How to promote mental health and prevent mental disorders in young people and get a more sensible society economy

### Arne Holte Norwegian Institute of Public Health and University of Oslo

Conference on Children's Mental Health and Well-Being: Policy and Future Directions in the Nordic Countries Reykjavík, October 8<sup>th</sup>, 2014



Mr. Sigmundur Davíð Gunnlaugsson Prime Minister, Iceland



Did you know, Bjarni, that mental disorders are our greatest health challenge?

Mr. Sigmundur Davíð Gunnlaugsson Prime Minister, Iceland



Mr. Sigmundur Davíð Gunnlaugsson Prime Minister, Iceland Sure, I do, Sigmundur! Nearly every second of us will experience it at least once in their life time. It's the most expensive cause of disability award, sickness abscence and lost work years in the country. - Hey, Sigmundur, of course I know; I'm your **Minister of Finance!** 

## But, Bjarni, even you and I may get it!

Mr. Sigmundur Davíð Gunnlaugsson Prime Minister, Iceland



Mr. Sigmundur Davíð Gunnlaugsson Prime Minister, Iceland

Mr. Bjarni Benediktsson Minister of Finance and Economy, Iceland

Hm!



Mr. Sigmundur Davíð Gunnlaugsson Prime Minister, Iceland We cannot solve this, Bjarni, by providing treatment to people -It's simply too big!



No, no, Sigmundur! Treatment has too low effectiveness, is too costly, reaches only a few, and tend to overlook minorities

Mr. Sigmundur Davíð Gunnlaugsson Prime Minister, Iceland

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I heard a professor from Oslo saying that provision of treatment does not reduce burden of disease in high income countries, like ours! I that right, Bjarni? (Marks et al, 2000).

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Mr. Sigmundur Di wou Gunnlaugsson Prime Minister, Iceland

Sure, Sigmundur, Andrews et al. (2004) showed by means of health economic models that even in the unlikely event of optimal treatment being delivered to all affected patients, only 28 percent of the overall burden of mental disorder would be alleviated.

# So, Bjarni, what do we do?

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Prevention of course – prevention, Sigmundur, has been a success story. Just look at these sensational results from Norway – not very unlike ours by

Mr. Sigmundur Davíð Gunnlaugsson Prime Minister, Iceland

- a success story



# Infant mortality Norway, boys and girls, 1967-2008



### Source: Norgeshelsa/MFR



## Coronary heart disease and stroke mortality Norway, men, 45-64, 65-79 and 80+ years, 1990-2009



### Source: Norgeshelsa/DÅR

## Road traffic mortality, Norway Men, all age groups and by age, 1970-2009



# Tobacco smoking, Norway Adults, 16 - 74 years, 1972-2009



#### Source: Norgeshelsa/SSB



## Child mortality and life expectancy Norway 1876-2000

No of deaths pr 1000 born

Average life expectancy (years)



# Caries free teeth Norway, age groups 5 and 12 years



### Source: Norgeshelsa/SSB



Mr. Sigmundur Davíð Gunnlaugsson Prime Minister, Iceland

But, Bjarni, there has been no major change in the prevalence of mental disorder either in the US, in Europe or in the rest of the world. Not even in Norway, Bjarni! (Kessler & Ustun, 2008; Wittchen et al., 2011)

Mr. Bjarni Benediktsson Minister of Finance and Economy, Iceland

No, Sigmundur! But neither has there ever been any major large scale, systematic population based attempt to prevent it. Think about the enormous burden of disease! Think about the costs! And we have done nothing, Sigmundur – nothing - to prevent it!

Bjarni, I think we need a crash course in prevention!

Mr. Sigmundur Davíð Gunnlaugsson Prime Minister, Iceland



Mr. Holte Crash course leader

# Ok boys, here it comes!



# Three minutes crash course in prevention



# Prevention

- <u>Before</u> onset of disorder or high levels of distress
- <u>Reduces</u> number of new cases of illness (incidence)







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# Two main strategies

# Health promotion:

Strengthens:

- Resilience
- Subjective well-being
- Positive mental health
  - Regulate emotions
  - Think smart
  - Coordinate behaviour
  - Cope with social challenges

...rather than reducing symptoms and disease

### **Disease prevention:**

Reduces:

 New cases of disorder («insidens»)

...rather than strengthening health and well-being





### Promotion

FIGURE 3-1 Mental health intervention spectrum. SOURCE: Adapted from Institute of Medicine (1994, p. 23).

Ricardo F. Muños Stanford University USA The preponderance of the evidence shows that a 50% reduction in incidence of MDE in high-risk individuals is feasible with current methods. It is time to start the journey toward a world without depression



RCTs: Prevention of Major Depressive Episode (MDE) (Muños et al, 2014)

- 35 published randomized controlled trials, RCT
- High risk approach
- CBT or Interpersonal psychotherapy based
- 40% (n=14/35) show case reduction: <a>50%</a>
- 29% (n=10/35) show case reduction: 25-40%



## Severe weakness of high risk approaches

- Several high risk programs are successfull
  Muños et al, 2013; Cuijpers et al, 2008, 2012
- High risk initiatives reach only a small fraction of those who develop mental disorders
  - Hough et al, 1987; Ojeda & McGuire, 2006
- Most people at risk do not seek treatment or treatment is not available to them
  - Ovens et al, 2003



# **Public Health Strategy**



# **Geoffrey Rose's Theory of Prevention**



Geoffrey Rose 1926-1993

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If disease risk is widespread (viz. mental disorder), measures that decrease risk for everyone are more effective in reducing the burden of disease than a 'high-risk' approach, in which measures are targeted only to those individuals with a substantially increased risk for disease (Rose, 1993).

# Geoffrey Rose's theory of prevention



Geoffrey Rose 1926-1993

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.... Because: If disease rates rise continuously with higher levels of exposure to the risk factor, the larger number of people with a small elevation in risk will usually contribute more disease cases to the total burden of disease than the smaller number of people exposed to a high risk (Rose, 2008)

# The Bell curve shift in populations



Shifting the whole population into a lower risk category benefits more individuals than shifting high risk inviduals into a lower risk category



The prevention paradox (Rose, 1981, 1985, 1993)

- Shifting the risk distribution of the population as a whole may bring large benefits to the population as a whole, but it offers little to the many individuals in the middle of the distribution, and may, therefore, be insufficiently attractive to them (Rose, 1993).
- ... and to politicians.





«The Gudlaugsson-Benediktsson ten points plan to strengthen mental health and wellbeing of the population, prevent common mental disorder and get a more sensible economy in the Nordic **countries**»


# 1. Invest in building mental capital rather than in fighting disease!

#### Mr. Sigmundur Davíð Gunnlaugsson Prime Minister, Iceland



# 1. Mental capital

- A population's total potential to:
  - Regulate emotions
  - Think smart
  - Coordinate their behaviour
  - Meet social challenges
- Investment in a population's mental capital is likely to prevent more mental disability than direct investment in prevention of mental illness
  - Jenkins et al, 2008 (for the British government)



**2. Promote positive mental** health, resilience and happiness rather than preventing mental disorder!

Holte's

Crash

Prevention

Course

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# 2. Mental health promotion

- Learn from the success of prevention in somatic medicine:
  - Health promotion before illness prevention
  - Long term investments
  - Multi-method approach
  - Act on indicative evidence
  - Address exposure factors
  - Utilise laws, regulations and tax-policy
    - Norwegian Directorate of Health, 2012



**3. Address** what we can do something with rather than what we wish to do something with!

#### Mr. Sigmundur Davíð Gunnlaugsson Prime Minister, Iceland

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# 3. Address potentials

- We must prevent unnecessary negative impact of living with bipolar disorder, schizophrenia, anorexia nervosa, autism and ADHD
- But do not know how to prevent them
- Fortunately, we can to some degree prevent the most costly mental disorders to society:
  - Major depression (Muños et al, 2013; Cuijpers, 2009)
  - Anxiety disorders
  - Alcohol abuse



4. Address low and medium risk populations rather than high risk populations!

Mr. Bjarni Benediktsson Minister of Finance and Economy, Iceland

### 4. The Bell curve shift in populations



Shifting the whole population into a lower risk category benefits more individuals than shifting high risk inviduals into a lower risk category



5. Endorse universal interventions rather than targeted interventions!

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# 5. Universal interventions

- Mackenbach et al, 2012
- Review of all successfull prevention
  programs in Netherland 1970-2010
- Results
  - Universal interventions: <sup>3</sup>/<sub>4</sub> of the effects
  - Targeted interventions: 1/4 of the effects
- Null hypothesis: Similar for mental health



6. Prioritise interventions according to cost-utility rather than to efficacy or effectiveness!



Mr. Bjarni Benediktsson Minister of Finance and Economy, Iceland

# 6. Cost-utility

- Need to bother about whether it costs 1 Euro to save 1000 Euros or 1000 Euros to save 1 Euro
- 80 % of total costs are indirect costs
  - Sobocki et al, 2007
  - Reduced effectiveness at work
  - Lost work hours
  - Sicness absence benefit costs
  - Disability benefit costs
- Higher than for any other disorder (also physical)
  - Berndt et al, 2000; Broadhead et al, 1990
- Indirect costs more than doubled in 7 years
  - Sobocki et al, 2007.



7. Prioritise initiatives outside rather than innside the health services!

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# 7. Outside the health service

- Health services don't produce health
  - They repair it!
- Health is produced where peope live their lives:
  - Family
  - Child care centre
  - School
  - Work place
  - Culture & sports
- In high income countries, better health services have a relatively little impact on population health
  - Marks, 2000



8. Invest in infants and small children before everybody else - including older people!

### Mr. Bjarni Benediktsson Minister of Finance and Economy. Iceland





Heckman, James J. (2006). "Skill Formation and the Economics of Investing in Disadvantaged Children, *Science, 312(5782):* 1900-1902.

9. Address community levels of positive mental health and psychological distress rather than counting cases of mental disorder!

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# 9. Community levels

- The proportion of alcohol abuse/dependency in a population is a direct function of the total <u>level</u> of alcohol consumption (Ole Jørgen Skog)
- Correspondingly, the proportion of common mental disorder may be a direct function of the <u>level</u> of psychological distress
- Most effective prevention of alcohol disorders is to reduce total <u>level</u> of alcohol consumption in the pop.
- Most effective preventon of common mental disorder, may be therefore be to reduce total <u>level</u> of psychological distress?
- Evidence still lacking, hypothesis can be tested.



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**10. Regulate by law** that any greater public investment in mental health and wellbeing promotion or illness prevention must have a design and a budget to scientifically assess whether it is feasible, works, pays off, and people want it!

### The Gudlaugsson-Benediktsson plan



Holte, A. J. Norwegian Psychological Association, 2012

- 1. Mental capital before mental illness
- 2. Health promotion before illness prevention
- 3. What we can do, before what we wish to do
- 4. Low-medium risk before high risk
- 5. Universal interventions before targeted ones
- 6. Cost-benefit before severity
- 7. Outside before inside the health services
- 8. First years of life before everybody else
- 9. Level of distress before number of cases
- 10. Evaluation and evidence before good intentions



### I think we can do it, Sigumundur!

### So do I, Bjarni!

Mr. Bjarni Benediktsson Minister of Finance and Economy, Iceland Mr. Sigmundur Davíð Gunnlaugsson Prime Minister, Iceland

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# That's the way to success, boys. Look to Iceland!

José Manuel D Barroso President, EU Comission 2004-2014



Angela Merkel, Chansellor of Germany



#### Barrach Obama, President, USA



# Where is the evidence?

Professor Kristian Wahlbeck Leader of Joint Action WP 8 Mental Health in All Policies



### The evidence



# Coming, my friend, coming!

# Coming, my friend, coming!

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### Postnatal women



### Brugha et al, 2011 (Trent, UK, 5.1 mill.) Randomised prospective cluster trial

- Training of health visitors (HV) in identification and psychological intervention to prevent depression
- Non-dep (EPDS < 12) mothers 6 weeks postnatally
- Intervention group: N=1474 mothers; N =89 HV
- Control group (CAU): N= 767 mothers; N=49 HV
- High risk group: Baseline EPDS score: 6-11
- Low risk group: Baseline EPDS score: 0-5
- Follow-up: 6, 12, 18 months postnatally



# Brugha et al, 2011 Results

- Interv gr: 29% less likelihood of dep (EPDS > 12) compared to Contr gr at 6 months
- Mental health benefits sustained at 18 months
- ES not different in high vs. low risk: z = -.28
- High risk gr. «dep saved»: 31 of 271 (11,4%)
- Low risk gr. «dep saved»: 46 of 1474 (3,1%)
- ~50% more depressive states saved in low risk compared to high risk group
- > 99% probability of cost-effectiveness
  Results adjusted for Living alone, previous PND, life events, EPDS score
  Effect size: Cohen's d: 0.2 = small, 0.5 = moderate, 0.8 = large

Brugha et al, 2011 Conclusion

- «To date, there have been no large-scale trials testing whether universal prevention effects have occurred across a whole population.
- There is now new evidence for clinically significant, useful and persistent reduction in the prevalence of depression in a key part of the population women following childbirth....»



### But of course, Bjarni! Of course, Sigmundur!

#### Mr. Sigmundur Davíð Gunnlaugsson Prime Minister, Iceland

Mr. Bjarni Benediktsson Minister of Finance and Economy, Iceland

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### **Centred Child Care**



# High Quality Child Care Centes

- Several large representative prospective population based longterm follow-up studies from Europe and USA
- Including cost-utility analyses
- Still more going on
- No updated review/meta-analyses available
- Still awaiting large scaled RCTs



### High quality centred child care

- Strengthens social-emotional coping
- Strengthens cognition & school grades
- Strongest effects on disadvantaged kids
- Good effect also on advantaged kids
- Reduces social inequality in health
- Compensates bad home environment
- Stabilises difficult periods in life
- Prospective long term effects on mental and physical health
- Even into adulthood on educ./employment, physical health
- Highly cost-effective (net benefit +300 000 USD/Kid)
- Quality the only thing that matters

Jaffe et al., 2011; Melhuish, 2011; Sylva et al., 2011; NIPH, 2011; Havnes & Mogstad, 2010; Pianta, 2009, Lekhal et al. 2011/12, Zachrisson et al.







We don't know yet whether it prevents mental disorder later in life!
#### According to our plan! According to our plan!

BOAD



## Schools



Impact of school interventions Summary (Ware & Nind, 2011)

- 50 out of 52 reviews conclude at least small effects
- Social-emotional skills:

- Clear, cumulative evidence; moderate-strong effect sizes

• Mental health and well-being:

- Clear, cumulative evidence; small-moderate effect sizes

- Targeted interventions strongest impact
- Universal interventions
  - Positive impact on mental health, mental health problems/ disorders, violence, bullying, pro-soc behaviour, well-being
  - Small-moderate effect sizes ( $z = \sim .3$ )

Effect size: Cohen's d: 0.2 = small, 0.5 = moderate, 0.8 = large

Positive mental health, well-being and social and emotional learning (SEL)

- Positive and small to moderate ES: 0.15–0.37
  Adi et al., 2007a
- Grand study-level mean: ES: 0.28 for 207
  - Durlak, 2007, 2011
- Social & emotional skills & competences: moderate to strong effects, ES 0.5–1.49
  - Catalano et al., 2002; Scheckner et al., 2002; Berkowitz et al, 2007
- Selfesteem & self-confidence moderate effects across a range of high quality reviews, ES: 0. 34–0.69 across five reviews
  - Haney et al, 1998; Ekeland et al., 2004; O'Mara et al., 2006; Durlak et al, 2007\*\*\*; Sklad et al., 2010.



# Externalizing problems: violence, bullying, conflict and anger

- Universal populations: positive, small effects, ES 0.1
- Markedly stronger for high-risk children, ES 0.21–0.35
  - Catalano et al., 2002; Mytton et al., 2002; Scheckner et al., 2002;
     Wilson et al., 2003; Wilson and Lipsey, 2006a; Adi et al., 2007b;
     Garrard & Lipsey, 2007; Hanh et al., 2007; Blank et al., 2009;
     Farrington and Ttofi, 2009.
- Cognitive-behavioural interventions larger effects than average, ES of 0.5
  - Beelman and Losel, 2006; Shucksmith, et al., 2007



Internalizing problems (depression, anxiety)

- 19 reviews, all w/ overall positive impact
- 9 review only work in schools
  - 3 studies show small to modest ES: 0.10-0.50
    - Payton et al., 2008; Reddy et al., 2009; Sklad et al., 2010
  - -1 study shows modest to large ES: 0.41-1.70
    - Browne et al., 2004
- Stronger impact on heavy than milder problems
  - Strong ES: 1.00 2.46
    - Horowitz & Garber, 2006; Browne et al., 2004; Reddy et al., 2009; Payton et al., 2008.

Effect size: Cohen's d: 0.2 = small, 0.5 = moderate, 0.8 = large

## You see?

## You see?

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Mr. Bjarni Benediktsson Minister of Finance and Economy, Iceland

## Work place



Universal prevention in the work place Meta-analysis (Tan et al. 2014)

- 9 RCTs
- Mostly cognitive-behavioral programmes
- Positive effect
- Pooled effect size estimates
- Small effect size: z = -.16

Standard mean difference between intervention groups and control groups

Effect size: Cohen's d: 0.2 = small, 0.5 = moderate, 0.8 = large



Conclusion work places (Tan et al. 2014)

- "There is good quality evidence that universally delivered workplace mental health interventions can reduce the level of depression symptoms among workers.
- There is more evidence for the effectiveness of CBT-based programs than other interventions.
- Evidence-based workplace interventions should be a key component of efforts to prevent the development of depression among adults."



## Yess!!!

## Yess!!!

## Physical activity



Physical activity (PA) Review (Mammen & Faulkner, 2013)

- 30 prospective, longitudinal studies
- Mainly epidemiological, few RCTs
- Majority of studies of high quality
- Depression
  - Cut-off score on self-report measure
  - Direct measure, including physician diagnosis



Physical activity (PA), Results Mammen & Falkner, 2013

- 25/30 studies: Baseline PA negatively associated with risk of subsequent depression
- Promising evidence:
  - Any level of PA can prevent future depression
  - Including low levels (e.g. walking < 150 minutes/week)</li>
  - 120 min/week reduce risk 63% relative to sedentary
- Increased intensity, duration, frequency, or volume associated with decreased odds for depression
- Clear dose-response relationship not readily apparent



Physical activity (PA), Conclusion Mammen & Falkner, 2013

«From a population perspective, promoting PA may serve as a valuable mental heatlh promotion strategy in reducing the risk of developing depression»







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Mr. Bjarni Benediktsson Minister of Finance and Economy, Iceland When is a small to medium effect size (e.g. 0.3) large? A piece of magic

Statistical modelling by: Espen Røysamb, Department of Psychology, University of Oslo, in collaboration with Arne Holte, Norwegian Institute of Public Health and University of Oslo



#### Normal distribution of vulnerability





#### Displacement of the mean to the left





#### Small population effects may be very powerfull



Effect size: Cohen's d: 0.2 = small, 0.5 = moderate, 0.8 = large



#### **Unbelievable!**

#### **Unbelievable!**

Mr. Bjarni Benediktsson Minister of Finance and Economy, Iceland Mr. Sigmundur Davíð Gunnlaugsson Prime Minister, Iceland



## Statistical assumptions

- Vulnerability of mental disorder normally distributed
- Standardised distribution
- Cut-off 8% (cf. Prev. of mental disorder): SD = 1.4
- Displacement of distribution by 0.3 sd
- Roughly the ES found in universal promotion and prevention trials on mental health and wellbeing
- Z-score transformation





#### Professor Kristian Wahlbeck Leader of Joint Action WP 8 Mental Health in All Policies





### A fabulous plan, Bjarni!

## A fabulous plan, Sigmundur!

#### Mr. Sigmundur Davíð Gunnlaugsson Prime Minister, Iceland

Mr. Bjarni Benediktsson Minister of Finance and

conomy, Iceland

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## Seven psychological child rights

How to build mental health: The seven mental health mediating and moderating values



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1. Every child has a right to a sense of identity and self respect! You know: The feeling that I know who I am, that I am something. I may not be perfect but I am good enough.



2. Every child has a right to a sense of meaning in life! You know: The feeling of being part of something greater than yourself, that there is somebody who needs you.

Mr. Bjarni Benediktsson Minister of Finance and Economy, Iceland



3. Every child has a right to a sense of mastery! You know: The feeling that there is at least something that I am good at; it may not be legal, but I am pretty good at it!

## Helle Thorning-Schmidt Prime minister Denmark

#### Stefan Löfven Prime minister Sweden

4. Every child has a right to a sense of belonging! You know: The feeling that I know who, what and where I belong to.

#### Erna Solberg Prime minister Norway

5. Every child has a right to a sense of security! You know: The feeling that I can think, feel and express myself without being afraid.

6. Every child has a right to a sense of community! You know: The certainty that I have somebody whom I can share my thoughts and feelings with.

> Alexander Stubb Prime minister Finland

7. Every child has a right to a sense of social support! You know: The feeling that there is sombody who knows me, who cares about me, whom I can trust that will look after me when I need it. That is a good feeling!

José Manuel Barroso President, EU Comission 2004-2014

And where, José Manuel, do you find the sources to a sense of identity, meaning, mastery, belonging, security, community and social support?

Jean-Claude Juncker President Elect EU commission

Sigmundur Davíð nlaugsson ne Minister, Icelan

In the family, the child care center, the school, among friends, in the workplace, in culture & sports. That's where we have to invest Sorry, folks. Not in the health services.

Mr. Bjarni Benediktsson Minister of Finance, Iceland

## Positive mental health (WHO)

A state of well-being in which every individual:

- realizes his or her own potential
- can cope with the normal stresses of life
- can work productively and fruitfully
- is able to make a contribution to her or his community





Mr. Sigmundur Davíð Gunnlaugsson Prime Minister, Iceland Mr. Bjarni Benediktsson Minister of Finance, Iceland



How to promote mental health and prevent mental disorders in young people and get a more sensible society economy

#### Arne Holte Norwegian Institute of Public Health and University of Oslo

Conference on Children's Mental Health and Well-Being: Policy and Future Directions in the Nordic Countries Reykjavík, October 8<sup>th</sup>, 2014



#### Mediators and moderators of mental health: When the mental health fails

- 1. I am nobody, I am worth nothing.
- 2. Life is meaningless, nobody needs me.
- 3. I can't do anything right, not good at anything.
- 4. I don't belong anywhere, I simply don't fit in anywhere.
- 5. I dear nothing, I am always afraid.
- 6. I have nobody to talk with, to share my thoughts and feelings with.
- Nobody knows me, nobody cares about me, there is noone whom I know will look after me when needed – I am really all alone.



#### Mediators and moderators of mental health: When mental health flourishes

- 1. I know who I am, I aim not perfect, but I am ok enough.
- 2. There is sombody who needs me.
- 3. There is at least something that I am good at .... may not be legal, but I am pretty good at it!



- 5. I can think, feel and express myself without being afraid.
- 6. Fortunately, I have somebody whom I can share my thoughts and feelings with.
- 7. There is sombody who knows me, who cares about me, whom I can trust that will look after me when needed.



Basic psychological mediators and moderators of mental health:

#### Sense of.....

1. Identity: I am somebody.



- 2. Meaning in life: I am part of something bigger than myself, somebody needs me.
- 3. Mastry: I am competent, there is something I can do
- 4. Affiliation: I belong somewhere
- 5. Security: I can feel, think and act without being afraid
- 6. Community: I have somebody to share my experiences with
- 7. Social support: Somebody cares about me



Where do we aquire a sense of identity, meaning, mastery, belonging, security, social network and social support?

- Family
- Child care center
- School
- Friends
- Workplace
- Culture & sports
- .... not in the health services



