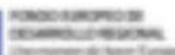# Utilidad de los programas de prevención universal en la reducción del riesgo suicida en población adolescente

Pilar Alejandra Sáiz

Conflicto de intereses

Financiación	Apoyo a la investigación	Consejo asesor	Ponente / Redactor
Adamed			X
CIBERSAM	X		
European Comission	X		
Gobierno del Principado de Asturias			
Instituto de Salud Carlos III	X		
Janssen-Cilag	X	X	X
Lundbeck	X		X
Otsuka			X
Pfizer			X
Plan Nacional sobre Drogas	X		
Servier			X

Magnitud del comportamiento suicida en adolescentes

- 2-3ª causa de muerte en el grupo de 15-19 años[1]

- 13.500 suicidio / año en personas de 15-24 años[2]

- 100-200 TS por cada suicidio en personas de 15-24 años[2]

- 10% de repeticiones de TS dentro del 1er año tras TS index[3]

[1]Wasserman et al, 2010; [2]Bertolote & Fleischmann, 2009; [3]Hulten et al, 2002

Factores de riesgo de comportamiento suicida en población infanto-juvenil

- ○ Trastornos mentales[1-3]
  - ● Infradiagnóstico – Infratratamiento[4]
  - ● Depresión[5], ansiedad[6], abuso de alcohol[7], cuadros psicóticos[8], etc
- ○ Comportamientos de riesgo
  - ● Acoso[9-11], prácticas sexuales de riesgo[12], delincuencia[13], abuso de sustancias[14], auto-agresiones[15], falta de actividad física[16], hábitos alimentarios inadecuados[17], etc
- ○ AVEs[18]
- ○ Factores biológicos (genéticos)

[1]Brent et al, 1999; [2]Shaffer et al, 1996; [3]Mittendorfer-Rutz et al, 2008; [4]Shaffer et al, 2004; [5]Hollis, 1996; [6]D'Attilio & Campbell, 1990; [7]Buri et al, 2009; [8]Nishida et al, 2010; [9]Brunstein Klomek et al, 2007; [10]Klomek et al, 2009; [11]Kaminski & Fang, 2009; [12]Houck et al, 2009; [13]Brent & Bridge, 2007; [14]Schneider et al, 2009; [15]Brunner et al, 2007; [16]Brown et al, 2007; [17]Ahren-Moonga et al, 2008; [18]Brent et al, 2008

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"risk behaviour syndrome"

- AVEs[18]
- Factores biológicos (genéticos)

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Programas preventivos en la reducción de comportamientos suicidas

	Concienciación[1,2]	Screening[3-6]	"Cuidadores"[2,7]
USA	+/-	++	+
	Evidencia de eficacia dudosa	Eficaz, falsos +	Eficaz, empatía / comunicación
Europa	No datos	No datos	No datos

[1]Hoven et al, 2009; [2]Zenere & Lazarus, 1997; [3]Shaffer et al., 2004; [4]Reynolds & Penney, 1990; [5]Thompson & Eggert, 1999; [6]Bridge et al, 2006; [7]Wyman et al, 2008

Proyecto SEYLE
(Saving and Empowering Young Lives in Europe)

- FP7-HEALTH-2007-B (Ref. HEALTH-F2-2009-22309)
- Ensayo controlado y aleatorizado (Reg. DRKS00000214)

- Centro Coordinador
  - Instituto Karolinska, Suecia
- Centros Participantes
  - 11 países europeos (incluyendo Israel)
- Asesor Externo
  - Universidad de Columbia (NY)

Instituto Karolinska de Estocolmo

Instituto Sueco-Estonio de Salud Mental y de Suicidio ERSI de Ta...

Fundación Nacional para la investigación del Suicidio de Cork

Universidad de Heidelberg

Universidad de Nancy

Hospital y Clínica Ambulatoria Infantil y de adolescentes de Vadeskert, Budapest

Universidad para Tecnología de Información Médica de Innsbruck

Universidad de UMF-CN de Cluj-Napoca

Universidad de Oviedo

Universidad de Primorska UPR de Koper

Universidad de Molise

Universidad de Tel Aviv

Proyecto SEYLE - España

SEYLE: objetivos

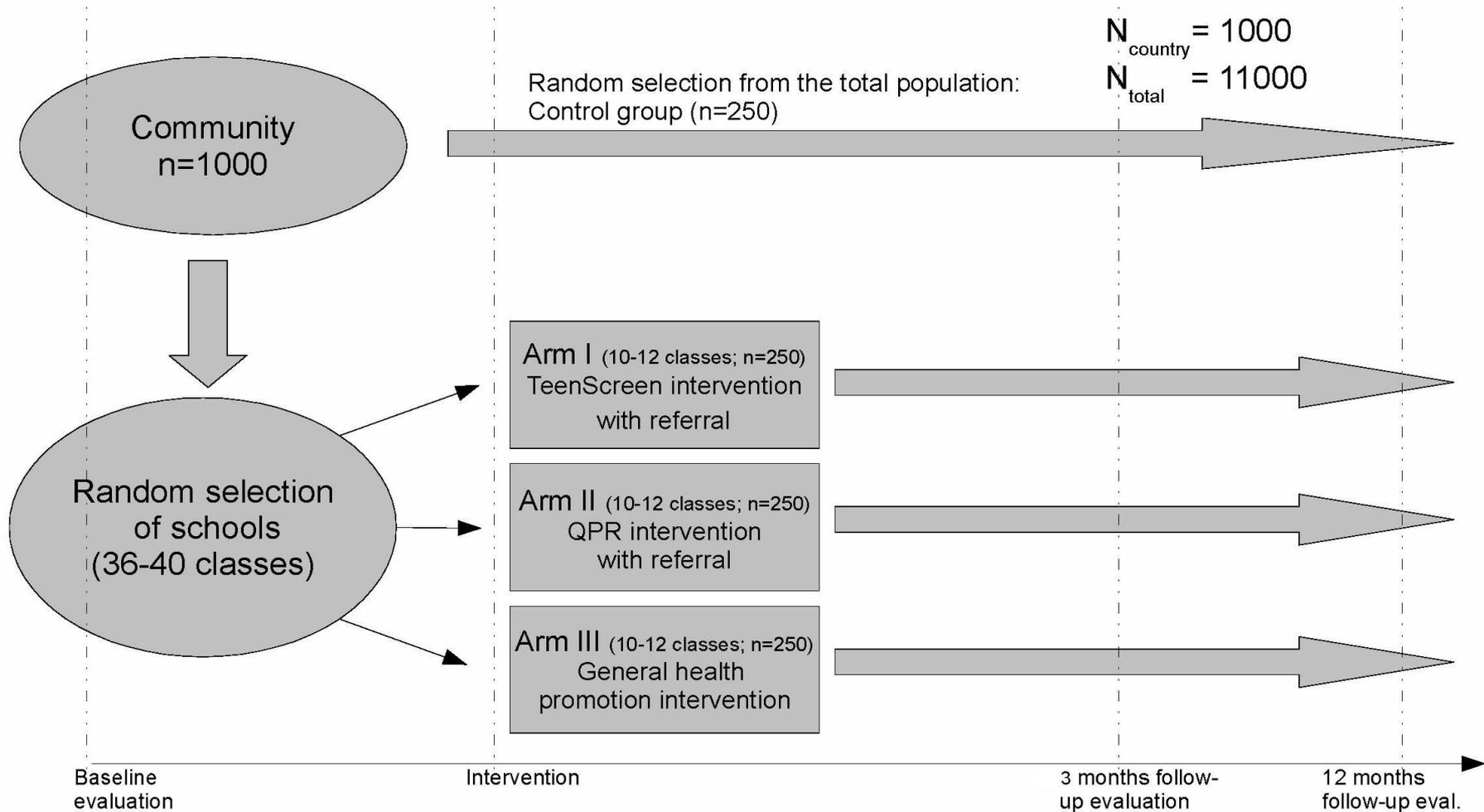**1. Recoger información sobre la SALUD de los ADOLESCENTES europeos**

2. INTERVENIR para MEJORAR la SALUD mediante la reducción de CONDUCTAS SUICIDAS y FACTORES DE RIESGO asociados

3. Evaluar las intervenciones frente a un GRUPO CONTROL

4. Recomendar modelos de PROMOCIÓN DE LA SALUD en ADOLESCENTES

Reducir la frecuencia de comportamiento suicida y su tasa de repetición en adolescentes europeos

SEYLE: diseño

Community
n=1000

Random selection from the total population:
Control group (n=250)

$N_{country} = 1000$
$N_{total} = 11000$

Random selection
of schools
(36-40 classes)

Arm I (10-12 classes; n=250)
TeenScreen intervention
with referral

Arm II (10-12 classes; n=250)
QPR intervention
with referral

Arm III (10-12 classes; n=250)
General health
promotion intervention

Baseline
evaluation

Intervention

3 months follow-
up evaluation

12 months
follow-up eval.

BMC Public Health

STUDY PROTOCOL

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Saving and Empowering Young Lives in Europe (SEYLE): a randomized controlled trial

Danuta Wasserman*[†1], Vladimir Carli[†1,13], Camilla Wasserman[15], Alan Apter[2], Judit Balazs[3], Julia Bobes[4], Renata Bracale[13], Romuald Brunner[5], Cendrine Bursztein-Lipsicas[2], Paul Corcoran[6], Doina Cosman[7], Tony Durkee[1], Dana Feldman[2], Julia Gadoros[3], Francis Guillemin[8], Christian Haring[10], Jean-Pierre Kahn[9], Michael Kaess[5], Helen Keeley[6], Dragan Marusic[11], Bogdan Nemes[7], Vita Postuvan[11], Stella Reiter-Theil[12], Franz Resch[5], Pilar Sáiz[4], Marco Sarchiapone[13], Merike Sisask[14], Airi Varnik[14] and Christina W Hoven[15]

BMC Public Health

STUDY PROTOCOL

Open Access

Saving and Empowering Young Lives in Europe

BMC Public Health

RESEARCH ARTICLE

Open Access

The Saving and Empowering Young Lives in Europe (SEYLE) Randomized Controlled Trial (RCT): methodological issues and participant characteristics

Vladimir Carli[1,2*], Camilla Wasserman[3,4], Danuta Wasserman[1,2], Marco Sarchiapone[4], Alan Apter[5], Judit Balazs[6,7], Julio Bobes[8], Romuald Brunner[9,10], Paul Corcoran[11], Doina Cosman[12], Francis Guillemin[13], Christian Haring[14], Michael Kaess[9,10], Jean Pierre Kahn[15], Helen Keeley[11], Agnes Keresztény[7,16], Miriam Iosue[4], Ursa Mars[17], George Musa[3], Bogdan Nemes[12], Vita Postuvan[17], Stella Reiter-Theil[18,19], Pilar Saiz[8], Peeter Varnik[20], Airi Varnik[21] and Christina W Hoven[3,21]

Evaluación basal

Alumnos Cuestionario de Evaluación Basal

Control

○ Cuestionario estructurado:

- Global School-Based Pupil Health Survey (GSHS)
- WHO Well-being Scale (WHO-5)
- Beck Depression Inventory – II (BDI-II)
- Zung Self-rating Anxiety Scale (SAS)
- Paykel Suicide Scale (PSS)
- Strengths and Difficulties Questionnaire (SDQ)
- Deliberate Self-Harm Inventory (DSHI)
- Young's Diagnostic Questionnaire (YDQ)
- European Values Study (EVS)
- Items específicos (datos sociodemográficos, lectura, música y hábitos de internet, afrontamiento, acoso, AVEs, estigma y discriminización, relaciones con pares y progenitores, salud física, uso / abuso de OH y otras sustancias, perspectivas de futuro, etc)

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- Deliberate Self-Harm Inventory (DSHI)
- Youth's Diagnostic Inventory
- Multicean Stigma Scale
- Items específicos (datos sociodemográficos, lectura, música y hábitos de internet, afrontamiento, acoso, AVEs, estigma y discriminización, relaciones con pares y progenitores, salud física, uso / abuso de OH y otras sustancias, perspectivas de futuro, etc)

>300 variables

70-90 minutos

Alumnos Cuestionario de Evaluación Basal

Control

Resultados

Participantes evaluación basal

Intervention arm	Gender	Baseline number (gender %)	3 Month follow-up number (gender %)	3 Month drop-out rate^ (%)	12 Month follow-up n (gender %)	12 Month drop-out rate* (%)
QPR	Males	1323 (43.6)	1158 (43.1)	12.5	1043 (43.3)	21.2
	Females	1694 (55.8)	1515 (56.3)	10.6	1352 (56.1)	20.2
	Both genders	3036	2689	11.4	2410	20.6
Awareness	Males	1351 (44.6)	1106 (43.4)	18.1	979 (42.1)	27.5
	Females	1664 (54.9)	1430 (56.1)	14.1	1333 (57.2)	19.9
	Both genders	3032	2551	15.9	2329	23.2
ProfScreen	Males	1301 (42.4)	1158 (42.1)	11.0	1024 (41.7)	21.3
	Females	1752 (57.1)	1583 (57.5)	9.7	1423 (58.0)	18.8
	Both genders	3070	2752	10.4	2455	20.0
Minimal Intervention	Males	1554 (47.7)	1323 (46.7)	14.9	1239 (46.7)	20.3
	Females	1689 (51.9)	1494 (52.8)	11.6	1403 (52.9)	16.9
	Both genders	3257	2831	13.1	2652	18.6
Total		12395	10823	12.7	9846	20.6

87%   79%

*From baseline.

Carli et al, 2013

Prevalencia de psicopatología en función de edad y sexo

	14 years and below (n=4.007)			15 years (n=5.350)			16 years and above (n=2.955)			All age groups (n=12.328)		
	Male (n=1,833)	Female (n=2,167)	Both genders	Male (n=2,183)	Female (n=3,160)	Both genders	Male (n=1,490)	Female (n=1,456)	Both genders	Male (n=5,529)	Female (n=6,799)	Both genders
Subthreshold depression	25.7*	32.0	29.1**	24.8*	35.4	31.1	27.1*	35.0	31.0	25.8	34.2	30.4
Depression	3.8*	9.2	6.7**	4.2*	10.6	8.0	7.4*	12.8	10.1	4.9	10.6	8.1
Subthreshold anxiety	14.0*	26.6	20.8**	14.7*	30.8	24.2	19.7*	31.1	25.3	15.8	29.5	23.3
Anxiety	1.6*	4.6	3.2**	2.4*	6.9	5.1	3.2*	8.8	6.0	2.3	6.6	4.7
Emotional symptoms	3.0*	9.9	6.7**	2.3*	11.0	7.4	4.3*	13.6	8.9	3.0	11.2	7.5
Conduct problems	10.7*	7.5	9.0**	11.4*	8.6	9.8	16.1*	9.3	12.7	12.5	8.4	10.3
Hyperactivity	10.9	9.1	9.9	8.6	9.0	8.8	9.6	9.8	9.6	9.6	9.2	9.4
Peer problems	3.1	2.7	2.9**	3.7*	2.7	3.1	7.0*	3.3	5.1	4.4	2.9	3.6
Lack of prosocial behavior	9.5*	3.1	6.0**	9.9*	4.0	6.5	12.7*	4.7	8.7	10.6	3.9	6.9
Non-suicidal self-injury	6.8*	10.7	8.9**	7.6	8.8	8.3	9.7	12.2	11.0	7.9	10.2	9.1
Suicidal ideation	21.2*	35.4	28.9**	23.5*	39.3	32.8	30.1*	42.5	36.2	24.5	38.7	32.3
Suicide attempts	2.2*	4.2	3.3**	2.8*	4.7	3.9	4.1*	7.5	5.8	3.0	5.1	4.2

Carli et al, 2014

Depresión y Ansiedad sub-umbral

Sub-A: 32.0% / A: 5.8%
Sub-D: 29.2% / D: 10.5%

	Levels of anxiety		Levels of depression	
	Boys %	Girls %	Boys %	Girls %
No anxiety/depression	50.35	49.65	50.35	49.65
Subthreshold- anxiety/ depression	38.24	61.76	38.24	61.76
Full anxiety/depression	24.07	75.93	24.07	75.93

N = 12,395.

	Total sample	Levels of anxiety			Levels of depression		
		NonA	SubA	A	NonD	SubD	D
PSS Median (Intequartile Range)	0 (0–1)	0 (0–0)	1 (0–3)	4 (1–10)	0 (0–0)	0 (0–2)	4 (2–9)
Life not worth living during past 2 weeks %	27.00	14.78	41.95	75.29	12.46	38.93	77.35
Wish that were dead during past 2 weeks %	18.52	8.21	30.00	65.61	6.99	25.08	66.52
Thought of taking own life during past 2 weeks %	16.79	7.86	26.74	57.50	6.74	21.76	60.70

Balázs et al, 2013

Depresión y Ansiedad sub-umbral

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N = 12,395.

Sub-A x 1.78
A x 2.77
Sub-D x 3.07
D x 9.21

		Levels of anxiety			Levels of depression		
	Total sample	NonA	SubA	A		S	D
PSS Median (Intequartile Range)	0 (0–1)	0 (0–0)	1 (0–3)	4 (1–10)	0 (0–0)	0 (0–2)	4 (2–9)
Life not worth living during past 2 weeks %	27.00	14.78	41.95				35
Wish that were dead during past 2 weeks %	18.52	8.21	30.00				52
Thought of taking own life during past 2 weeks %	16.79	7.86	26.74	57.50	6.74	21.76	60.70

Balázs et al, 2013

Article

Alcohol Consumption Patterns among Adolescents are Related to Family Structure and Exposure to Drunkenness within the Family: Results from the SEYLE Project

Erik Rüütel [1,2,*], Merike Sisask [1], Airi Värnik [1], Peeter Värnik [1], Vladimir Carli [3], Camilla Wasserman [4], Christina W. Hoven [4], Marco Sarchiapone [5], Alan Apter [6], Judit Balazs [7,8], Julio Bobes [9], Romuald Brunner [10], Paul Corcoran [11], Doina Cosman [12], Christian Haring [13], Miriam Iosue [5], Michael Kaess [10], Jean-Pierre Kahn [14], Vita Poštuvan [15], Pilar A. Sáiz [9] and Danuta Wasserman [3]

International Journal of
Environmental Research and

	Family Structure						Chi-Square	*p*-Value
	Both Parents Family 78%		Single Parent Family 15%		Step Parent Family 7%			
	n	%	n	%	n	%		
Adolescent drinking patterns								
Drinking frequency								
Never 36%	3595	**38.3%**	515	29.1%	217	25.7%	114.78	<0.001
Once a month or less	3069	32.7%	607	**34.3%**	294	**34.9%**		
2 to 4 times a month	2018	21.5%	467	26.4%	235	27.9%		
2 or more times a week	711	7.5%	181	10.2%	97	11.5%		
Drinking quantity								
I never drink alcohol	3724	**39.8%**	544	30.9%	215	25.6%	129.43	<0.001
1 or 2	3651	39.0%	703	**40.0%**	378	**45.1%**		
3 or 4	1161	12.4%	311	17.7%	146	17.4%		
5 or more	821	8.8%	200	11.4%	100	11.9%		
Drunkenness frequency								
Never 64%	6246	**66.5%**	970	**54.9%**	420	**49.8%**	194.01	<0.001
1 or 2	1967	20.9%	464	26.2%	225	26.7%		
3 to 9	836	8.9%	206	11.7%	130	15.4%		
10 or more times	347	3.7%	128	7.2%	68	8.1%		

International Journal of
Environmental Research and

|	Seen Family Member Drunk (Familial Drunkenness Exposure)								Chi-Square	*p*-value
	Never		Sometimes		Once a month		Once a week or more			
	n	%	n	%	n	%	n	%		
Adolescent drinking patterns (habits)										
Drinking frequency										
Never	**2502**	**44.7%**	1569	29.5%	91	19.4%	131	23.9%		
Once a month or less	1805	32.3%	**1840**	**34.6%**	**159**	**33.8%**	148	27.0%	582.06	<0.001
2 to 4 times a month	1000	17.9%	1406	26.4%	142	30.2%	**156**	**28.5%**		
2 or more times a week	283	5.1%	508	9.5%	78	16.6%	113	20.6%		
Drinking quantity										
I never drink alcohol	**2594**	**46.5%**	1619	30.5%	95	20.2%	149	27.4%		
1 or 2	2109	37.8%	**2197**	**41.3%**	**201**	**42.6%**	**214**	**39.3%**	532.07	<0.001
3 or 4	547	9.8%	885	16.7%	95	20.2%	86	15.8%		
5 or more	328	5.9%	612	11.5%	80	17.0%	95	17.5%		
Drunkenness frequency										
Never	**4237**	**75.6%**	**2911**	**54.7%**	**190**	**40.2%**	**260**	**63.6%**		
1 or 2	952	17.0%	1422	26.7%	130	27.5%	142	22.1%	840.30	<0.001
3 to 9	300	5.4%	687	12.9%	98	20.7%	80	9.8%		
10 or more times	113	2.0%	302	5.7%	55	11.6%	67	4.5%		

A newly identified group of adolescents at "invisible" risk for psychopathology and suicidal behavior: findings from the SEYLE study

Vladimir Carli[1], Christina W. Hoven[2,3], Camilla Wasserman[2,4], Flaminia Chiesa[1], Guia Guffanti[2], Marco Sarchiapone[4], Alan Apter[5], Judit Balazs[6], Romuald Brunner[7], Paul Corcoran[8], Doina Cosman[9], Christian Haring[10], Miriam Iosue[4], Michael Kaess[7], Jean Pierre Kahn[11], Helen Keeley[12], Vita Postuvan[13], Pilar Saiz[14], Airi Varnik[15], Danuta Wasserman[1]

[1]National Centre for Suicide Research and Prevention of Mental Ill-Health (NASP), Karolinska Institutet, Stockholm, Sweden; [2]Department of Child and Adolescent Psychiatry, Columbia University – New York State Psychiatric Institute, New York, NY, USA; [3]Department of Epidemiology, Mailman School of Public Health, Columbia University, New York, NY, USA; [4]Department of Health Sciences, University of Molise, Campobasso, Italy; [5]Schneider's Children's Medical Center of Israel, University of Tel Aviv, Israel; [6]Institute of Psychology, Eötvös Loránd University, Budapest, Hungary; [7]Department of Child and Adolescent Psy-

	14 years and below (n=4,007)			15 years (n=5,350)			16 years and above (n=2,955)			All age groups (n=12,328)		
	Male (n=1,833)	Female (n=2,167)	Both genders	Male (n=2,183)	Female (n=3,160)	Both genders	Male (n=1,490)	Female (n=1,456)	Both genders	Male (n=5,529)	Female (n=6,799)	Both genders
Excessive alcohol use	6.4*	4.1	5.2**	10.0*	5.3	7.3	17.7*	10.2	14.1	10.9*	6.0	8.2
Illegal drug use	3.2*	2.0	2.6**	5.8*	2.7	3.9	8.6	7.8	8.2	5.7*	3.6	4.5
Heavy smoking	4.6	6.1	5.4**	10.5*	8.0	9.0	25.0*	16.7	21.0	12.4*	9.2	10.7
Reduced sleep	9.7*	14.6	12.3**	11.4*	17.6	15.1	19.9	21.4	20.7	13.1*	17.4	15.5
Overweight	4.8*	2.5	3.5**	5.4*	1.6	3.1	6.1*	2.3	4.2	5.4*	2.0	3.5
Underweight	3.0	2.8	2.9	3.6	2.4	2.9	4.1	3.4	3.8	3.5	2.8	3.1
Sedentary behavior	9.4*	16.8	13.5**	14.2*	23.4	19.6	17.7*	29.3	23.5	13.6*	22.6	18.5
High media use	10.8*	7.2	8.8**	10.6*	8.8	9.6	14.1*	11.3	12.7	11.7*	8.8	10.1
Truancy	2.8*	1.9	2.3**	4.2*	2.3	3.1	9.3*	4.5	7.0	5.1*	2.6	3.8

A newly identified group of adolescents at "invisible" risk for psychopathology and suicidal behavior:
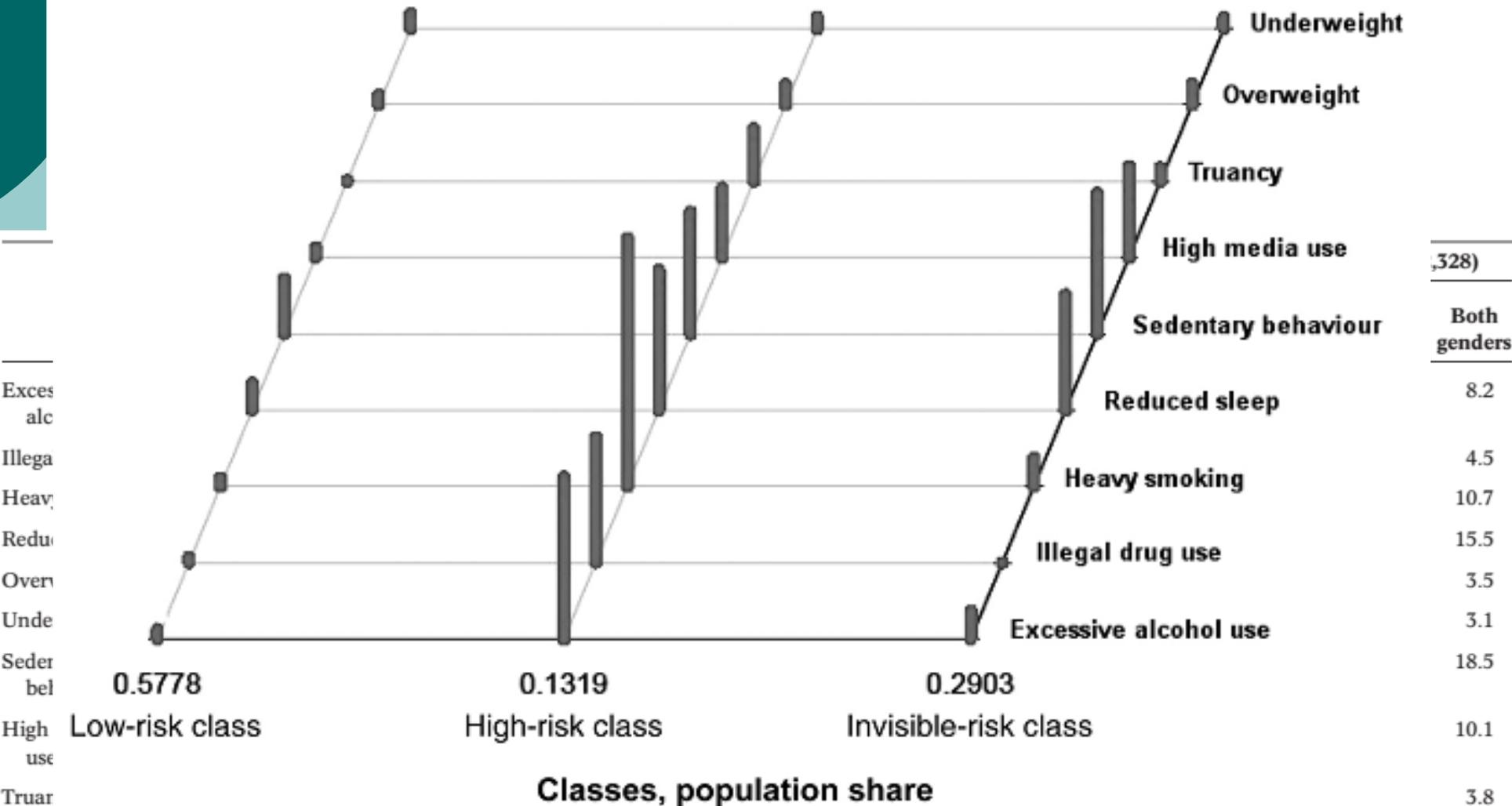
	Invisible-risk vs. low-risk class RRR (95% CI)	High-risk vs. low-risk class RRR (95% CI)
Gender (male/female)	0.95 (0.84, 1.08)	0.51* (0.44, 0.60)
Age group 15 years/ 14 years or younger	2.41* (2.08, 2.79)	4.50* (3.55, 5.69)
Age group 16 years or older/14 years or younger	7.88* (6.67, 9.30)	27.62* (21.66, 35.23)
Subthreshold depression	1.10 (0.96, 1.27)	1.21* (1.02, 1.43)
Depression	1.97* (1.50, 2.58)	1.82* (1.30, 2.53)
Subthreshold anxiety	1.62* (1.40, 1.88)	1.58* (1.32, 1.90)
Anxiety	1.81* (1.31, 2.52)	1.93* (1.31, 2.86)
Emotional symptoms	0.80 (0.63, 1.02)	0.47* (0.34, 0.65)
Conduct problems	1.24 (1.00, 1.52)	2.74* (2.21, 3.40)
Hyperactivity	1.59* (1.29, 1.95)	2.49* (1.99, 3.13)
Peer problems	1.23 (0.89, 1.70)	0.47* (0.29, 0.74)
Lack of prosocial behavior	1.60* (1.26, 1.74)	1.54* (1.17, 2.03)
Non-suicidal self-injury	1.40* (1.13, 1.74)	2.99* (2.37, 3.79)
Suicidal ideation	1.29* (1.12, 1.48)	1.30* (1.09, 1.55)
Suicide attempter	1.69* (1.22, 2.35)	2.62* (1.83, 3.74)

0.5778
Low-risk class

School-based suicide prevention programmes: the SEYLE cluster-randomised, controlled trial

Danuta Wasserman, Christina W Hoven, Camilla Wasserman, Melanie Wall, Ruth Eisenberg, Gergö Hadlaczky, Ian Kelleher, Marco Sarchiapone, Alan Apter, Judit Balazs, Julio Bobes, Romuald Brunner, Paul Corcoran, Doina Cosman, Francis Guillemin, Christian Haring, Miriam Iosue, Michael Kaess, Jean-Pierre Kahn, Helen Keeley, George J Musa, Bogdan Nemes, Vita Postuvan, Pilar Saiz, Stella Reiter-Theil, Airi Varnik, Peeter Varnik, Vladimir Carli

	3 month follow-up				12 month follow-up			
	n	Cases (%)	OR (95% CI)	p value	n	Cases (%)	OR (95% CI)	p value
Question, persuade, and refer	2210	25 (1·13%)	0·69 (0·40–1·19)	0·182	1977	29 (1·47%)	0·95 (0·55–1·63)	0·856
Youth aware of mental health programme	2172	32 (1·47%)	0·88 (0·52–1·48)	0·629	1991	15 (0·75%)	0·50* (0·27–0·92)	0·025*
Screening by professionals	2203	27 (1·23%)	0·72 (0·42–1·23)	0·229	1962	22 (1·12%)	0·71 (0·40–1·25)	0·234
Controls	2365	35 (1·48%)	Reference	--	2261	31 (1·37%)	Reference	··

ORs and 95% CI were generated from generalised linear mixed models with a logistic link, adjusted for age, sex, baseline Strengths and Difficulties Questionnaire total score, not being born in the country of residence, parental job loss in the previous year, not living with both biological parents, and country of residence. Missing covariates were included through use of multiple imputation. OR=odds ratio. *Significant at p<0·05.

Table 3: Incident severe suicidal ideation at 3 and 12 month follow-up

	3 month follow-up				12 month follow-up			
	n	Cases (%)	OR (95% CI)	p value	n	Cases (%)	OR (95% CI)	p value
Question, persuade, and refer	2209	15 (0·68%)	0·62 (0·32–1·18)	0·147	1978	22 (1·11%)	0·70 (0·39–1·25)	0·229
Youth aware of mental health programme	2166	19 (0·88%)	0·78 (0·42–1·44)	0·422	1987	14 (0·70%)	0·45* (0·24–0·85)	0·014*
Screening by professionals	2203	27 (1·23%)	1·10 (0·61–1·97)	0·752	1961	20 (1·02%)	0·65 (0·36–1·18)	0·158
Controls	2366	27 (1·14%)	Reference	--	2256	34 (1·51%)	Reference	--

ORs and 95% CIs were generated from generalised linear mixed models with a logistic link, adjusted for age, sex, Strengths and Difficulties Questionnaire total score, not being born in the country of residence, parental job loss in the previous year, not living with both biological parents, and country of residence. Missing covariates were included through use of multiple imputation. OR=odds ratio. *Significant at p<0·05.

Table 2: Incident suicide attempts at 3 and 12 month follow-up

ORIGINAL CONTRIBUTION

CrossMark

A cost-effectiveness analysis of school-based suicide prevention programmes

Susan Ahern[1] · Lee-Ann Burke[2] · Brendan McElroy[2] · Paul Corcoran[3] · Elaine M. McMahon[3] · Helen Keeley[4] ·
Vladimir Carli[5,6] · Camilla Wasserman[5,6,7] · Christina W. Hoven[7,8] · Marco Sarchiapone[9,10] · Alan Apter[11] ·
Judit Balazs[12,13] · Raphaela Banzer[15] · Julio Bobes[17] · Romuald Brunner[18] · Doina Cosman[19] · Christian Haring[15,16] ·
Michael Kaess[18] · Jean-Pierre Kahn[20] · Agnes Kereszteny[12,14] · Vita Postuvan[21] · Pilar A. Sáiz[17] · Peeter Varnik[22] ·
Danuta Wasserman[5,6]

Abstract

Suicide is one of the leading causes of death among young people globally. In light of emerging evidence supporting the effectiveness of school-based suicide prevention programmes, an analysis of cost-effectiveness is required. We aimed to conduct a full cost-effectiveness analysis (CEA) of the large pan-European school-based RCT, Saving and Empowering Young Lives in Europe (SEYLE). The health outcomes of interest were suicide attempt and severe suicidal ideation with suicide plans. Adopting a payer's perspective, three suicide prevention interventions were modelled with a Control over a 12-month time period. Incremental cost-effectiveness ratios (ICERs) indicate that the Youth Aware of Mental Health (YAM) programme has the lowest incremental cost per 1% point reduction in incident for both outcomes and per quality adjusted life year (QALY) gained versus the Control. The ICERs reported for YAM were €34.83 and €45.42 per 1% point reduction in incident suicide attempt and incident severe suicidal ideation, respectively, and a cost per QALY gained of €47,017 for suicide attempt and €48,216 for severe suicidal ideation. Cost-effectiveness acceptability curves were used to examine uncertainty in the QALY analysis, where cost-effectiveness probabilities were calculated using net monetary benefit analysis incorporating a two-stage bootstrapping technique. For suicide attempt, the probability that YAM was cost-effective at a willingness to pay of €47,000 was 39%. For severe suicidal ideation, the probability that YAM was cost-effective at a willingness to pay of €48,000 was 43%. This CEA supports YAM as the most cost-effective of the SEYLE interventions in preventing both a suicide attempt and severe suicidal ideation.

Trial registration number DRKS00000214.

ORIGINAL CONTRIBUTION

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A cost-effectiveness analysis of school-based suicide prevention programmes

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Danuta Wasserman[5,6]

Resource item	Control		QPR		YAM		ProfScreen[a]	
	SA	SSI	SA	SSI	SA	SSI	SA	SSI
Training of gatekeepers and facilitators	0.00	0.00	28.90	28.92	1.52	1.51	4.52	4.52
Cultural adaptation & translation of intervention material	3.28	3.27	5.29	5.30	17.02	16.98	10.57	10.56
Clinical interviews	0.00	0.00	0.00	0.00	0.00	0.00	15.07	15.06
Intervention implementation in classrooms	0.71	0.71	0.00	0.00	8.32	8.30	0.00	0.00
Printing of intervention material	0.45	0.45	4.88	4.89	2.39	2.38	0.00	0.00
Travel	0.28	0.28	1.80	1.80	3.69	3.68	0.17	0.17
Total cost	€4.71	€4.70	€40.88	€40.90	€32.92	€32.86	€30.33	€30.32

the QALY analysis, where cost-effectiveness probabilities were calculated using net monetary benefit analysis incorporating a two-stage bootstrapping technique. For suicide attempt, the probability that YAM was cost-effective at a willingness to pay of €47,000 was 39%. For severe suicidal ideation, the probability that YAM was cost-effective at a willingness to pay of €48,000 was 43%. This CEA supports YAM as the most cost-effective of the SEYLE interventions in preventing both a suicide attempt and severe suicidal ideation.

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Michael Kaess[18] · Jean-Pierre Kahn[20] · Agnes Kereszteny[12,14] · Vita Postuvan[21] · Pilar A. Sáiz[17] · Peeter Varnik[22] ·
Danuta Wasserman[5,6]

Resource item	SSI
Training of gat...	4.52
Cultural adapta tion material	10.56
Clinical intervi...	15.06
Intervention im...	0.00
Printing of inte...	0.00
Travel	0.17
Total cost	€30.32

○ Relación de coste-efectividad incremental:

 • YAM coste incremental más bajo por reducción % en incidencia de TS/IS y por años de vida ajustados por calidad (QALYs)

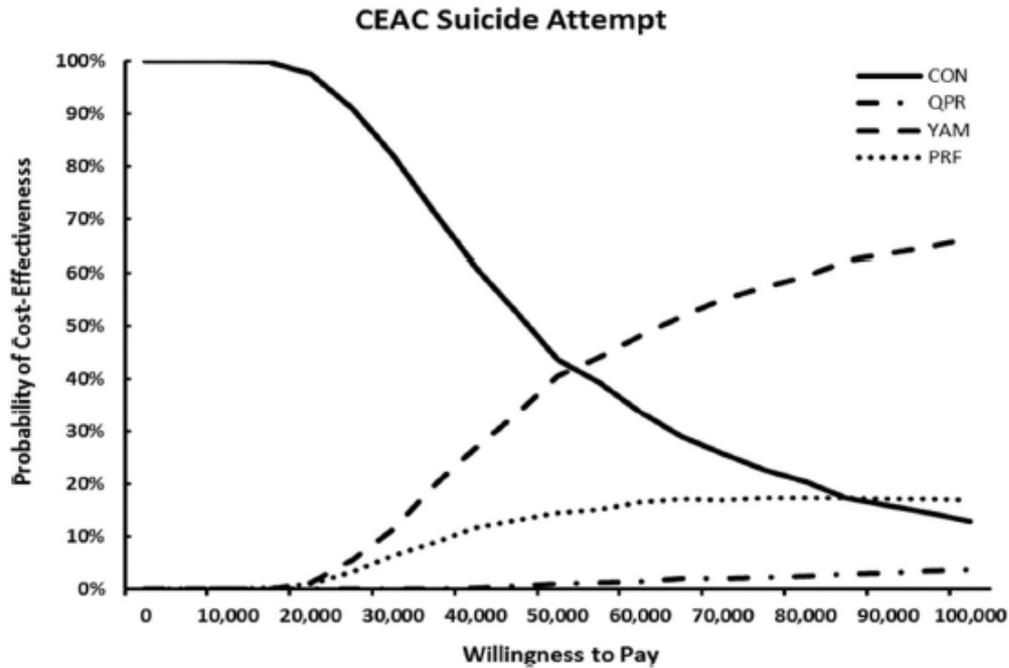○ Curvas de aceptabilidad de coste-efectividad:

 • YAM programa más rentable

a two-stage bootstrapping technique. For suicide attempt, the probability that YAM was cost-effective at a willingness to pay of €47,000 was 39%. For severe suicidal ideation, the probability that YAM was cost-effective at a willingness to pay of €48,000 was 43%. This CEA supports YAM as the most cost-effective of the SEYLE interventions in preventing both a suicide attempt and severe suicidal ideation.

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ORIGINAL CONT...

A cost-effecti...
programmes...

Susan Ahern[1] · Lee-...
Vladimir Carli[5,6] · Ca...
Judit Balazs[12,13] · Ra...
Michael Kaess[18] · Je...
Danuta Wasserman...

...ing[15,16] .
...ik[22] .

CEAC Suicide Attempt

CEAC Severe Suicidal Ideation

○ Rela...

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○ Curv...

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Resource item		SSI
Training of gat...		4.52
Cultural adapta... tion material		10.56
Clinical intervi...		15.06
Intervention im...		0.00
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Travel		0.17
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pay of €47,000 was...
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Intervention	Suicides, % Decline in Annual Rate
Education	
Public	Not available
Primary care physician	22-73[88,47,85]
Gatekeeper	
US Air Force	40[52]
Norwegian Army	33[87]
Increasing antidepressant prescriptions*	3.2[91]
Chain of care	Not available
Restricting lethal means	
Guns	1.5-9.5[78,147]
Domestic gas	19-33[79,80]
Barbiturates	23[105]
Vehicle emissions	Not available
Analgesics	Not available
Media blackouts	Not available

*There was a 414% increase in antidepressant prescriptions 1987-1999.

2005

Mann et al, 2005; Zalsman et al, 2016

Healthcare approaches

Strong evidence

More research needed

Restriction of Access to lethal means

School-based universal prevention

Gatekeeper training

Media training

Internet based interventions

Helplines

Treatment of depression (Pharmacotherapy and psychotherapy)

Chain of care

Education of primary care physicians

Screening in primary care

Public Health approaches

2015

Conclusiones

- Infravaloración de problemas de salud mental en población adolescente

- Necesidad de programas de prevención específicos en población infanto-juvenil

- Existe mejoría de parámetros de salud mental tras implementación de intervenciones

- Las intervenciones eficaces son coste-efectivas

Conclusiones

- Infravaloración de problemas de salud mental en población adolescente

- Necesidad de programas de prevención específicos en población infanto-juvenil

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YAM YOUTH AWARE OF MENTAL HEALTH

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was created by a group of researchers in public and community health, child and adolescent psychiatry and anthropology from Karolinska Institutet and Columbia University