

# INDIVIDUAL DIFFERENCES IN LEARNING DIFFICULTY

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## INTRODUCTION

Learning difficulty is common in early adolescence. It favors grade repetition, persistent low school performance, and school dropout ideation at 16 years without qualification.

It is not a random event but can be due to enduring individual difficulties which can alter physical, mental and cognitive capabilities. Individual difficulties include family and socioeconomic difficulties and also a wide range of health-related problems and violence sustained by adolescents. These issues are well known to be common in early adolescence and can be aggravated in early adolescence and adulthood.

This study in early adolescence assessed the relationships of learning difficulty with socioeconomic factors (gender, age, nationality, family structure, father's occupation, and family income), alcohol, tobacco, cannabis and hard drug use, health status, back pain, allergy, depressive symptoms, sustained physical/verbal violence, sexual abuse, and poor social support.

## METHODS

The study population comprised all 1,559 students attending the middle schools in a geographical area in north-eastern France. The study protocol included: an application to participate transmitted to parents, and data collection undertaken (2010) using an anonymous self-administered questionnaire in the course of a 1h-class period.

The questionnaire included: socioeconomic characteristics (gender, birth date, father's occupation, parents' education, nationality, family structure, and family income), measured body mass index, last-30-day alcohol, tobacco, cannabis and hard drug use, health status, back pain, allergy, lifetime depressive symptoms (Kandel scale), lifetime sustained physical/verbal violence, lifetime sexual abuse, social support, learning difficulty, grade repetition, low school performance (last trimester, <10/20), and school dropout ideation at 16 years. Learning difficulty was measured with a 4-item scale: lesson understanding, concentration/lesson learning, follow school pace/constraints, and school interrogations (range 0-4). Data were analyzed using multiple linear and logistic regression models.

## RESULTS

Boys represented 49.9% of subjects. Mean age was 13.5 (SD 1.3). European and non-European immigrants represented respectively 3.5% and 3.5% of subjects. One quarter of adolescents lived with divorced/separated parents or in reconstructed families, 11.9% with single parents or other non-intact families. Half of subjects had low parents' education, 32.5% low father's social status (manual workers 25.0% and non-working 7.5%), and 17.7% insufficient family income.

Alcohol, tobacco, cannabis and hard drug use affected respectively 35.2%, 11.2%, 5.6%, and 2.8% of subjects. Overweight affected 25.5% of subjects, obesity 10.6%, depressive symptoms 13.3%, poor health status 25.8%, back pain 50.6%, allergy 36.6%, sustained physical/verbal violence 16.2%, sexual abuse 3.7%, and poor social support 53.8%.

Learning difficulty affected 29.5% of subjects (14.4%, 7.4%, 4.0% and 3.7% had score 1, 2, 3 and 4, respectively). School repetition, low school performance, and school dropout ideation were also common: 14.7%, 8.2% and 3.8%, respectively.

The learning difficulty score was strongly related to school repetition (gender-age-adjusted odds ratio 1.56, 95% CI 1.38-1.76), low school performance (2.39, 2.08-2.75) and school dropout ideation (1.79, 1.50-2.13) (Fig. 1).

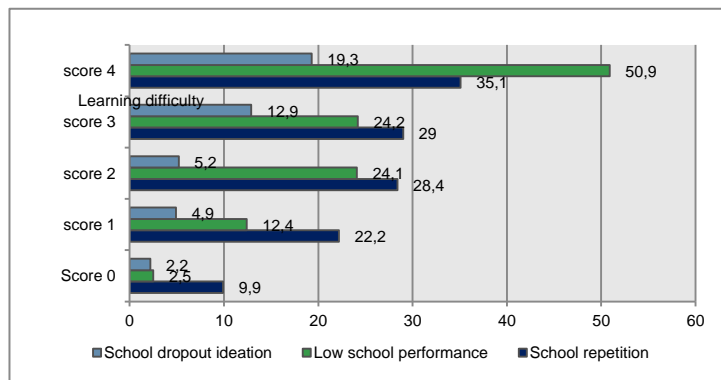


Fig. 1: Associations of learning difficulty score with grade repetition, low school performance and school dropout ideation: %

Table 1 shows that learning difficulty was strongly related to older age, being European or non-European immigrant, living in non-intact families, low parents' education, father's occupation, and insufficient income.

Learning difficulty was also related to use of alcohol, tobacco, cannabis, and hard drugs, overweight, obesity, poor health status, back pain, allergy, depressive symptoms, sustained violence, sexual abuse, and poor social support. These associations were partly explained by socioeconomic factors (contribution reaching 54%; it was 109% for alcohol use).

## DISCUSSION

Learning difficulty was common and often resulted in grade repetition, low school performance, and school dropout ideation in early adolescence. Individual differences in learning difficulty were due to licit and illicit drug use, overweight, obesity, poor health status, back pain, allergy, depressive symptoms, poor social support and maltreatments. This was expected because most of these issues affect physical, mental and cognitive capabilities as well as working performance and child development.

The associations between learning difficulty with health-related difficulties, unhealthy behaviors, sustained violence, sexual abuse, and poor social support were highly explained by family and socioeconomic difficulties. During the last decades, families are greatly changing leading to more children have fewer siblings and live with cohabiting, divorced/separated or single parents [6]. A parents' separation/divorce often results in poorer living conditions (residence/living environment change, lower socioeconomic resources, and lower social support). Poverty in households with children is raising in nearly all OECD countries (12.7%).

	Regression coefficient (SE) (1)	Regression coefficient (SE) (2)	% (3)
Boys	0.042 (0.052)		
Age (yr)	0.074‡ (0.021)		
<b>SOCIOECONOMIC FACTORS</b>			
Nationality: vs. French			
European immigrants	0.34* (0.14)		
Non-European immigrants	0.76‡ (0.14)		
Family structure: vs. Intact family			
Divorced/separated parents and reconstructed family	0.34‡ (0.061)		
Single parent and others	0.52‡ (0.081)		
Low parents' education			
Father's occupation: vs. managers, professionals, and intermediate professionals	0.41‡ (0.051)		
Craftsmen, tradesmen, and firm heads	0.18‡ (0.071)		
Service workers and clerks	0.21* (0.094)		
Manual workers and other occupations	0.48‡ (0.066)		
Not working	0.56‡ (0.10)		
Insufficient family income	0.31‡ (0.068)		
<b>BEHAVIOR AND HEALTH-RELATED DIFFICULTIES</b>			
Substance use			
Alcohol	0.22‡ (0.057)	0.24‡ (0.055)	109
Tobacco	0.74‡ (0.082)	0.62‡ (0.081)	16
Cannabis	0.71‡ (0.11)	0.61‡ (0.11)	14
Hard drugs	1.25‡ (0.16)	1.09‡ (0.15)	13
Body mass index: vs. Normal weight			
Underweight	-0.14 (0.24)	-0.17 (0.23)	-
Overweight	0.17‡ (0.062)	0.079 (0.060)	54
Obesity	0.43‡ (0.086)	0.32‡ (0.084)	26
Poor health status	0.45‡ (0.059)	0.35‡ (0.058)	22
Back pain	0.21‡ (0.053)	0.18‡ (0.051)	14
Allergy	0.11* (0.054)	0.11* (0.052)	0
Depressive symptoms	0.69‡ (0.077)	0.63‡ (0.074)	9
Being victim of physical/verbal violence	0.41‡ (0.071)	0.37‡ (0.068)	10
Being victim of sexual abuse	0.72‡ (0.14)	0.54‡ (0.13)	25
Poor social support	0.22‡ (0.036)	0.17‡ (0.036)	23

\*p<0.05, †p<0.01, ‡p<0.001.

(1) Model 1 provides sex-age-adjusted regression coefficient (SE).

(2) Model 2: further adjusted for socioeconomic factors regression coefficient (SE).

(3) Contribution of socioeconomic factors (%): 100\*[(1)-(2)]/(1).

Table 1: Correlates of learning difficulty: regression coefficients and standard error (SE)

## CONCLUSIONS

Learning difficulty was common and can lead to grade repetition, persistent low school performance, and school dropout ideation without qualification in early adolescence. Individual differences in learning difficulty were due to a number of health-related difficulties, unhealthy behaviors, sustained violence, and poor social support. The association between learning difficulty and these issues was highly explained by family and socioeconomic difficulties.

Prevention to limit learning difficulty and promote school achievement should help the adolescents affected to solve their learning problem. It should also focus on health-related difficulties, unhealthy behaviors, sustained violence, and poor social support, especially among the adolescents with family and socioeconomic difficulties.

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