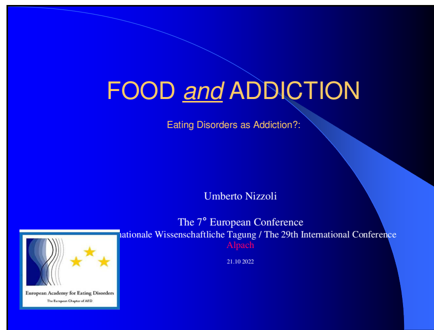
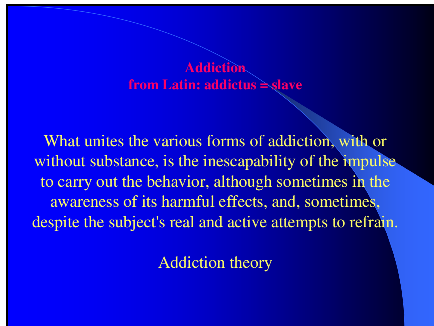
Food and Addictions is a very large and controversial topic. Here I explain what is Addiction. In the second part I talk about the comorbidity Eating Disorders and Addictions. Finally I treat Food Addiction as a specific construct. This is the file of slides used at European Conference, on Alpach, October 21th 2022

Diapositiva 1



Diapositiva 2



Diapositiva 3

The construct of Addiction, despite an overwhelming literature, is still controversial. Its implications are pervasive. For this reason, various descriptions and theories have followed on the subject of pathological dependence, addiction.
Although it is not accepted within the DSM-5 TR, because it is considered not sufficiently supported by research evidence, it is too polluted by its media use, the practical use of the term Addiction is found more and more frequently in theses, publications, titles and reports. For a long time the terms drug dependence have been used and subsequently often replaced by pathological dependence; Drug Abuse or Substance Abuse or Dependence, again in DSM IV to switch to Drug Related Disorders and Addictive Disorders in DSM-5.
Along this speech we will face the complication of the Addiction construct emphasizing the importance of craving because its construct craving appears central/crucial.

Diapositiva 4

Criteria for Defining Addiction Behaviors, Goodman, BJofA 1990, Addiction v. 85 issue 11, 2006

1) inability to resist the urge to engage in behavior,
2) growing internal tension before starting the behavior,
3) pleasure or relief at the moment of action,
4) loss of control already at the beginning of the behavior,
at least 5 of the following 8 criteria:

- frequent preoccupation with behavior
- more intense or longer commitment than expected
- repeated efforts to reduce or quit
- considerable time spent doing the behavior or recovering from its effects
- reduction of social, professional, family activities determined by behavior
- engagement in behavior prevents the fulfillment of social, family or professional obligations,
- perseverance despite social, financial or physical problems,
- agitation or irritability if it is impossible to implement the behavior.

Diapositiva 5

A large body of evidence supports the brain opioid theory of social attachment (BOTSA), which posits a key substrate of attachment behavior is governed by the endogenous opioid system. When viewed in the context of sociohistorical changes in the United States, the theory provides a partial explanation for the current opioid epidemic and contains important implications for treatment.

- The role of genetics/epigenetics and trauma/early-life stress in increased vulnerability to substance use disorders

- The benefits and risks of medication-assisted treatments (i.e., opioid agonists, partial agonists and antagonists)

- Chronic pain viewed through a disease and biopsychosocial model, along with considerations for pain management

- Social epidemiology and the historical shift away from social factors in research and treatment of substance use disorders.

Diapositiva 6

Addiction as a brain disease

Addiction is a primary, chronic disease of brain reward, motivation, memory and related circuitry. Dysfunction in these circuits leads to characteristic biological, psychological, social and spiritual manifestations. This is reflected in the individual pursuing reward and/or relief by substance use and other behaviours. The addiction is characterized by impairment in behavioural control, craving, inability to consistently abstain, and diminished recognition of significant problems with one's behaviours and interpersonal relationships. Like other chronic diseases, addiction can involve cycles of relapse and remission. Without treatment or engagement in recovery activities, addiction is progressive and can result in disability or premature death. (American Society of Addiction Medicine)

This considers addiction as a brain disease which implies that it requires treatment. It neglects environmental and social forces at play, the fact that it involves a continuum and that many individuals 'recover' without treatment.

6

Diapositiva 7

Addiction as compulsive behaviour

Addiction is a compulsive, uncontrollable dependence on a chemical substance, habit, or practice to such a degree that either the means of obtaining or ceasing use may cause severe emotional, mental, or physiologic reactions
(Mosby's Medical Dictionary 8th ed)

The use of the term 'uncontrollable' rules out cases where an individual is struggling successfully (for the time being at least) to control the behaviour

7

Diapositiva 8

Addiction as choice

Addiction involves strong preferences to engage in activities that have significant potential for harm because of the immediate pleasure, satisfaction or relief that they provide (e.g. Heyman)

The focus on choice fails to take account of impulsive and compulsive nature of much addiction

8

Diapositiva 9

Addiction as a context-sensitive disorder of motivation

Addiction involves repeated powerful motivation to engage in a purposeful behaviour *that has no survival value, acquired as a result of engaging in that behaviour, with significant potential for unintended harm.*

Brings in motivation, purpose, acquisition through engagement, and harm; makes no unnecessary assumptions

9

Diapositiva 10

Seven things about addiction that need explaining

1. Most people who are exposed to the addictive substance/behaviour do not become addicted, but low impulse control and/or mood disturbance can increase vulnerability, as can adverse life circumstances
2. Even determined attempts to cease addictive behaviours have a low probability of success, but unaided recovery does occur
3. When ‘addicts’ attempt recovery, momentary risk of relapse is greatest in the first few days or weeks
4. Prevalence of a given addictive behaviour in populations is influenced by price and availability
5. Social norms substantially influence the chances of becoming addicted and recovery from addiction
6. Drugs that seek to reduce addictive urges can increase the chances of recovery but often do not
7. Behavioural interventions that seek to address addictive motivation and/or self-regulatory skills and capacity can increase the chances of recovery but often do not

10

Diapositiva 11

The relationship between eating disorders (ED) and substance use disorders (SUD) is one of the many possible comorbidities,

Food and Addiction records the concomitance of the presence of these two diagnostic categories.
The "double diagnosis" of both is more frequently combined with personality disorder (mainly borderline personality disorder).
ED and SUD have various similarities: neuro-biological, emotional and behavioural mechanisms seem to bring them together.
The disease histories must clarify which of the two disorders arose first or whether the onset is contemporary. In one clinical area as in the other, disorders are often underestimated.
Finally, between both Addiction and ED emerges Food Addiction (originally coined in 1956 by Randolph).

Diapositiva 12

Comorbidity between eating disorders and addictions is common, especially those where binge eating and purging behaviours are combined.

[Fouladi F, Mitchell JE, Crosby RD, et al (2015) Prevalence of Alcohol and Other Substance Use in Patients with Eating Disorders. *European Eating Disorders Review 23:531–536. https://doi.org/10.1002/erv.2410]*

so it is not uncommon for addiction treatment clinics to receive patients with an eating disorder as a dual pathology

Diapositiva 13

beyond the dual diagnosis, considering eating disorders as addictions can have significant implications for treatment.

67% of patients with eating disorders involving binge eating behaviour and reporting self-harm without suicidal intent met the criteria for food addiction

[Carlson L, Steward T, Agüera Z, et al (2018) Associations of food addiction and nonsuicidal self-injury among women with an eating disorder: A common strategy for regulating emotions? European Eating Disorders Review 26:629–637. https://doi.org/10.1002/erv.2646].

Diapositiva 14

Relationship between ED and SUD:

- Which disorder came first?
- Do ED behaviors trigger SUD?
- Do these disorders occur concurrently?
- Do they function in service of each other?
- What happens to the ED when they eliminate substance use?
- What happens to SUD when they eliminate ED behaviours?

Diapositiva 15

There are also mutual-help fellowships, where individuals with eating disorders perceive themselves as addicts, like Overeaters Anonymous (OA), a 12-Step Fellowship.

(Rodríguez-Martín BC, Gallego-Arjiz B (2018) Overeaters Anonymous: A MutualHelp Fellowship for Food Addiction Recovery. Frontiers in Psychology 9:. https://doi.org/10.3389/fpsyg.2018.01491)

Diapositiva 16

Similar patterns of neural activation are implicated in addictive behavior and substance dependence:
elevated activation in reward circuitry
in response to cues
and reduced activation
of inhibitory regions
in response to intake,

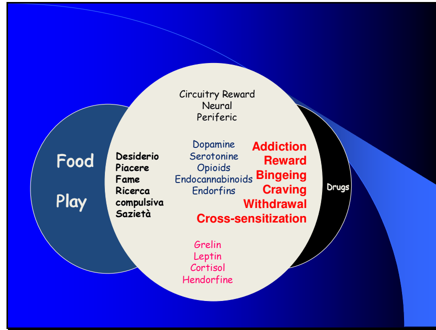
Gearhardt, 2011

Diapositiva 17

The data indicate the existence of a relationship between binge eating and alcohol use, and some factors were associated with this comorbidity.

(Mole TB, Irvine MA, Worbe Y, Collins P, Mitchell SP, Bolton S, et al (2015) Impulsivity in disorders of food and drug misuse. Psychol Med. 45:771–82. doi: 10.1017 / S0033291714001834)

Diapositiva 18



Diapositiva 19

Psychiatry Research 273 (2019) 58–66

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journal homepage: www.elsevier.com/locate/psychres

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Review article

Prevalence of substance use disorder comorbidity among individuals with eating disorders: A systematic review and meta-analysis

Anees Bahji[a,b,*], Mir Nadeem Mazhar[a], Chloe C. Hudson[c], Pallavi Nadkarni[a], Brad A. MacNeil[a], Emily Hawken[a]

The prevalence of ED in individuals with SUD appears to be ten times higher than the prevalence of ED in the general population

The prevalence of ED among individuals being treated for SUD is approximately 35% (Devoe DJ et al. 2021, Bahji A, et al 2019).

ED prevalence in women being treated for AUD is approximately 30%

The SUD prevalence among individuals treated with ED ranges from 25 to 50%. (Elmquist JA ET AL 2016) .

:the comorbidity of SUD in AN is reported prevalence of 20%.(A recently published meta-analysis on prevalence rates,)

Diapositiva 20

Prevalence and recent clinical elements on the association and alternation between ED and SUD

People with SUD ed ED higher risk of comorbidity

Comorbidity ED/SUD negative prognosis

higher relapse (DeJong H, 2012; McLellan AT,2000),

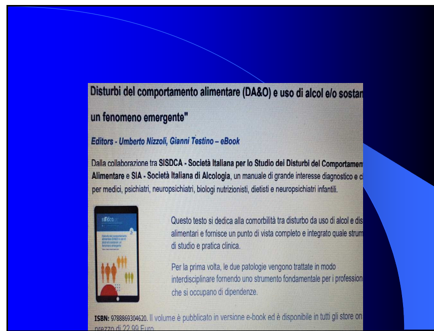
negative recovery (Keshishian AC,2019).

SUD = negative effects on evaluation, diagnosis, treatment.

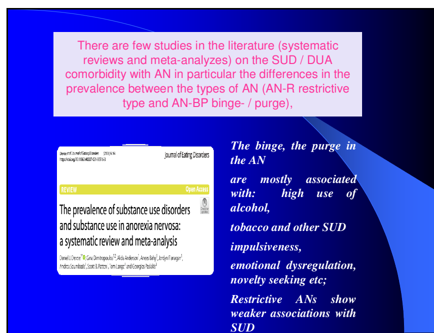
Needs to recognize it = assessment and screening for drug use.

(Dejong H, Broadbent H, Schmidt U A systematic review of dropout from treatment in outpatients with anorexia nervosa.**.**Int J Eat Disord. 2012 Jul;45(5):635-47.)

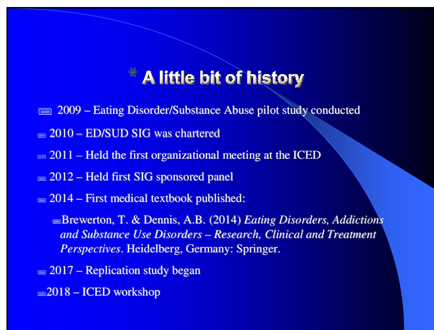
Diapositiva 21



Diapositiva 22



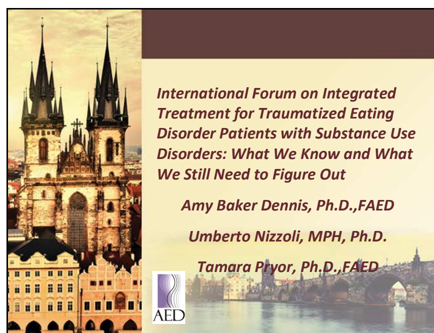
Diapositiva 23



2009 – A small pilot study of 22 American, nationally known, well established eating disorder programs was conducted to explore the availability of Substance abuse treatment for comorbid patients
2010 – Eating Disorder/Substance Abuse SIG was chartered – Dr. Amy Baker Dennis and her colleague Dr. Bethany Helfman gathered enough signatures to petition the AED Board to charter the ED/ Substance abuse SIG.
2011 – First SIG organizational meeting was held at AED
2012 – First SIG sponsored panel was held
2014 – First medical textbook exploring the "state of the art" in the treatment of ED patients with comorbid SUD and addictions. This book brought together researchers and clinicians from both

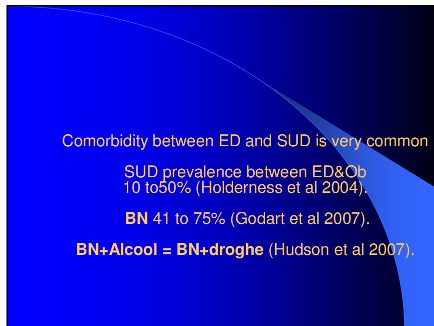
the ED and SUD communities to explore the concept of integrated evidence based interventions for the dual diagnosed patient
2017 – Began the replication study to see if the range and availability of services for ED patients with SUD has improved in the past decade

Diapositiva 24



Welcome to our SIG panel sponsored by the ED/SUD sig, and the trauma/ED SIG. I am Amy Amy Baker Dennis from Detroit, Michigan, Dr. Nizzoli, joins use from Bologna, Italy and Dr. Pryor joins us from Denver, Colorado. Unfortunately, 7 months ago when we submitted our proposal we also had Dr. Timothy Brewerton and Dr. Christina Tortolani included in this presentation but they both were unable to make the trip for personal reasons.

Diapositiva 25



Diapositiva 26

ED – SUD, common Risk factors

Low self-esteem
Impulsivity
High Bordeline Personality Disorder level
High Anxiety disorder level
High Mood Disorder
Onset during life-change period (adolescence, move, wedding, divorce, parenthood, …)
Trauma: sexual abuse, child neglect , violence,
Mourning: loss separation
Genetic

Diapositiva 27

Common traits BN – SUD

Craving
Lose of control
Maniac toughts on food or drugs
Lies and secrets
Food or drug as a mood modulator
Repeated attempts to stop
Relaps
Persistent to continue dispite serious physical and social damage
Ambivalency on change
High comorbidity

Diapositiva 28

Food & Addiction
La Centralità nello Sviluppo dei Disturbi Alimentari & Obesità DA&O
Nazario Melchionda

Diapositiva 29

Craving, an incessant and urgent, obsessive, impulsive and compulsive search for situations and mental states related to the use of the object constitutes a form of anesthesia and pain relief

Diapositiva 30

Craving is manifested by an intense desire or urge for the drug that may occur at any time but is more likely when in an environment where the drug previously was obtained or used; (Criterion 4) Substance-Related and Addictive Disorders, DSM5

Diapositiva 31

Craving has also been shown to involve classical conditioning and is associated with activation of specific reward structures in the brain.
Circuitry reward

Craving represents a criterion for Substance Dependence, in the ICD-11

Diapositiva 32

Craving is a subjective experience of desire or wanting.
Patients describe craving as an unpleasant state
in a craving state, individuals frequently show impaired cognitive process-ing.
while craving, individuals overestimate the duration and intensity of their own future urges.

Marlatt's conceptualization of craving as ocean waves that gradually peak, and then subside

Diapositiva 33

Diapositiva 34

The consumption of food is not always and only linked to homeostatic needs, but also to hedonic ones
of the reward. Even ghrelin, while having mainly homeostatic orexigenic functions, can have
implications in reward when non-homeostatic adaptations are needed, to suppress the
conditions involved in discomfort in stressful conditions, being able to promote not only the consumption of food,
but also the self-administration of drugs.

Diapositiva 35

Certain foods, particularly those with high fat and sugar content, can trigger strong conditioning and compulsive consumption in most of us.
And, in a small percentage of us this can become very severe and result in "addiction-like" behaviors.

Diapositiva 36

Palatability is a profound intuitive factor that causes overeating
Hyperpalatability conditions eating behavior, especially when food is handled for
purposes not necessarily linked to health objectives. The Neural Circuits of the Reward,
the biological mechanisms of which are largely known, and there is evidence of adaptations that
they interfere with homeostatic and non-homeostatic regulation, and also affect the need for food
for the future.

Diapositiva 37

A person can show "addictive like" behavior to FOOD (not to eating since eating salads without dressing will not generate compulsive overeating).
The cravings result from the INTERACTION of palatable foods and the reactivity of the limbic (reward) system of the individual.
The sensitivity to food cues varies between people which is why some might be more prone to compulsive overeating than others

N. Volkow, 2015

Diapositiva 38

"Food Addiction" as a Concept

FA has increasingly become a useful and defensible clinical entity with marked implications for policy, practice and research.

Gearhardt, et al., 2011; Lee et al., 2013; The National Center on Addiction and Substance Abuse, 2016.

Highly palatable foods (high sugar + high fat) are postulated to act via similar mechanisms as both illicit and licit drugs of abuse in the brain.

Avena, et al., 2009; 2011; 2012; Benton, 2010; Fortuna, 2012; Gearhardt, et al.l, 2009; 2011a; 2011b; 2012; Gold, et al., 2009; Hoebel, et al., 2009; Joranby, et al., 2005; Liu, et al., 2010

Much of the work in humans has been facilitated by the development of the Yale Food Addiction Scale (YFAS) by Gearhardt and associates.

Gearhardt et al., 2009; 2013; Pursey, et al., 2014.

The YFAS has shown good test-retest reliability/validity, as well as:

The YFAS for children

Gearhardt, et al., 2013

The YFAS-2 (based on DSM-5 criteria for substance use disorder)

Meule & Gearhardt, 2014

Diapositiva 39

The similarities between the impulsivity and compulsive behaviours present in the AN and addictions, open the door to consider the AN as a behavioural addiction. The approach of AN as an addiction to starvation was first proposed in 1984.

[*Meule* A (2015) Back by Popular Demand: A Narrative Review on the History of Food Addiction Research. The Yale journal of biology and medicine 88:295–302]

Diapositiva 40

A total of 3529 adolescents aged 13–17 were drawn from the Danish Psychiatric Central Research Register, stratified on six major diagnostic categories of mental disorders; psychotic disorders, affective disorders, anxiety disorders, eating disorders, autism spectrum disorders, and attention deficit disorders.

The mean weighted dYFAS-C 2.0 total score was 13.9 (95% CI 12.6; 14.9) for the entire sample and varied substantially across the diagnostic categories being highest for those with psychotic disorder, mean 18.4 (95% CI 14.6; 14.9), and affective disorders, mean 19.4. (95% CI 16.3; 22.5). Furthermore, the dYFAS-C 2.0 total score was positively correlated with body mass index (BMI) ($r = 0.33$, $p < 0.05$).

Food addiction symptomatology seems to be prevalent among adolescents with mental disorder, particularly affective and psychotic disorders. As obesity is a tremendous problem in individuals with mental disorder

Horsager, C., Færk, E., Gearhardt, A.N. et al. Food addiction comorbid to mental disorders in adolescents: a nationwide survey and register-based study. Eat Weight Disord **27**, 945–959 (2022). https://doi.org/10.1007/s40519-021-01212-6

Diapositiva 41

Individuals with food addiction exhibited significantly higher scores on the Palatable Eating Motives Scale overall score ($p < .001$) and subscales for coping ($p < .001$) and enhancement ($p < .001$) of emotions, Dutch Eating Behavior Questionnaire Emotional Eating subscale ($p < .001$), UPPS-P Impulsivity Scale negative urgency ($p < .001$) and lack of perseverance ($p = .01$) subscales, and the Food Craving Inventory overall score ($p = .02$) and subscales of cravings for sweets ($p < .01$) and fast food fats ($p = .02$).
Conclusion
Food addiction appears to represent a distinct phenotype within overweight and obesity, marked by greater emotion dysregulation, impulsivity, and cravings, which have been observed in prior studies examining features of individuals with addictive disorders.

Schulte, E.M., Gearhardt, A.N. Attributes of the food addiction phenotype within overweight and obesity. Eat Weight Disord ***26****, 2043–2049 (2021). https://doi.org/10.1007/s40519-020-01055-7*

Diapositiva 42

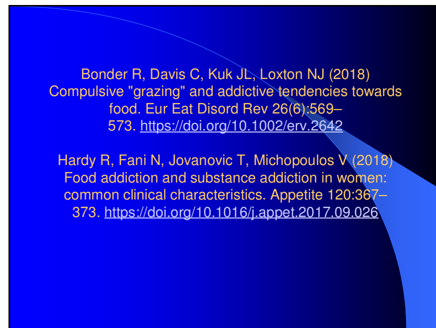
Food addiction (FA) is characterised by the consumption of appetible foods and by addictive psychological and behavioural symptoms such as cravings, tolerance, limited control of substance intake and withdrawal symptoms. shared defective neurobiological mechanisms as well as frequent comorbidities between FA, eating disorders, mood disorders, anxiety disorders and substance-related and addictive disorders

Piccinni, A., Bucchi, R., Fini, C. et al. Food addiction and psychiatric comorbidities: a review of current evidence. Eat Weight Disord ***26****, 1049–1056 (2021). https://doi.org/10.1007/s40519-020-01021-3*

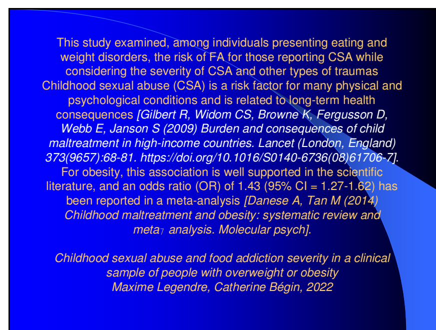
Diapositiva 43

Pretlow, R., Glasner, S. Reconceptualization of eating addiction and obesity as displacement behavior and a possible treatment. *Eat Weight Disord* **27**, 2897–2903 (2022). https://doi.org/10.1007/s40519-022-01427-1

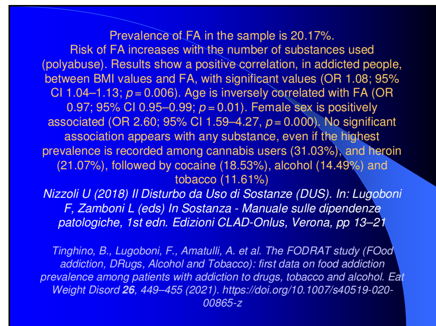
Diapositiva 44



Diapositiva 45



Diapositiva 46



Diapositiva 47

FODRAT study (FOod Addiction, DRugs, Alchool and Tobacco).
First data on food addiction prevalence among patients with addiction to drugs, tobacco and alcohol

Tinghino B & Ot, 2019 EWD

Diapositiva 48

prevalence of FA among patients already affected by other forms of addiction was consistently higher than the general population (20.5% versus 11%).
FA prevalence was different according to the type of substance of abuse.
this difference was significant when considering cocaine users, 26.1% (p<0.01),
heroin users 21.4% (p<0.01),
cannabis users 31% (p<0.01).
No significant difference for alcohol abusers (15.2%, p>0.05) and tobacco smokers (16.3%, p>0.05).
Patients addicted to multiple substances showed a FA prevalence of 23.5% versus 15.1% in mono-abusers (p<0.01).

Diapositiva 49

Diapositiva 50

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Diapositiva 51

VUCA Effects, Stress in America, 2021

- Stress 78%
- Damage to brain architectures, especially for the little ones
- Sleep disorders
- Anxiety
- Depression: + 53ml (in Western Countries, Lancet WPA 2022)
- PTSD
- Food disorders
- Substantial changes weight 50% increase
- Alcohol abuse
- Abuse of opioid psychiatric drugs
- "Illicit" drugs +6-13%
- Self-harm, suicidal ideation, TS, suicide = health pryority

Diapositiva 52

who pays? All who pays the most?

- Who has been infected with Covid-19
- Who has suffered mourning
- Young people, especially girls
- Who already had a mental disorder
- Who had a behavior disorder (eg SUD, ED)
- The poor, unemployed, multi-problem families
- Children
- Family members, care-givers
- Doctors and professionals
- who have treated
- LGBTQIA +

Diapositiva 53