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Original Article

Screening for adolescent suicidality in primary care: the bullying–insomnia–tobacco–stress test. A population-based pilot study

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Abstract

Aim: Adolescents at risk for suicide often see their general practitioner solely for somatic or administrative reasons. A simple screening test given during a conversation would be of substantial help to send a signal and tackle the problem. We propose to update a screening test previously validated in France – the TSTS-Cafard – because of significant changes in the lives of adolescents with the growth of the cyber world since 2000.

Methods: The design and setting was a cross-sectional study involving 912 15-year-old adolescents in 90 French schools. They completed a questionnaire that included the TSTS-Cafard and risk factors extracted from the *Health Behaviour in School-Aged Children* survey. To improve the test, we selected questions drawn from the recent literature. Answers were analysed according to 'suicidality' = at least one suicide attempt in life or suicidal ideation often over the past 12 months.

Results: Suicidality rates were 9.6% for boys and 23.1% for girls. Although the TSTS-Cafard test was generally effective, one question was no longer discriminating. A new test, entitled 'BITS', included only four questions on bullying, insomnia, tobacco and stress, with three levels of response and scores ranging from 0 to 8. Improvement was achieved without loss of performance. Using a cut-off score of 3, we achieved 78% accuracy (area under the curve), 75% sensitivity and 70% specificity.

Conclusion: The BITS test could allow the question of suicide risk to be addressed during a routine check-up in primary care but the results need to be validated with 13 to 18-year olds.

Key words: adolescent, general practice, mass screening, primary health care, suicide attempt.

INTRODUCTION

Suicide is the first cause of mortality for girls aged 15 to 19 years throughout the world,[1] the third for youth in the USA and the second in Europe.[2] Suicidal ideation (SI) and suicide attempts (SAs) are much more frequent. According to country, prevalence of suicide attempts amongst adolescents ranges from 1.3 to 3.8% in boys and from 1.5 to 10.1% in girls.[3] Amongst 15-year olds, the average rate observed in Europe is markedly higher: 10.5%.[4] Although SAs are seldom followed by death, the number of violent deaths significantly rises after the SA and quadruples amongst SA repeaters.[5] In the long run, youth at risk of suicidal behaviour present more problems as adults than youth not at risk of suicidal behaviour.[6]

In this context, screening not only effectively enhances the likelihood that youth at risk of suicidal behaviour will get into treatment[7] but also helps to diminish subsequent morbidity and mortality.[2] That is why public health authorities strongly advise primary health caregivers to screen troubled youths.[8,9]

General practitioners (GPs) are in an excellent position to do so.[10,11] After all, most teenagers (80%)

consult their GPs at least once a year.[12] Only 8%, however, see them for a psychological reason.[13] And although teenagers with psychological difficulties consult as often as other teenagers, their complaints are generally somatic.[14] They prefer to confide in friends and relatives.[15]

Moreover, GPs are generally reluctant to interrogate on suicide even when depressive symptoms have appeared.[16] Fortunately, tools have been elaborated to screen suicidal danger. Examples include the Suicide Risk Screen,[17] the Suicidal Ideation Questionnaire Junior[18] and the Columbia Health Screen,[19] but they are applied either in a school setting or amongst teenagers whose problems have already been recognized. Screening necessitates a simpler tool, which would provide early warning.

On this subject, our team previously elaborated and validated a simple oral test for GPs: the 'TSTS-Cafard' .[20] In French, its letters stand for questions on the following points: traumatisms, sleep, school stress, family stress, nightmares, aggressions, tobacco, school absenteeism and disagreeable experience of family life.

It was recommended by the French National Authority for Health (HAS) in 2014.[9] However, the test is based on data collected in 1999, and over the last 15 years, given the new means of communication with the growth of the cyber world, teenagers' lives have been substantially modified.

The first purpose of this study was to evaluate the current use of the TSTS-Cafard test by verifying whether its questions remained related to SAs during a patient's life or frequently occurring SI over the year (='suicidality'). The second objective was to propose an updating of the themes explored by the test in accordance with the literature and to simplify the questionnaire mode while continuing to achieve a score sufficiently sensitive and specific to establish a link with suicidality, that is to say an area under the curve higher than or equal to 75%.

METHODS

Sample and survey design

In June 2012, we carried out a cross-sectional survey involving a representative sample of adolescents aged 15 years enrolled in 90 randomly drawn schools from a French region (Poitou-Charentes) (n = 1235). This administrative entity represents 3% of the overall French population. We focused our study on 15-year olds because they represent the most widely studied age bracket in Europe[4] and have the highest hospitalization rate in France for SA.[21]

Selection was carried out by the statistics services of the French education ministry.

All parents were informed about the survey and of their right not to participate. As is the case in France for surveys conducted in a school setting, the study was approved by competent authorities in the French Ministry of Education. In accordance with French legislation on observational studies, the survey was registered by the National Commission on Informatics and Liberty (n°1560423), which is tasked with personal data protection.

In June 2012, at school, all of the youthful participants were asked to fill out with pen and ink a self-completion paper questionnaire under examination conditions and monitored by a health professional. In order to minimize data capture errors, each paper collected went through two manual and independent data capture operations. The computerized files were then compared and corrected, if necessary.

The questionnaire included 200 questions exploring 88 themes. Most of the questions were extracted from the cross-national Health Behaviour in School-Aged Children according to a standardized research protocol. [22] It has been validated for 15-year olds. We added the 10 TSTS-Cafard questions.

The outcome variable

The outcome variable defining suicidality was derived from the answers to the following questions: (i) 'Over the past 12 months, have you thought of suicide?' 1 – never, 2 – rarely, 3 – often, 4 – very often; 'Over the past 12 months, have you thought of suicide?' 1 – never, 2 – rarely, 3 – often, 4 – very often; (ii) 'Over the course of your life, how many times have you tried to commit suicide?' 1 – never 2 – once, 3 – two times and more. We considered suicidality positive the answers 3 + 4 to the first question or 2 + 3 to the second question. We considered suicidality negative the answers 1 or 2 to the first question and 1 to the second question.

Independent variables

Wishing to update the TSTS-Cafard, the group of authors has rebuilt the questionnaire. The guiding principle was following a review of the recent literature to limit the test to four main risk factors for suicidality from a biological, psychological, social and behavioural standpoint.[23] The themes were further specified by making a choice amongst the 200 questions originally in the questionnaire in view of achieving improved simplicity. The group then

defined three levels of severity for each question: absent, present and severe.

Biologically, sleep disorder was well-correlated with suicidality.[24] Difficulty falling asleep, present in the TSTS-Cafard, was extended in our search to 'nocturnal awakening'. Frequent nightmares were still considered as an indicator of severity.[25]

Psychologically, perceived stress is associated with suicidality during adolescence.[26] School-related stress[27] is dissociated from family-related stress[28]; although this distinction already existed in the TSTS-Cafard, we have related severity to the aggregation of stresses rather than the intensity of each one. Even though schoolmates and family are recognized as the usual recourses, their combined malfunction contributes to a person's breakdown and to his advancing from word to deed.[29]

Socially, the dangers of bullying and cyberbullying are well-known.[30] Level of severity is determined according to whether or not they are limited to a school setting.

Amongst the behaviours associated with suicidality, tobacco use is easy to explore and has been one of the most regularly studied,[31] its level of severity being associated with daily smoking.

Statistical analysis

To assess the performance of the TSTS-Cafard test, the answers were converted into scores ranging from 0 to 10 by summing single dimension scores (Table 1). The analysis compared average scores according to suicidality (Mann–Whitney test) and distribution of the items in each of the five fields studied (likelihood ratio test for the logistic regression). Odd ratios were estimated with 95% confidence intervals. The questions considered for inclusion in the updated version of the screening tool were subjected to exploratory analyses by the Mann–Whitney test or Fisher's exact test. The final version of the abbreviated suicidality risk factor screening was subjected to univariate and then multivariate analysis by logistic regression. A ROC curve ensured representation of the sensitivity and specificity of the revised tool for detection of risk of suicidality according to the different levels of

TABLE 1. Responses to TSTS-Cafard questions from French 15-year-old teenagers in relation to suicidality[a]

	Questions of the TSTS-Cafard test	Score	*N*	Suicidality[a]				
				n	%	*P*	OR	95% CI
Trauma	Have you been hurt or had an accident necessitating even limited medical treatment by a nurse or doctor over the last 12 months? = no	0	354	45	12.7	<0.0001	1	
	....."..... = yes	1	346	41	11.8		0.92	(0.59; 1.45)
	Over the last 2 months, have you been physically attacked: hit, pushed, locked up or kicked in or out of school? = yes	2	211	64	30.3		2.99	(1.95; 4.59)
Sleep	Do you generally have difficulties falling asleep? = no	0	480	43	9.0	<0.0001	1	
	....."..... = yes	1	312	63	22.1		2.89	(1.91; 4.36)
	Do you often have nightmares? = yes	2	114	36	31.6		4.69	(2.83; 7.77)
Tobacco	Have you smoked tobacco? = no	0	405	38	9.4	<0.0001	1	
	Have you smoked tobacco or do you smoke occasionally? = yes	1	328	51	15.5		1.78	(1.14; 2.78)
	Do you smoke at least one (tobacco) cigarette a day? = yes	2	162	60	37.0		5.68	(3.58; 9.02)
Stress (school)	Are you stressed by schoolwork? = no or a little	0	606	75	12.4	<0.0001	1	
	....."..... = yes, somewhat or very much	1	167	35	21.0		1.89	(1.20; 2.93)
	Have you often cut classes, arrived late or been absent for at least 1 day? = yes	2	133	40	30.1		3.05	(1.96; 4.74)
Stress (family)	Is your family life tense? = no	0	646	60	9.3	<0.0001	1	
	....."..... = yes	1	128	36	28.1		3.82	(2.39; 6.10)
	Is your family life unpleasant? = yes	2	130	51	39.2		6.31	(4.06; 9.80)

[a]At least one suicide attempt in life or suicidal ideation often or very often over the past 12 months.

the threshold or cut-off value. The area under the receiver operating characteristic (ROC) curve was provided an index for overall test performance. Statistical analyses were carried out with STATISTICAL ANALYSIS SYSTEM software (version 9.3). The significance limit of the tests was set at $P < 0.05$.

RESULTS

The population studied

Out of the 1235 teenagers registered in the 90 school establishments, 74% ($n = 912$) participated and submitted a usable questionnaire; 50.9% of them were girls, 95% study in general education, 74% have two working parents and 18% have one; 69% live with their two parents, 18% with one and 13% in a newly formed family unit or another configuration. The Family Affluence Scale indicator was low for 4%, intermediate for 25% and high for 71%. The proportion of teenagers having consulted at least once a year was GP: 91%; specialist: 40%, school physician or nurse: 52% and psychologist or psychiatrist: 14%. Excess weight was present in 10% of the teenagers. Suicidal ideation frequency 'often or very often over the past 12 months' was 32.2% for girls and 16.1% for boys. SA frequency 'in life' was 22.8% for girls and 8% for boys. Distribution of suicidality, according to the definition, was 23.1% for girls and 9.6% for boys.

The pre-existing test: the TSTS-Cafard

Comparison of the average scores reported in the TSTS-Cafard test (a high score indicates a higher risk. Maximum = 10) confirmed the ability of the tool to discriminate adolescents with suicidality (5.0 ± 2.3) from adolescents not reporting suicidality (2.7 ± 1.9, $P < 0.0001$). Each one of the five themes was significantly associated with suicidality (Table 1). However, answers to the questions pertaining to small traumatisms were no longer significantly associated with suicidality. Moreover, multivariate logistic regression analysis revealed a lack of independence between variables, suggesting that variables may be removed from the tool without significant loss of information.

The newly elaborated test

The questions selected for the new test were distributed as shown in Table 2. The four themes were characterized by three levels of severity: 0, 1 and 2. The maximum score was 8. The average score of the tool was significantly more elevated in adolescents with suicidality (3.7 ± 1.8) than in adolescents not reporting suicidality (1.8 ± 1.6, $P < 0.0001$). The difference reached significance in both girls (3.8 ± 1.8 vs. 2.1 ± 1.7, $P < 0.0001$) and boys (3.4 ± 1.8 vs. 1.5 ± 1.4, $P < 0.0001$). Each of the items selected was associated with a significant level of

TABLE 2. Responses to BITS questions from French 15-year-old teenagers in relation to suicidality[a]

Questions of the BITS test	Responses	Score	*N*	Suicidality[a]				
				n	%	*P*-value	OR	CI
Bullying?	Neither bullying nor violence undergone	0	551	55	10.0	<0.0001	1	
	Bullying undergone at school	1	227	51	22.5		2.61	1.72; 3.97
	Victimized by violence outside of school	2	128	43	33.6		4.56	2.88; 7.23
Sleep disorders?	None	0	532	51	9.6	<0.0001	1	
	Sleep disorders without frequent nightmares	1	266	63	23.7		2.93	1.95; 4.38
	Frequent nightmares	2	114	36	31.6		4.35	2.67; 7.10
Tobacco smoking?	Non-smoker	0	611	64	10.5	<0.0001	1	
	Occasional smoker	1	139	26	18.7		1.97	1.19; 3.24
	Daily smoker	2	162	60	37.0		5.03	3.33; 7.58
Stress experienced?	Hardly or not stressed by the school or family	0	523	42	8.0	<0.0001	1	
	Stressed by schoolwork or family life	1	314	78	24.8		3.78	2.52; 5.68
	Stressed by schoolwork and family life	2	75	30	40.0		7.63	4.36; 13.36

[a]At least one suicide attempt in life or suicidal ideation often or very often over the past 12 months.

severity. Logistic regression showed mutual independence of the variables selected.

Sensitivity and specificity

Suicidality prevalence increased according to the abbreviated tool score with frequency doubling between 2 and 3 points (Fig. 1). For a threshold value of 3 points, the ROC curve underscored sensitivity and specificity rates, allowing this limit to be accepted as an 'alerting' cut-off value: Se = 75%, CI 95% (67; 81%), Sp = 70%, CI 95% (67; 73%) and area under the curve ROC = 78%. These results were moderately more elevated than those recorded in the TSTS-Cafard test (Se = 71%, Sp = 68%) and similar for the two sexes: girls Se = 75% (66; 83%), Sp = 62% (57; 68%); boys Se = 72% (56; 85%), Sp = 77% (73, 81%) (refer to Fig. 2).

DISCUSSION

Key findings

The TSTS-Cafard test remains globally effective as a tool screening the past history or the suicidal present of 15-year olds. Some of the questions, however, are less meaningful than before, so we have updated and simplified. Four questions may suffice, and they are answered in two phases:

- Have you recently been mistreated or bullied at school, including by telephone or on the Internet … outside of school?

FIGURE 1. Suicidality * frequency according to BITS test score according to gender. *At least one suicide attempt in life or suicidal ideation often or very often over the past 12 months.

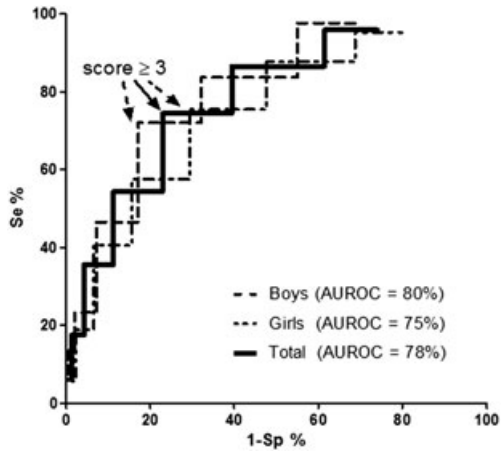
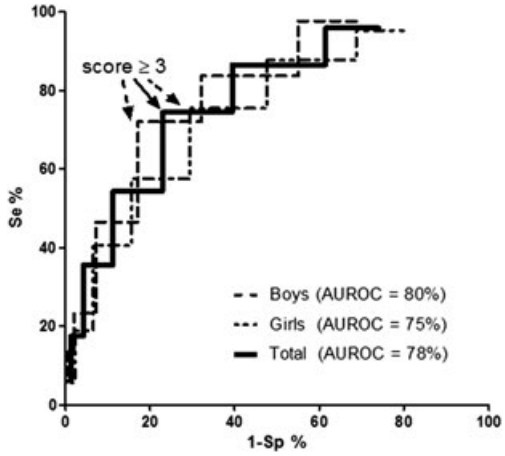


FIGURE 2. Sensitivity and specificity of the BITS for suicidality * detection in 15-year olds. Receiver operating characteristic curves according to gender. *At least one suicide attempt in life or suicidal ideation often or very often over the past 12 months.



- Have you often had trouble sleeping … nightmares?
- Do you feel stressed by schoolwork or the family atmosphere … by both?
- Do you smoke tobacco … every day?

A positive response counts in the first part for 1 point, and in the second part for 2 points. Only the highest value is taken into account. Once the threshold of 3 points is reached, the health professional should be alerted and impelled to directly interrogate the teenager on the question of suicide. Memorization is facilitated by four keywords: bullying–insomnia–tobacco–stress; taken together, they constitute the acronym of the BITS test.

Strengths and limitations

This study has some weaknesses.

- The survey was limited to 15-year olds; this is important inasmuch as the results cannot currently be extended or extrapolated to other age brackets. However, this is the age at which suicidality is most frequent.[21]
- The participation rate was indeed limited to 74%. At the time the test was given, in June, many of the vocational school students were engaged in on-the-job training. However, their absence does not modify our analysis, because specific surveys have shown identical rates of SI and SA.
- The randomization was rigorously achieved but the survey covered only one French region. The characteristics of these adolescents are similar to the French average. That said, it would be useful

to have this test given in other French-speaking regions.
- Identification of a possible suicide issue was limited to two questions. In fact, the questionnaire comprises two more, one on SA over 12 months, and the other on the adolescent's subsequent attitude, but analysis of the answers added nothing of value to the correlations observed.
- As regard the question on SI, the answer 'seldom' was considered in the BITS assessment as negative rather than positive, the reason being that we wished to identify a genuine issue characterized by repeated turmoil and not an exceptional or transient occurrence with little impact on an adolescent. As concerns sleep difficulties or disorders, our choice was the same.
- The self-administered paper questionnaire does not allow us to extrapolate whether effectiveness is similar to that achieved through oral questioning in GP consultation. However, the formulations of the Health Behaviour in School-Aged Children Questionnaire have been validated through interviews with teenagers and deemed comparable from one country to the next, notwithstanding obvious cultural differences.[22] It should be added that the TSTS-Cafard test has been of demonstrated effectiveness in general medicine consultations.[20]
- Although the responses to a given question may differ according to gender, the complete test is similarly effective when taken by either boys or girls. Because the formulations are gender-independent, the BITS test can interrogate both sexes.

Comparison with existing literature

The test performance is good and in accordance with our objectives and the literature (area under ROC = 80% in boys and 75% in girls). At the three-point threshold, sensitivity (0.75) and specificity (0.70) are comparable to those recorded for other tools applied in primary care; one example is the Adolescent Depression Rating Scale, the one scale validated in French measuring depression in teenagers.[32]

Most of the known tests are assessments of teenagers whose problems have already been recognized, and they are not adapted to oral screening of whoever has recourse to primary care. They necessitate a document and take time: 10 min for the Columbia Suicide Screen[33] and 5 to 8 min for the Suicidal Ideation Questionnaire Junior.[18] Finally, the training programs aimed at initiating GPs to suicidality screening require two 1-h presentation sessions.[34]

It has been shown that use of the TSTS-Cafard did not increase the average time of consultation (16 min), and that a positive result added only 4 min.[20]

The interest of putting forward simple test questions has already been noted.[35] Moreover, family physicians have been focusing to an increasing extent on optimizing development of prediction indices across all domains.[36] Our test responds to these different concerns.

Finally, could not this approach create false positives? But talking about suicide to a teenager who has asked no questions and feels unconcerned neither causes distress nor provokes SI.[37]

Implications for research, education and clinical practice

The test is simple and easy to teach. That much said, the usefulness of the BITS test is intrinsically limited; it is neither a diagnostic nor a predictive tool. All it does is accumulate targeted indexes alerting to the possible timeliness of introducing the question of suicide. In this respect, it satisfactorily fulfils its function. In what way could divulgation modify health care? When a physician reveals suicidality, he enhances his knowledge of his patient, whereas the adolescent discovers a possible interlocutor and emerges from his isolation.

What can a GP subsequently do, because the teenager has made no request? At first, he needs to consolidate the diagnosis. Other scales can then be applied.[18,32–34] After that, he will orient the teenager in accordance with his training, his interpersonal skills, his professional environment and his proximity to specialized units. Having been disclosed, the situation will necessitate evaluation calibrated to the imminence of the danger. Although this simple and practical signalling method can be of help, a number of different parameters tend to prevent a general practitioner from investing himself and providing early intervention for youth mental health: patients' families' attitudes, lack of availability and specialized staff and limited interagency coordination.[38]

This study is only a preliminary approach. Validation of the test shall depend on the development of studies appraising its use in a general medicine customer base over a widened age span first in different French-speaking regions and subsequently, in English-speaking countries. Finally, it will be necessary to measure the impact that its revelation will have had on the teenager's life. These are the steps calling for further research.

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REFERENCES

1. Patton GC, Coffey C, Sawyer SM *et al.* Global patterns of mortality in young people: a systematic analysis of population health data. *Lancet* 2009; **374**: 881–92.
2. Hawton K, Saunders KE, O'Connor RC. Self-harm and suicide in adolescents. *Lancet* 2012; **379**: 2373–82.
3. De Tournemire R. Teenagers' suicides and suicide attempts: finding one's way in epidemiologic data. *Arch Pediatr* 2010; **17**: 1202–9.
4. Kokkevi A, Rotsika V, Arapaki A, Richardson C. Adolescents' self-reported suicide attempts, self-harm thoughts and their correlates across 17 European countries. *J Child Psychol Psychiatry* 2012; **53**: 381–9.
5. Christiansen E, Jensen BF. Risk of repetition of suicide attempt, suicide or all deaths after an episode of attempted suicide: a register-based survival analysis. *Aust N Z J Psychiatry* 2007; **41**: 257–65.
6. Goldman-Mellor SJ, Caspi A, Harrington H *et al.* Suicide attempt in young people: a signal for long-term health care and social needs. *JAMA Psychiatry* 2014; **71**: 119–27.
7. Gould MS, Marrocco FA, Hoagwood K, Kleinman M, Amakawa L, Altschuler E. Service use by at-risk youths after school-based suicide screening. *J Am Acad Child Adolesc Psychiatry* 2009; **48**: 1193–201.
8. World Health Organization. *Towards Evidence-Based Suicide Prevention Programs*. Geneva, Switzerland: WHO, 2010.
9. Haute Autorité de Santé. Recommandations de bonne pratique. Manifestations dépressives à l'adolescence. Repérage, diagnostic et stratégie des soins de premier recours. Paris: *HAS*; nov 2014
10. Mauerhofer A, Berchtold A, Michaud PA, Suris JC. GPs' role in the detection of psychological problems of young people: a population-based study. *Br J Gen Pract* 2009; **59**: e308–14.
11. Rickwood DJ, Deane FP, Wilson CJ. When and how do young people seek professional help for mental health problems? *Med J Aust* 2007; **187**: S35–9.
12. Zwaanswijk M, Verhaak PF, Ende J *et al.* Consultation for and identification of child and adolescent psychological problems in Dutch general practice. *Fam Pract* 2005; **22**: 498–506.
13. Hetlevik Ø, Haug K, Gjesdal S. Young people and their GP: a register-based study of 1717 Norwegian GPs. *Fam Pract* 2010; **27**: 3–8.
14. Wilson CJ, Deane FP, Marshall KL, Dalley A. Adolescents' suicidal thinking and reluctance to consult general medical practitioners. *J Youth Adolesc* 2010; **39**: 343–56.
15. Michelmore L, Hindley P. Help-seeking for suicidal thoughts and self-harm in young people: a systematic review. *Suicide Life Threat Behav* 2012; **42**: 507–24.
16. Feldman MD, Franks P, Duberstein PR, Vannoy S, Epstein R, Kravitz RL. Let's not talk about it: suicide inquiry in primary care. *Ann Fam Med* 2007; **5**: 412–8.
17. Thompson EA, Eggert LL. Using the suicide risk screen to identify suicidal adolescents among potential high school dropouts. *J Am Acad Child Adolesc Psychiatry* 1999; **38**: 1506–14.
18. Reynolds WM, Mazza JJ. Assessment of suicidal ideation in inner-city children and young adolescents: reliability and validity of the Suicidal Ideation Questionnaire-JR. *School Psychology Review* 1999; **28**: 17–30.
19. Posner K, Brown GK, Stanley B *et al.* The Columbia-Suicide Severity Rating Scale: initial validity and internal consistency findings from three multisite studies with adolescents and adults. *Am J Psychiatry* 2011; **168**: 1266–77.
20. Binder P, Chabaud F. To detect teenagers' suicide behaviour (II). Clinical audit among 40 general practitioners. *Rev Prat* 2007; **57**: 1193–99.
21. Chan-Chee C. Hospitalisations pour tentatives de suicide entre 2004 et 2007 en France métropolitaine. Analyse du PMSI-MCO. *Bull Epidemiol Hebd* 2011; **47–48**: 492–496.
22. Ravens-Sieberer U, Erhart M, Torsheim T *et al.* HBSC Positive Health Group. An international scoring system for self-reported health complaints in adolescents. *Eur J Public Health* 2008; **18**: 294–9.
23. Posner K, Glenn A. Factors in the assessment of suicidality in youth. *CNS Spectr* 2007; **12**: 156–62.
24. Pigeon WR, Pinquart M, Conner K. Meta-analysis of sleep disturbance and suicidal thoughts and behaviors. *J Clin Psychiatry* 2012; **73**: e1160–7.
25. McCall WV, Batson N, Webster M *et al.* Nightmares and dysfunctional beliefs about sleep mediate the effect of insomnia symptoms on suicidal ideation. *J Clin Sleep Med* 2013; **9**: 135–40.
26. Stanley IH, Snyder DJ, Westen S *et al.* Self-reported recent life stressors and risk of suicide in pediatric emergency department patients. *Clin Pediatr Emerg Med* 2013; **14**: 35–40.
27. Walburg V, Zakari S, Chabrol H. Role of academic burnout in suicidal ideas among adolescents. *Neuropsychiatr Enfance Adolesc* 2014; **62**: 28–32.
28. Mark L, Samm A, Tooding LM *et al.* Suicidal ideation, risk factors, and communication with parents. An HBSC study on school children in Estonia, Lithuania, and Luxembourg. *Crisis* 2013; **34**: 3–12.
29. Boudreault-Bouchard AM, Dion J, Hains J, Vandermeerschen J, Laberge L, Perron M. Impact of parental emotional support and coercive control on adolescents' self-esteem and psychological distress: results of a four-year longitudinal study. *J Adolesc* 2013; **36**: 695–704.
30. Van Geel M, Vedder P, Tanilon J. Relationship between peer victimization, cyberbullying and suicide in children and adolescents : a meta-analysis. *JAMA Pediatr* 2014; **168**: 435–42.
31. Riala K, Taanila A, Hakko H, Rasanen P. Longitudinal smoking habits as risk factors for early-onset and repetitive suicide attempts: the Northern Finland 1966 Birth Cohort study. *Ann Epidemiol* 2009; **19**: 329–35.
32. Revah-Levy A, Birmaher B, Gasquet I, Falissard B. The Adolescent Depression Rating Scale (ADRS): a validation study. *BMC Psychiatry* 2007; **7**: 2.
33. Shaffer D, Scott M, Wilcox H *et al.* The Columbia Suicide Screen: validity and reliability of a screen for youth suicide and depression. *J Am Acad Child Adolesc Sychiatry* 2004; **43**: 71–79.
34. Fallucco EM, Conlon MK, Gale G, Constantino JN, Glowinski AL. Use of a standardized patient paradigm to enhance proficiency in risk assessment for adolescent depression and suicide. *J Adolesc Health* 2012 Jul; **51** (1): 66–72.

35. Shain BN, American Academy of Pediatrics Committee on Adolescence. Suicide and suicide attempts in adolescents. *Pediatrics* 2007; **120**: 669–76.
36. Van Voorhees BW, Paunesku D, Gollan J, Kuwabara S, Reinecke M, Basu A. Predicting future risk of depressive episode in adolescents: the Chicago Adolescent Depression Risk Assessment (CADRA). *Ann Fam Med* 2008; **6**: 503–11.
37. Gould MS, Marrocco FA, Kleinman M *et al.* Evaluating iatrogenic risk of youth suicide screening programs: a randomized controlled trial. *JAMA* 2005; **293**: 1635–43.
38. Leahy D, Schaffalitzky E, Saunders J *et al.* Role of the general practitioner in providing early intervention for youth mental health: a mixed methods investigation. *Early Interv Psychiatry* 2015; DOI: 10.1111/eip.12303. [Epub ahead of print].