The influence of gender on moderating prevention outcomes

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Gender differences in health

There are well known gender differences in health



Such differences are only partly explained by biological differences

Substance abuse and addiction

- Gender differences strongly affect tobacco, alcohol and substance use, abuse and addiction, from risk factors to patterns of consumption, access to Health Services, treatments, and even outcomes
- There is evidence that differences do exist between the sexes in the etiology of drug abuse
- It is important that practitioners understand these differences and consider the implications they have for prevention
- For most substances, there is greater prevalence of use among males than among females
- Adults: men use more frequently alcohol, marijuana and illicit drugs, women sedatives/benzodiazepines
- Adolescents: boys use more frequently alcohol, marijuana and illicit drugs, women sedatives/benzodiazepines and tobacco

At intake to addiction treatment

- Sexual abuse and violence episodes in the childhood or in the adulthood are more frequently reported by females addicts as well as early problems in the family
- First use is related among males to group experience and socialization, among females to cope with stress and reduce anxiety
- At treatment intake, women more frequently have children and live with them, more frequently they are married, divorced or widow
- They have a lower income and are frequently unemployed or have an unstable job
- **¤** More frequently than women, men commit crimes
- Psycho-pathologic problems, such as anxious-depressive syndrome and personality disorders are more frequent and severe among females, as well as suicide attempts and self-damaging behaviours

Treatment outcomes

- **¤** Women ask for treatment **earlier** than men
- Within the treatment programs, they better interact with doctors, they progress from pharmacological to psychotherapy treatments
- With regard to treatment outcomes, the results are inconsistent (Greenfield et al. 2007)
 - according to some studies, women abandon substance abuse treatment more frequently than men
 - however, others did not find differences
 - others are in favour of women
- Adding child and family components favours retention and completion of programs

Prevention interventions

- Despite the large amount of literature on gender differences in drug addiction published since the early '80s...
- Concerning primary prevention, few studies have investigated gender differences in the effectiveness of interventions
- To my knowledge even no study on universal school-based interventions described the inclusion of female-sensitive contents as an explicit choice during program development (apart from some interventions targeting only girls)
- When differences have been found, the general evidence of prevention interventions seems to be in favour of a higher effectiveness among girls (Blake 2001)
- However, when limiting the evidence to school-based interventions, the findings appear rather mixed

School based interventions

[Perry 2003]



Green: Based on Social Influence approach

Unplugged

- Universal school-based program for preventing tobacco, substance use and alcohol abuse among adolescents
- Based on *social influence* approach
- It includes the following components
 - Social skills
 - Personal skills
 - Knowledge
 - Normative education



- It is administered by **teachers** trained in a 3-days course
- It is made by **12 units**, 1 hour each
- It is designed for **12-14 years old** students
- It was tested through a **randomized controlled trial** in 7 European countries in 2004-2007 school years

The EU-Dap study

- 7079 students participated in the *baseline survey* (November 2004)
- The program ("Unplugged") was administerd between November 2004 and February 2005 in the intervention arms
- 6604 (93%) students participated in the first follow-up survey (May 2005), 3 months (at least) after the end of the program







Unplugged effectiveness on use

Cluster RCT, 7 EU countries participating Unplugged vs control group (usual curriculum) Outcomes at 3 and 15 months after the end of the program Prevalence Odds Ratios estimated through multilevel adjusted models

BAS vs FUP1	Controls n/N	Interventions n/N	Adjusted P 3 months	OR (95%CI) 15 months
ALO smoking	605/2968	496/2979	0.88 (0.71-1.08)	0.94 (0,80-1,11)
Regular smoking	387/2968	297/2979	0.86 (0.67-1.10)	0.89 (0,72-1,09)
Daily smoking	277/2968	193/2979	0.70 (0.52-0.94)	0.92 (0,73-1,16)
ALO drunkenness	353/3054	253/3083	0.72 (0.58-0.90)	0.80 (0,67-0,97)
Regular drunkenness	120/3054	76/3083	0.69 (0.48-0.99)	0.62 (0,47-0,81)
ALO cannabis	225/3130	152/3150	0.77 (0.60-1.00)	0.83 (0,65-1,05)
Regular cannabis	137/3130	88/3150	0.76 (0.53-1.09)	0.74 (0,53-1,01)
ALO drugs	293/3156	222/3185	0.89 (0.69-1.15)	0.85 (0,69-1,05)

Gender stratified analysis

	Males		Females		
BAS vs FUP1	Adjusted POR (95%CI)	Change	Adjusted POR (95%CI)	Change	
ALO smoking	0.88 (0.66-1.18)	-12%	0.86 (0.65-1.15)	-14%	
Regular smoking	0.68 (0.50-0.93)	-32%	1.07 (0.74-1.55)	+1%	
Daily smoking	0.49 (0.34-0.71)	-51%	0.99 (0.64-1.52)	-1%	
ALO drunkenness	0.64 (0.49-0.85)	-36%	0.86 (0.63-1.18)	-14%	
Regular drunkenness	0.68 (0.45-1.04)	-32%	0.66 (0.37-1.18)	-34%	
ALO cannabis	0.62 (0.45-0.85)	-38%	1.05 (0.70-1.58)	+5%	
Regular cannabis	0.60 (0.40-0.91)	-40%	1.17 (0.59-2.33)	+17%	

among females:

- results are not statistically significant
- no effect is detectable for tobacco and cannabis

	Girls			
Indicator of use	11-12 years N=781	13-18 years N=2254		
	POR (95%CI)	POR (95%CI)		
Any smoking	0,78 (0,45-1,34)	0,84 (0,63-1,13)		
Frequent smoking	0,52 (0,23-1,21)	1,21 (0,83-1,77)		
Daily smoking	0,45 (0,18-1,13)	1,19 (0,77-1,85)		
Any drunkenness	0,44 (0,19-1,04)	0,94 (0,68-1,29)		
Frequent drunkenness	0,70 (0,16-3,01)	0,65 (0,37-1,16)		
Any cannabis	§	1,15 (0,77-1,71)		
Frequent cannabis	§	1,19 (0,62-2,27)		
Any illicit drug	1,03 (0,47-2,28)	1,42 (0,98-2,06)		

When stratifying the results by pupils' age, there is some evidence that **the program can work on younger females**, on tobacco and alcohol

Age: possible explanations

- girls may have been reached at more advanced stages of substance use
 - however, females were slightly more advanced than males only in cigarette smoking when recruited for this study
- the developmental stage of the two genders in terms of general life skills and coping mechanisms may differ, given attained age: at the same age the acquisition of skills and competences may still be susceptible to modifications among boys, less so among girls
- previous studies support the conclusion that most programs based on skill enhancement achieve better results among girls when administered at young ages

Self-esteem

	Во	ys	Girls		
Indicator of use	High self-esteem N=2741	Low self-esteem N=385	High self-esteem N=2422	Low self-esteem N=488	
	Adj POR (95%CI)	Adj POR (95%Cl)	Adj POR (95%Cl)	Adj POR (95%CI)	
Any smoking	0.76 (0.55-1.04)	1.23 (0.61-2.50)	0.85 (0.62-1.16)	0.70 (0.39-1.26)	
Frequent smoking	0.62 (0.45-0.87)	0.70 (0.27-1.80)	1.04 (0.69-1.57)	0.92 (0.43-1.97)	
Daily smoking	0.46 (0.30-0.68)	0.56 (0.20-1.58)	0.86 (0.53-1.40)	1.35 (0 63-2.87)	
Any drunkenness	0.69 (0.50-0.94)	0.58 (0.29-1.17)	0.83 (0.58-1.19)	1.23 (0. <mark>66-2.29)</mark>	
Frequent drunkenness	0.71 (0.43-1.14)	0.75 (0.25-2.19)	0.59 (0.31-1.12)	1.71 (0. <mark>49-5.92)</mark>	
Any cannabis	0.63 (0.43-0.91)	0.43 (0.20-0.92)	0.89 (0.58-1.37)	1.83 (0.66-5.06)	
Frequent cannabis	0.62 (0.39-1.00)	0.42 (0.16-1.09)	0.74 (0.38-1.43)	2.14 (0.58-7.95)	
Any illicit drug	0.68 (0.48-0.97)	0.35 (0.18-0.71)	1.27 (0.88-1.85)	1.59 (0.78-3.22)	

When stratifying the results by an indicator of self-esteem, there is some evidence that the program does not work on girls with low self-esteem, for any substances

Self-esteem: possible explanation

- there is some evidence that lack of self-esteem can be a stronger risk factor for drug use among girls than among boys
- theoretical models suggest that girls are more influenced by family protective factors, such as negative parental attitudes towards drugs, family connectedness, etc, while boys are more influenced by school or community environment (Sale 2003)
- among girls, self-esteem is strongly dependent on a positive relationship with parents (Kumpfer 2008)
- in the past investigators have suggested that messages focused on building self-confidence and self-esteem might be more effective with girls than with boys (Worden 1996), as well as the interventions focused on self-efficacy (Graham 1990)

Anxiety

	B	DYS	GIRLS	
Indicator	l often feel nervous N=1722 (51.8%)	I often feel nervous =1722 (51.8%) I worry a lot about silly things N=1825 (54.9%)		l worry a lot about silly things N=1933 (63.7%)
	POR (95%CI)	POR (95%CI)	POR (95%CI)	POR (95%CI)
Any smoking	0.78 (0.55-1.11)	0.67 (0.47-0.95)	0.80 (0.58-1.11)	0.83 (0.61-1.18)
Regular smoking	0.64 (0.43-0.93)	0.52 (0.34-0.81)	0.85 (0.54-1.34)	1.14 (0.75-1.74)
Daily smoking	0.40 (0.25-0.64)	0.34 (0.19-0.63)	0.80 (0.49-1.29)	1.12 (0.70-1.79)
Any drunkenness	0.52 (0.36-0.75)	0.58 (0.40-0.83)	0.74 (0.51-1.06)	0.75 (0.52-1.08)
Regular drunkenness	0.50 (0.28-0.89)	0.68 (0.37-1.25)	0.75 (0.40-1.44)	0.66 (0.36-1.20)
Any cannabis	0.48 (0.32-0.74)	0.44 (0.28-0.68)	1.13 (0.75-1.70)	1.04 (0.76-1.43)
Regular cannabis	0.55 (0.33-0.94)	0.39 (0.21-0.74)	0.78 (0.43-1.42)	1.26 (0.60-2.66)
Any illicit drugs use	0.52 (0.36-0.75)	0.48 (0.33-0.70)	1.35 (0.93-1.97)	1.30 (0.84-2.00)

When stratifying the results by an indicator of anxiety, there is some evidence that **the program does not work on girls with anxiety**, **on tobacco and cannabis**

Anxiety: possible explanation

Gender analysis performed in the evaluation of a recent Life Skills Training project that systematically favored females (MacKillop 2006) revealed that female participants exhibited greater improvement in drug knowledge and in anxiety reduction skills than male participants (a possible mechanism?)

From our data, there is some evidence of a certain "resilience" of high risk girls in changing attitudes and behaviours: particular attention should be paid to these girls when implementing the intervention

Conclusions

- The statistical analysis shows that Unplugged is effective in reducing use of drugs, alcohol and cigarettes at the post-test among males
- No effect of the program is detected for <u>tobacco</u> and <u>cannabis use</u> among females
- Possible explanations of the lack of effect include:
 - differential stages of use at the time of prevention
 - self-esteem and anxiety as moderators of the effect

Implications

- The literature shows differential effects of school-based prevention programs on males and females
- The studies are not consistent about the direction of the difference but are consistent on finding a difference
- The existence of such a difference should be always taken into account when designing and applying a program
- A gender stratified analysis should always be performed and presented in the results of the effectiveness evaluation
- In designing prevention programs:
 - gender specificities should be taken into account (male and female)
 - units focused on self-esteem and anxiety reduction skills could increase the effect among girls
 - appropriate target age has to be chosen

Girls needs from the literature

- self image/body image
- self-confidence, self-esteeem and self-efficacy
- social approval
- skills and intrapersonal competencies useful to solve problems and conflicts and facilitate relationships
- family functioning

During adolescence, girls are more vulnerable than boys for behavioural and emotional problems; there is a decline in girls' self-esteem and an increase in depression; girls' rate of internalizing problems and failure increase and exceed those of boys (Amaro 2001)
So, girls can be more responsive to programs modifying their ability to cope with depression (Longshore 2007)

Girls are more responsive to **parental disapproval** of use, such as to **any family conflict indicator** so in turn **activities involving parents** in the prevention process can increase the effect of the interventions We must remember that we do not know if adding gender specific contents would improve effectiveness of programs: new programs need to be tested!



Is universal prevention against youths' substance misuse really universal? Gender-specific effects in the EU-Dap school-based prevention trial

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www.eudap.net

Thanks for your attention!