Mental health promotion and suicide prevention in young Europeans
Good effects of the YAM program

Danuta Wasserman
Professor of Psychiatry and Suicidology,
Karolinska Institute (KI), Stockholm, Sweden
Head of the National Centre for the Prevention of Suicide and Mental Ill-health (NASP) at KI
Head of the WHO Collaboration Centre
EPA, Immediate Past President
National Centre for Suicide Research and Prevention of Mental Ill-Health (NASP), 1993
Karolinska Institutet

Expert function in suicide research and prevention

- International
  - WHO Collaboration Centre for Research, Methods Development and Training in Suicide Prevention

- National (Sweden)

- Regional (Stockholm)
World Health Organization
Preventing suicide: A global imperative

Suicide rates

- An estimated 800,000 suicide deaths worldwide.
- The annual global age-standardized suicide rate of 11.4 per 100,000 population (15.0 for males and 8.0 for females).
- Suicide rates are highest in persons aged 70 years or over for both men and women in almost all regions of the world.
- In some countries, however, suicide rates are highest among the young.
- Globally suicide is the second leading cause of death in 15−29-year-olds.

Suicide attempt rates

- For each suicide there are many more people who attempt suicide every year.
Suicide rates* in Europe, latest available data from the WHO 15 years and over.

Very high suicide rates:
40,1 (Hungary) – 58,0 (Lithuania)

High suicide rates:
25,0 (Moldavia) – 35,8 (Belarus)

Average suicide rates
11,9 (The Netherlands) – 23,0 (Czech Republic)

Low suicide rates:
3,4 (Albania) – 9,9 (Portugal)

* The number of suicide estimated per 100,000 inhabitants
Mental health in adolescents

- One in five adolescents experience significant symptoms of emotional distress.

- 10 - 15% suffer from mental disorders.
  - Depression
  - Severe suicide thoughts
  - Suicide attempts

- Untreated mental health problems in youth lead to poor mental health in the adulthood
# SEYLE Study sites

<table>
<thead>
<tr>
<th>Countries</th>
<th>Onsite Leading Investigators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>C. Haring</td>
</tr>
<tr>
<td>Estonia</td>
<td>A. Värnik</td>
</tr>
<tr>
<td>France</td>
<td>J.P. Kahn</td>
</tr>
<tr>
<td>Germany</td>
<td>R. Brunner</td>
</tr>
<tr>
<td>Hungary</td>
<td>J. Balazs</td>
</tr>
<tr>
<td>Ireland</td>
<td>P. Corcoran</td>
</tr>
<tr>
<td>Israel</td>
<td>A. Apter</td>
</tr>
<tr>
<td>Italy</td>
<td>M. Sarchiapone</td>
</tr>
<tr>
<td>Romania</td>
<td>D. Cozman</td>
</tr>
<tr>
<td>Slovenia</td>
<td>V. Postuvan</td>
</tr>
<tr>
<td>Spain</td>
<td>J. Bobes</td>
</tr>
<tr>
<td>Sweden</td>
<td>D. Wasserman</td>
</tr>
<tr>
<td>Coordinating Center</td>
<td></td>
</tr>
</tbody>
</table>

---

**Principal Investigator**  |  **D. Wasserman**  
**Coordinator**   |  **V. Carli**

Danuta Wasserman

Saving and Empowering Young Lives in Europe (SEYLE) FP7 EU funded project

Objectives

- Gather information on European adolescents regarding:
  - Mental health
  - Well-being
  - Health/Risk-behaviors
  - Suicidal behaviors

- Test preventive interventions in schools
Screening of health/risk-behaviors and mental health

A two-stage professional screening approach was developed by Heidelberg University and Karolinska Institute

I. A self-report questionnaire

II. Students deemed at-risk for mental health problems were evaluated using a semi-structured clinical interview performed by healthcare professionals.

III. 12.5% of students were found to require mental healthcare.
Risk Behaviors
SEYLE (N=12,395 pupils)

RISK/HEALTH-BEHAVIORS WERE SCREENED

- Alcohol use
- Drug use
- Smoking
- Sleep
- Physical activity
- Over/Underweight
- Use of Internet/TV/video games
- Truancy
- Bullying
“Invisible” group of adolescents
Latent class analysis of health/risk-behaviors
N=12,395 pupils
Psychopathology in low, high and invisible risk groups

- Pupils in the "invisible" risk group, compared with the high-risk group, had a similar prevalence of:
  - Anxiety (8% vs. 9.2%)
  - Subthreshold depression (33.2% vs. 34%)
  - Depression (13.4% vs. 14.7%)
  - Suicidal thoughts (42.2% vs. 44%)
Suicide attempts in low, high and invisible risk groups

- The prevalence of suicide attempts was:
  - 1.7% in the low-risk group
  - 5.9% in the "invisible" group
  - 10.1% in the high-risk group
Sleep

Hours of sleep among adolescents
SEYLE (N=11,788)

- Approx. 7.7±1.3 hours per night during a school week

- Hours of sleep:
  - Decrease with age
  - Lower among females

Sleep
Emotional and behavioral problems among adolescents

Diminished hours of sleep were significantly associated with:

- Emotional problems
- Hyperactivity
- Conduct problems
- Conflict with peers
- Suicidal ideation
- Total difficulties
Physical activity
Physical activity and mental health
SEYLE (N=11,110 pupils)

- A minority of adolescents met the criteria of the WHO guidelines: at least 60 minutes of moderate to vigorous-intensity physical activity daily:
  → 17.9% of boys
  → 10.7% of girls

- Physical activity and sports participation:
  → Increased well-being
  → Reduced depression and anxiety
Pathological Internet Use (PIU)

- PIU is defined as excessive or poorly controlled preoccupations, urges or behaviors regarding Internet use that leads to impairment or distress (Shaw and Black 2008).

Males:
- PIU: 5.2%

Females:
- PIU: 3.8%
Pathological Internet use
Demographic and social factors
SEYLE (N= 11,956 pupils)

Pathological Internet use is significantly higher among:

- Males
- Older adolescents
- Those not living with a biological parent or relative
- Adolescents who have a parent or guardian that are unemployed
- Adolescents with parents who do not pay attention to them or do not know what adolescents do with their free time
Pathological Internet users
Online activities

- Highest ranked online activities
  - Watching videos
  - Frequenting chat rooms
  - Social networking

Males:
- Playing single-user games

Females:
- Social networking
Psychopathological risk factors for PIU and problematic alcohol use (PAU) German SEYLE sample (N=1,444 pupils)

- Prevalence rates:
  - PIU: 4.8%
  - PAU: 5.6%

- Conduct problems and depressive symptoms are significantly associated with both PIU and with PAU.
Pathological Internet use

Psychopathology and suicidal behavior SEYLE (N=11,356 pupils) is associated to:

- Depression
- Conduct problems
- Hyperactivity and/or inattention
- Suicidal Ideation
- Suicide attempt

Protective Factors

- Reading books and watching films were protective factors for serious suicidal ideation (SSI)

- This was especially true in individuals with the lowest levels of social belonging
30.9% of adolescents report daily smoking.

58% of those reported the onset of smoking under the age of 14 years.
Smoking

- Adolescent smoking is significantly associated with:
  - Anxiety
  - Emotional symptoms
  - Conduct problems
  - Hyperactivity
  - Excessive alcohol use
  - Illegal drug use
  - Previous suicide attempts
Alcohol
Drink containing alcohol* (2 or more times per week) %

Females had lower prevalences than males (M= 10.5% vs. F= 5.8%; p<0.0001)

*defined as one bottle of beer, one glass of wine, or 4 cl of hard liquor
Alcohol use
Alcohol consumption patterns among adolescents are related to family structure and exposure to drunkenness within the family SEYLE (N=12,115 pupils)

- The more adolescents see their family member drunk - the more they drink themselves.
Reproductive health
N=11,406

- Sexual debut was reported by 18.8% of the total population.
  - Ages ≤15 and >15 years old
    - (13.2% vs 38.0%)

- Significant differences were found between:
  - Boys and girls
    - (21.3% vs 16.9%)

Danuta Wasserman
Gambadauro P et al 2016, Submitted
Reproductive health and psychopathology
N=11,406

- Early sexual debut was associated with:
  - Anxiety
  - Depression
  - Severe suicidal ideation
  - Suicide attempts
Sexual orientation and mental health problems among adolescents
Irish SEYLE (N=1,112 pupils)

- 5% of students reported having concerns regarding their sexual orientation.

- Compared with their peers, they had higher levels of:
  - Physical assault (40% vs. 8%),
  - Attempted suicide (29% vs. 2%),
  - Frequent alcohol use (20% vs. 1%)
  - Sexual assault (16% vs. 1%)

- Almost all of those (90%) with sexual orientation concerns reported having had sex compared to just 4% of their peers.
Forms of bully victimization in the SEYLE adolescent sample (N=11,110)

- **There are several forms of victimization**

<table>
<thead>
<tr>
<th>Physical</th>
<th>Verbal</th>
<th>Relational</th>
<th>Cyber</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Hitting</td>
<td>• Name calling</td>
<td>• Social exclusion</td>
<td>• Mean text via messages or emails</td>
</tr>
<tr>
<td>• Kicking</td>
<td>• Teasing in an hurtful way</td>
<td>• Spreading rumours</td>
<td>• Spreading rumors via email or social networking sites</td>
</tr>
<tr>
<td>• Pushing</td>
<td>• Making fun of one’s looks</td>
<td>• Left out of activities</td>
<td>• Embarrassing pictures, videos, or fake profiles made</td>
</tr>
</tbody>
</table>

Danuta Wasserman

Bully victimization and suicidal behaviours

- Relational victimization was directly associated with increased likelihood for suicide attempt.
Adolescent Mental Health
Depression and anxiety
SEYLE (n = 12,395)

- Depression:
  - 10.5% depression
  - 29.2% subthreshold-depression

- Anxiety:
  - 5.8% anxiety
  - 32% subthreshold-anxiety

- Subthreshold-anxiety, anxiety and depression are correlated to functional impairment and suicidality.
Direct Self-Injurious behavior
D-SIB

Direct self-injurious behavior (D-SIB) refers to the intentional self-inflicted damage of the surface of an individual’s body by self cutting, -burning, -hitting, -biting, and skin damage by other methods.
Direct Self-injurious Behaviour (D-SIB)
SEYLE (n = 12,068)

- Lifetime prevalence of D-SIB in Europe
  → 27.6%
    - 19.7% occasional D-SIB
    - 7.8% repetitive D-SIB

- Lifetime prevalence ranges from 17.1% to 38.6% across countries.
  → Estonia, France, Germany, and Israel had the highest lifetime rates of D-SIB.
Cessation of direct self-injurious behavior (D-SIB) has effect on suicidal behaviors

- D-SIB cessation reduces risk for suicidal thoughts and behaviour in adolescence.
Immigration and mental health in Europe

- Significantly poorer self-perceived health than natives.

- Non-European adolescent migrants, regardless of migrant generation, had higher externalized symptom levels than natives.
PREVENTION
Mental Health of Youth in Europe
SEYLE RCT (Randomized controlled trial)

- To test preventive interventions in school-based adolescents.

- The RCT was performed in 10 European Union countries.

- The adolescent sample size in the SEYLE RCT was N=11,110

- The SEYLE project is registered at the German Clinical Trials Register (DRKS00000214).
Saving and Empowering Young Lives in Europe (SEYLE) RCT

- 11,110 adolescents
- 168 randomly assigned schools
- 10 European Union countries
- Median age 15 years

Danuta Wasserman

ARM I
Professional Screening
4-week intervention

- Multidisciplinary equip sent in schools.

- Positive cases identified through a questionnaire.
  - Detection

- Interviews to exclude false positives.
  - Diagnostics

- Referral to the local health care system.
  - Treatment

Designed by the University of Heidelberg & Karolinska Institutet
ARM II
Gatekeepers (teachers, school staff) identify suicidal students at school (QPR)
4-week intervention

Q — Question
P — Persuade
R — Refer

Quinette, P: *Question, Perceive, Refer (QPR) in Suicide Prevention*  
[http://www.hopes-wi.org/qpr.htm]
Arm II
QPR Training

❖ General Information on Suicidal behavior
❖ Training on risk factors and warning signs for suicide
❖ Myths and facts about suicide
❖ How to ask / not ask questions
❖ How to provide support
❖ Referral
ARM III
YAM (Youth Aware of Mental Health) for pupils
Beeinflusse und verbessere deine Gefühle
4-week 5 hours intervention

- Pedagogical booklet about lifestyles, health/risk behaviors, suicidal behaviors and mental health problems.
- Lectures with role-plays
- Posters in the classroom
- Manual for instructors
ARM III
YAM (Youth Aware of Mental Health) Program
Booklet for pupils (25 pages)

- **Part 1:** Bewusstsein für seelische Gesundheit
- **Part 2:** Hilfe zur Selbsthilfe
- **Part 3:** Stress und Krise
- **Part 4:** Depression und Selbstmordgedanken
- **Part 5:** Freunden helfen, die Probleme haben
- **Part 6:** An wen kann ich mich wenden, wenn ich Hilfe benötige?
ARM III

YAM Program

Beeinflusse und verbessere deine Gefühle

Role-play themes

Theme I
- Awareness About Choices
  - Dilemmas and Conflict Resolution

Theme II
- Awareness about Feelings and how to Manage Stress and Crises Situations

Theme III
- Awareness about Depression and Suicidal Thoughts and what to do

Danuta Wasserman

Emergency cases*

1 week prior: Baseline screening for "Emergency cases" referral for treatment

YAM intervention timeline

Age group: 14 – 16 years

*Emergency cases: Pupils who during last two weeks tried to attempt suicide or have serious suicide thoughts with plans.
Arm IV
Control/minimal Intervention
4-week duration

- Posters in the classroom, the same as in YAM
- Contact information to healthcare services
- Contact information to community “healthy lifestyle” groups
Main outcomes of SEYLE interventions

- Incident cases of suicide attempt.
- Incident cases of severe suicidal ideation, including having a suicidal plan.
- Incidence of moderate and severe depression.
Professional Screening intervention

Results in RCT

- No preventive effects were observed on:
  - Incident (new) suicide attempts
  - Incident (new) suicide thoughts/plans
  - Incident (new) depression

- In the professional screening intervention arm:
  - Significantly good effects on treatment of prevalent cases of depression
  - 12.5% required referral to mental healthcare

Danuta Wasserman

Wasserman D et al. The Lancet. 2015;18;385(9977):1536-44
Treatment
Help-seeking behavior following school-based screening

- Help-seeking is associated with the locality of the interview and the simplicity to schedule appointments:
  - The greater the travel time to the interview, the lower the attendance rate.

- Arranging interviews within 1 week of contacting the student increased compliance.

- Adolescents attended the interview more often than their peers, when:
  - Severe depressive symptoms
  - Recent suicide attempt
  - Bullied students
QPR intervention

Results in RCT:

- Incident suicide attempts
- Incident suicide thoughts/plans
- Incident and prevalent cases of depression
QPR intervention
Acceptance of the QPR intervention in schools

- Good reception in schools.

- But the preparedness to help pupils is correlated to teacher satisfaction with their work conditions and well-being.
The observed reduction in incident suicide attempts was more than 50%. (OR: 0.45 [0.24 - 0.85]; p=0.014)

The observed reduction in incident severe suicide thoughts/plans was 50%. (OR: 0.50 [0.27 – 0.92]; p=0.025)

This effect is higher than those seen in other successful universal public health interventions regarding:

- Bullying and bully victimization (17-23%)
- Certain types of school-based interventions addressing smoking cessation (14%).
How many pupils need to be approached in order to prevent suicidal ideation and attempts?

- To prevent one suicidal event (suicide attempt or severe ideation) 91 pupils need to be exposed to YAM (Beeinflusse und verbessere deine Gefühle)

Danuta Wasserman

Preventive effects:

- The observed reduction in incident cases of moderate/severe depression is 30%.
  - (OR: 0.71 [0.52– 0.97]; p=0.031)
Qualitative interviews with pupils about SEYLE YAM intervention (N = 32) (Italy, Spain, Estonia and Romania)

- Interested
  
  Give me a little time! Let me speak the way I like!

- One foot in the door
  
  Can I trust you?

- Careful

- Respect for authority
  
  Am I doing it right?

- Not my topic
  
  Let silence speak!
Suicide prevention
Experts’ Opinions on Ethical Issues in Mental Health Research with Minors: Results of a Delphi Study in SEYLE

- Research with minors, especially for preventive purposes, investigating risk behaviors such as deviance, drug abuse, or suicidal behavior, is ethically sensitive.
Suicide prevention
Experts’ Opinions on Ethical Issues in Mental Health Research with Minors

Ethical needs considered relevant for Mental Health Research with minors were the following:

<table>
<thead>
<tr>
<th>Confidentiality of sensitive data in relation to school.</th>
<th>Avoidance of risk for harm and stigma.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competence for consenting alone when 15 years or older.</td>
<td>Secrecy in handling the information about family members.</td>
</tr>
<tr>
<td>How, when or whom to contact in emergency cases.</td>
<td>Feedback about research</td>
</tr>
</tbody>
</table>
Suicide prevention
Incremental cost-effectiveness ratios (ICERs) analysis of SEYLE interventions in comparison with the control group

- YAM (Beeinflusse und verbessere deine Gefühle) has the lowest incremental cost per QALY vs. Control.
  - ICERs for YAM are €15,992 per QALY gained for suicide attempt.
- The YAM was cheapest in comparison to other interventions versus control.
Suicide can be prevented!
Evidence-based strategies of suicide prevention in mental health care and in public health approaches


Thank you!