1	148	4750.8	1030.41	152500.7	21904
Sum	130.9	592	19381.4	4289.67	635408.82	87630

$r = 0.89712637$ strong direct link

x- relative poverty rate for people in the age range of 0-18 years

y- Persons definitively convicted in penitentiaries and rehabilitation centers punished with the life sentence

2.3.2. Survey based on questionnaires

1. How important is family to teenagers

Table 8. The importance of family

	TOTAL					
		Australia	Germany	Japan	Romania	United States
Very important	88.7%	92.5%	77.6%	90.8%	93.1%	90.9%
Rather important	9.0%	6.1%	17.9%	6.8%	5.5%	7.3%
Not very important	1.4%	0.6%	3.6%	0.6%	1.1%	0.8%
Not at all important	0.4%	0.2%	0.6%	0.2%	0.2%	0.6%
BH: Missing; AR,DE,SE: Inapplicable;RU: Inappropriate response	0.1%	-	0.2%	-	-	-
No answer	0.2%	0.5%	-	-	0.1%	0.4%
Don't know	0.4%	-	0.1%	1.6%	0.1%	-
(N)	(9,701)	(1,477)	(2,046)	(2,443)	(1,503)	(2,232)

Source: <http://www.worldvaluessurvey.org/WVSONline.jsp>

At a rate of over 90% of the analyzed respondents consider that family is important for teens.

3. How important are friends for teenagers

Table 9. Importance of friends

TOTAL					
	Australia	Germany	Japan	Romania	United States
Very important	46.3%	55.6%	50.9%	45.0%	22.4%
Rather important	43.8%	37.5%	42.6%	47.0%	52.2%
Not very important	7.8%	3.5%	6.1%	5.4%	22.1%
Not at all important	0.9%	0.4%	0.3%	0.4%	3.1%

No answer	0.7%	3.0%	-	-	0.1%
Don't know	0.6%	-	-	2.2%	-
(N)	(9,701)	(1,477)	(2,046)	(2,443)	(1,503)

Source: <http://www.worldvaluessurvey.org/WVSONline.jsp>

Most respondents think that friends are important to teenagers.

Conclusion

Adolescence is the transition from childhood to adult life and reflects the dynamic stages of evolution. It is characterized by a variety of changes in physical, cognitive, socio-emotional fields, basically presenting both opportunities and dangers for teens. The most important signs that indicate that a child becomes a teenager are reflected by the transformations they go through. The diagnosis in terms of the number of teenagers in our country for the reviewed period shows that there is a downward trend, and adolescent delinquency diagnosis reflects stages of evolution and regression. The poverty rate for the age range of 0-17 exceeds 30% throughout the analyzed period.

Among the analyzed statistical indicators: the rate of people dropping out of school and persons sentenced to life imprisonment in penitentiaries and rehabilitation centers shows a strong and inverse link. Thus, they influence each other, but the strong link is not a strong causal variable influence on the resulting variable, but is as causal variable influencing the outcome variable.

The relationship between education and poverty seen in terms of indicators: the ratio of persons dropping out of school and the severe material deprivation, by age groups shows that there is no connection, and this explains – the rate of severe material deprivation represents the share in total of population with severe material deprivation, ie persons aged 18 and over who, due to financial problems, cannot afford the basic things they need. The link between poverty and delinquency is strong and direct.

For the Romanian, Australian, German, Japanese and American teenage respondents the family and friends are important. Assumptions 1, 2 and 4 verify and assumption number 3 is not verified because the correlation of the coefficient between poverty and delinquency are direct and strong. In conclusion, the problems with an impact on teenagers are criminality and poverty.

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