Sociální determinanty zdraví u sociálně a zdravotně znevýhodněných a jiných skupin populace - SODEZZ
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"Biological and social determinants of behavioural and emotional problems during childhood and adolescence"

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INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

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Behavioural and emotional problems during childhood and adolescence

biological and social determinants

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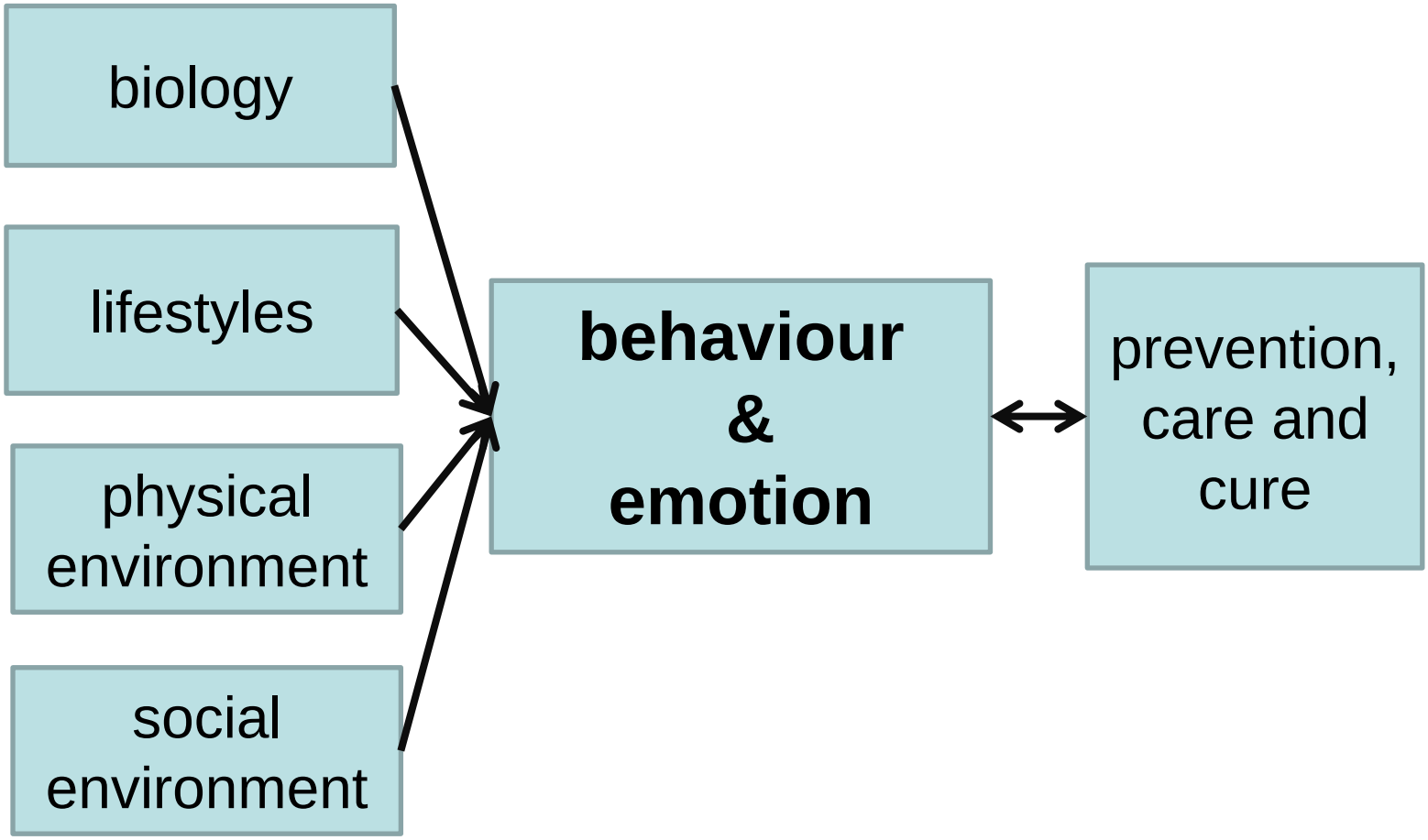
Overview

- Conceptual model
- What do we know?
  - Prevalence
  - Aetiology
- Consequences for care and policy
- How to proceed?
- Summary / take home

Conceptual model



Prevalence rates

- Estimates
  - Generally high (range 10-25%!)
  - Depend on definition
- Two approaches
  1. Formal diagnostic (DSM)
     Meeting a set of expert-based criteria
  2. Empirical approach (CBCL etc.)
     Lumping of problems that occur in the population

Prevalence rates DSM

DSM IV Major Depressive Episode

A. Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure.

1) depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad or empty) or observation made by others (e.g., appears tearful). Note: In children and adolescents, can be irritable mood.
2) markedly diminished interest or pleasure in ..
3) significant weight loss ..
4) insomnia or hypersomnia nearly every day
5) psychomotor agitation or retardation etc. 6) to 8)

B. to E. (not meeting other diagnoses better)

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Life time prevalence (%) of psychiatric disorder by age 18 (DSM IV)

Diagnosis	Females	Males	Everyone
Any 1 Disorder	51.0	48.1	49.5
Depression	15.9	7.7	11.7
Bi-Polar	3.3	2.6	2.9
Anxiety (GAD)	3.0	1.5	2.2
Social Phobia	11.2	7.0	9.1
Specific Phobia	22.1	16.7	19.3
Panic Disorder	2.6	2.0	2.3
PTSD	8.0	2.3	5.0
ADHD	4.2	13.0	8.7
ODD	11.3	13.9	12.6
Conduct Disorder	5.8	7.9	6.8
Alcohol Abuse/Dependance	5.8	7.0	6.4
Drug Abuse/Dependance	8.0	9.8	8.9
Eating Disorders	3.8	1.5	2.7

Values are percentages of sample population.

Source: **Merikangas KR** et al. Lifetime prevalence of mental disorders in U.S. adolescents: results from the National Comorbidity Survey Replication–Adolescent Supplement (NCS-A). *Journal of the American Academy of Child and Adolescent Psychiatry 2010, 49* (10), 980-9.

Prevalence rates: empirical

- Co-occurring problems in the population
- Example: Youth Self-Report – some items:

I have trouble concentrating or paying attention *(not at all – a bit – often)*

I can't get my mind off certain thoughts (describe):

I have trouble sitting still

I'm too dependent on adults.

I feel lonely

I feel confused or in a fog

I cry a lot

I am pretty honest

etcetera

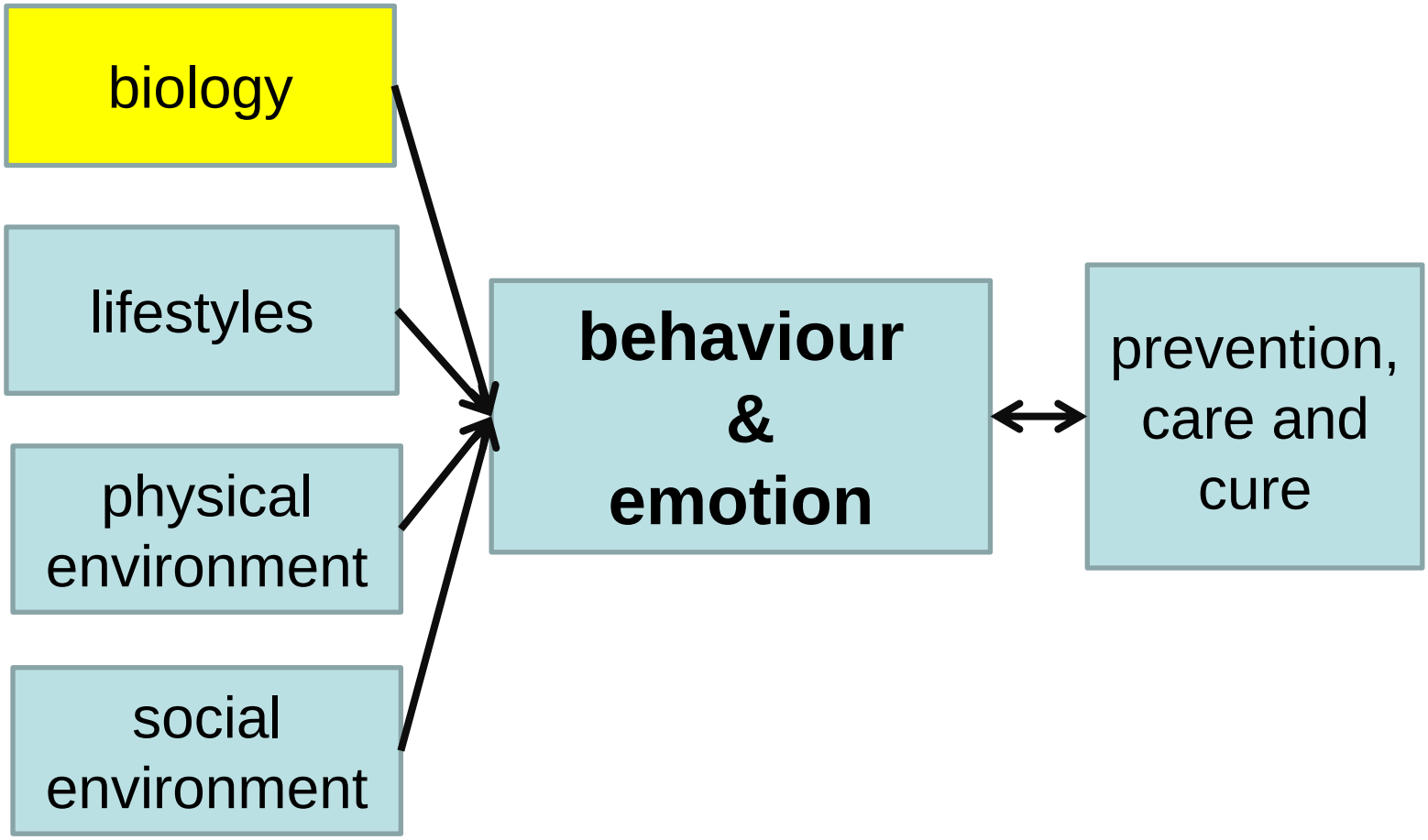
Prevalence rates empirical: age 2-4

Clinical range CBCL problems scales	Prevalence n (%)	Identification OR	*(95% CI)*	
Total Problems	129 (6.3)	5.40	*3.45*	*8.47*
Internalizing	136 (6.6)	2.97	*1.82*	*4.83*
Externalizing	114 (5.5)	7.65	*4.90*	*12.0*
Oppositional	27 (1.3)	19.77	*8.56*	*45.7*
Withdrawn/Depressed	14 (0.7)	6.40	*2.02*	*20.3*
Aggressive Behavior	28 (1.4)	3.04	*1.16*	*8.00*
Anxious	19 (0.9)	3.88	*1.31*	*11.5*
Overactive	13 (0.6)	10.25	*3.45*	*30.5*
Sleep Problems	26 (1.3)	7.04	*3.02*	*16.4*

Percentages apply to the total population (n = 2,063); Ages 2-4 years

Source: **Reijneveld SA**, et al. Identification and management of psychosocial problems among toddlers in Dutch preventive Child Healthcare. *Arch Ped Adolesc Med 2004*; 158: 811-7.

Aetiology - Conceptual model



Aetiology: biology

- Genetics: large effect, often gene * environment (i.e. vulnerability + environment)
- Very high rates among intellectually disabled
  - 60.9% elevated SDQ compared to 9.8% in other children aged 6-12 years
  - **Kaptein S** et al. *J Intellect Disab Res* 2008; 52: 125–31.
- Pregnancy- and delivery-related factors

Biology: Preterm birth

- Births < 38 weeks gestational age
  - High prevalence (about 10%!)
  - Most concern GA 32-37 weeks (4:1)
- Probably affects brain growth + more complications
- Two core papers
  - **Reijneveld SA**, de Kleine MJ, Van Baar AL, Kollee LA, Verhaak CM, Verhulst FC, Verloove-Vanhorick SP. Behavioural and emotional problems in very preterm and very low birth weight infants at age 5 years. *Arch Dis Child 2006*; 91: F423-8.
  - **Potijk M**, de Winter AF, Bos AF, Kerstjens JM, Reijneveld SA. Higher rates of behavioural and emotional problems in moderately preterm born children at pre-school age. *Arch Dis Child **2012**;* 97: 112-7

Risks for Very Preterm (<32 wks; n=402) vs. Full-term (n=6,007); age 4

CBCL problems scale	Odds ratio (95% CI)
Total Problems	**1.60 (1.18 to 2.17)**
Externalising	**1.48 (1.08 to 2.03)**
Internalising	1.06 (0.71 to 1.57)
Withdrawn	1.72 (0.82 to 3.60)
Somatic Complaints	**1.90 (1.10 to 3.28)**
Anxious/Depressed	1.15 (0.41 to 3.20)
Social Problems	**2.62 (1.38 to 5.16)**
Thought Problems	**2.72 (1.49 to 4.94)**
Attention Problems	**3.45 (2.02 to 5.89)**
Delinquent Behaviour	**2.65 (1.39 to 5.08)**
Aggressive Behaviour	1.58 (0.90 to 2.77)
Sex Problems	1.48 (0.68 to 3.24)

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Risks for Moderate Preterm (32-36 wks; n=916) vs. Full-terms (n=543); age 4

CBCL problems scale	Odds ratio (95% CI)
Total problems	**1.84 (1.12 to 3.00)**
Externalizing problems	**1.69 (1.07 to 2.67)**
Internalizing problems	**2.40 (1.48 to 3.87)**
Emotionally reactive	1.70 (0.86 to 3.34)
Anxious/depressed	2.50 (0.68 to 9.19)
Somatic complaints	**1.92 (1.09 to 3.38)**
Withdrawn	1.38 (0.62 to 3.09)
Sleep problems	1.88 (0.79 to 4.49)
Attention problems	1.80 (0.90 to 3.59)
Aggressive behavior	2.03 (0.95 to 4.36)

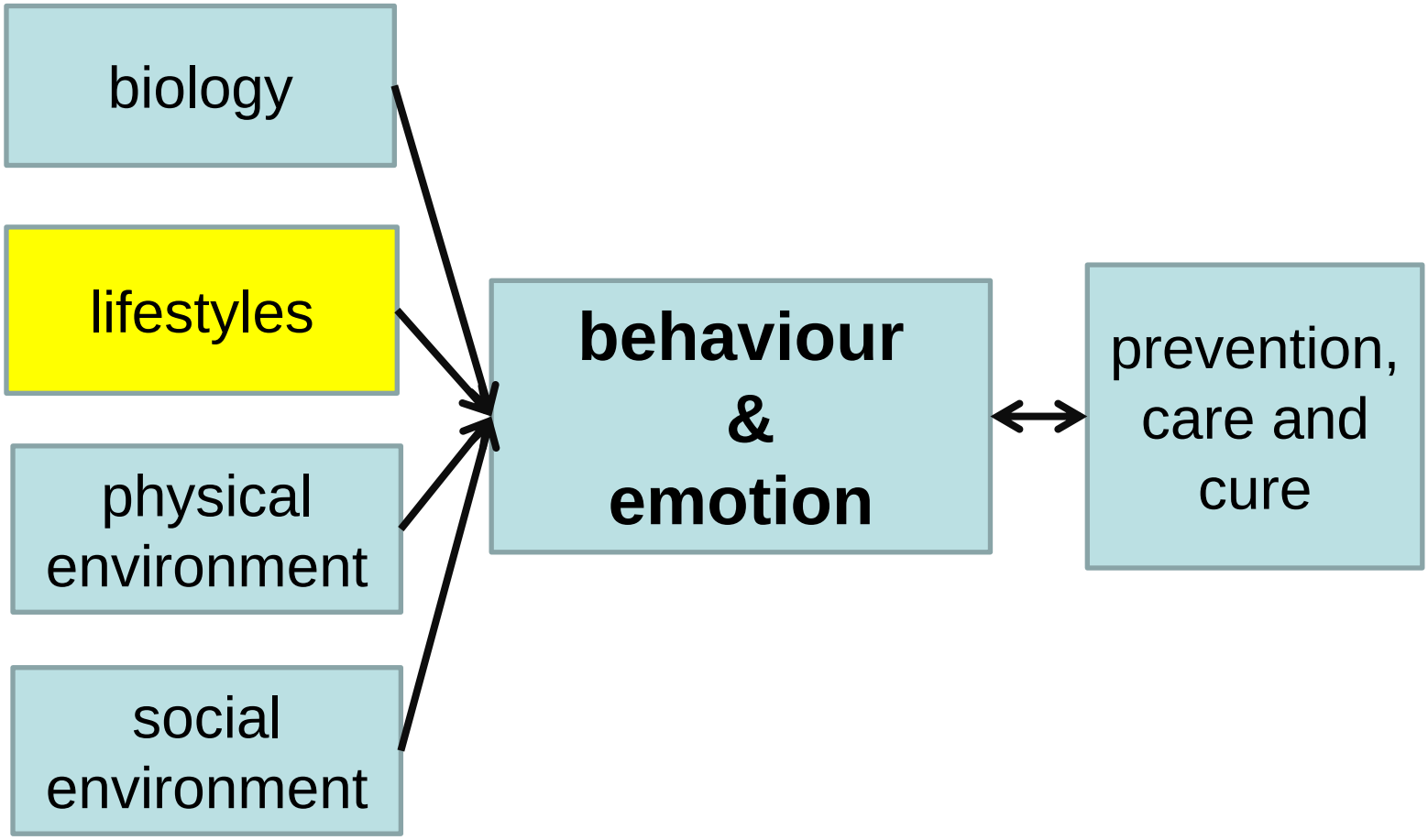
Biology: also co-morbid

- Behavioural and emotional problems more likely in case of other disease / disorder

Age	Odds ratio
14 months	2.03
4 years	3.41
9-12 years	3.29

Odds ratio for behavioural/emotional problem if disease/disorder

Aetiology – Back to conceptual model



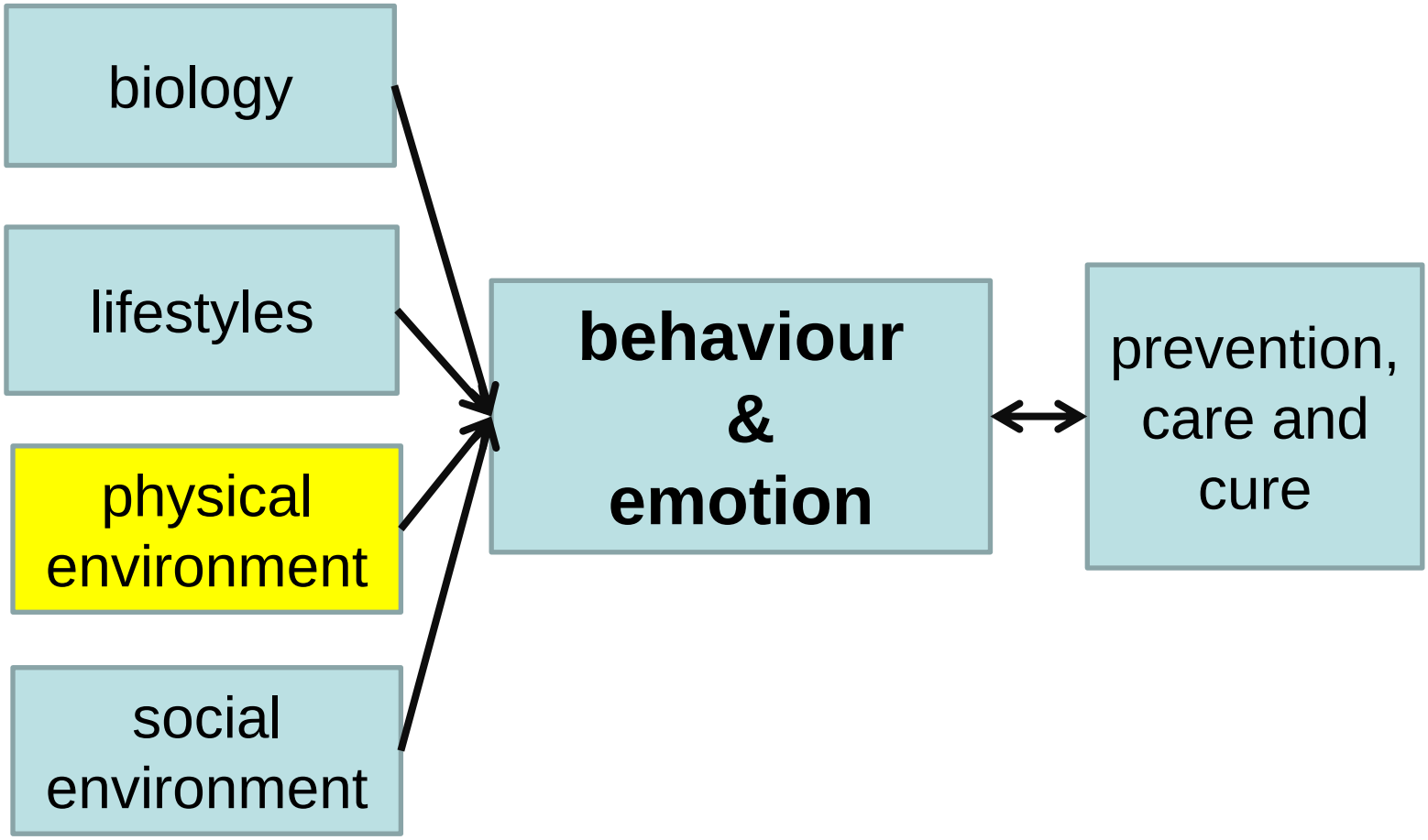
Lifestyles

- Substance use by mother during pregnancy
  - Cocain, opiates, amphetamins: much evidence
  - Maternal smoking too (OR behavioural problems age 14-16 yrs: 1.5 to 1.8)

    Monshouwer K et al. Prenatal smoking exposure and the risk of behavioural problems and substance use in adolescents: results from the TRAILS study. *Eur Addict Res 2011*; 17: 342-50.
- Debate regarding obesity (cause/consequence, depression seems to be causal)

  Liem ET et al. Association between depressive symptoms in childhood and adolescence and overweight in later life: review of the recent literature. *Arch Ped Adol Med* 2008; 162: 981-8

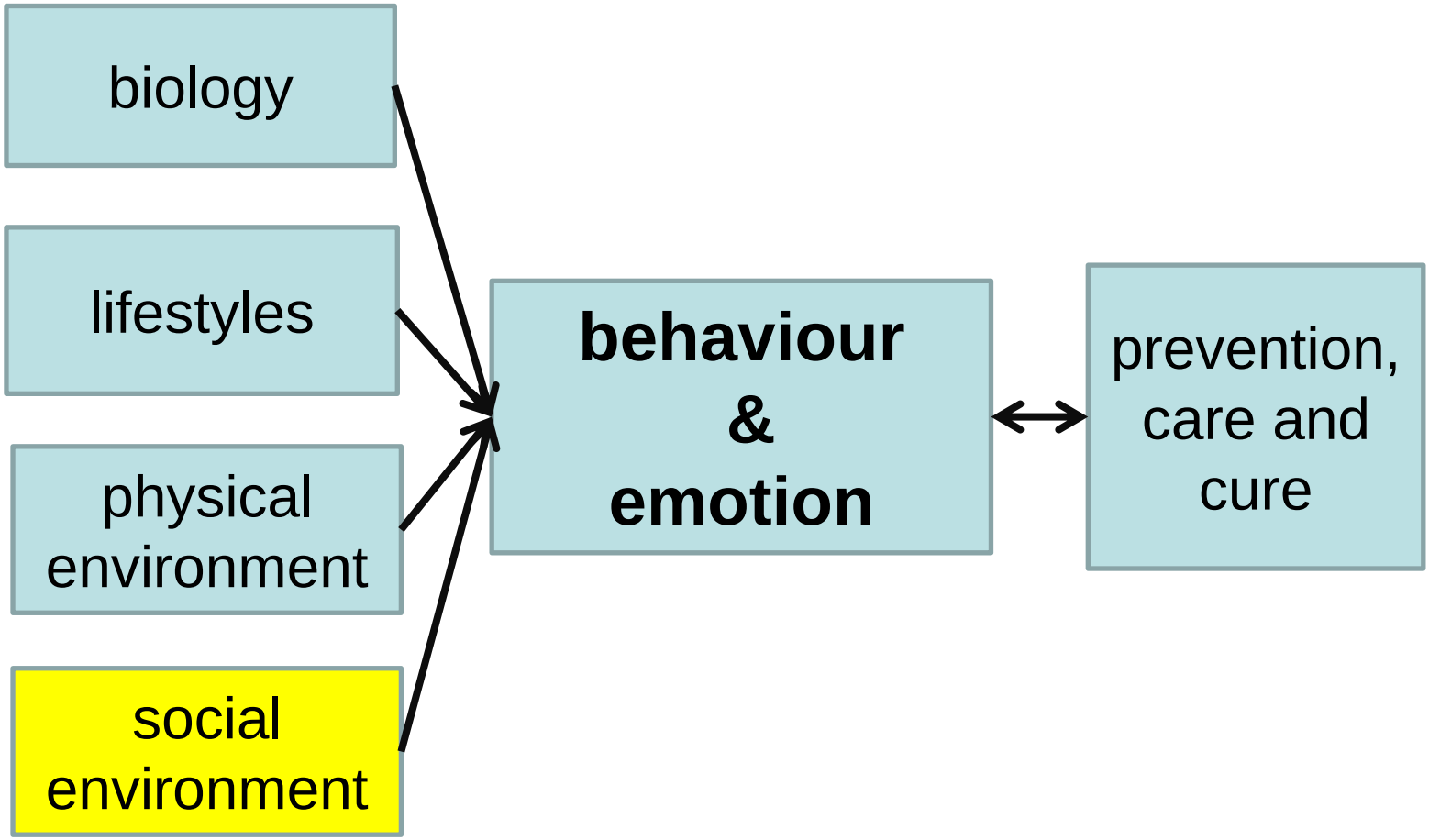
Aetiology – Back to conceptual model



Physical environment

- Play grounds etc. – ADHD debate
- Lifestyle of mother is intrauterine physical environment of child

Aetiology – Back to conceptual model



Social environment

- Mental/physical disease of parents

  E.g. **Huizinga GA**, Visser A, Zelders-Steyn YE, Teule JA, Reijneveld SA, Roodbol PF. Psychological impact of having a parent with cancer. *Eur J Cancer 2011*; 47S3: S239-46.
- Life-events
- Socioeconomic deprivation
- Difficult family functioning
- Ethnicity (adverse minority status)

Social adversity and child behavioural problems (CBCL)

Number of risk factors	Rate of child problems	Rate of negative parent. experience
no	3%	5%
one	5%	5%
two	12%	18%
three or four	16%	18%

Risk factors: poverty, low parental education, ethnic minority, 1-parent family

Source: **Zeijl E** et al. Children in the Netherlands. The Hague: SCP/TNO, 2005. [in Dutch]

Elevated CBCL-scores in children aged 5-12 years by ethnic background

	Total Problems	Externalizing	Internalizing
Industrialized countries (n=1831)	1	1	1
Surinamese/ Antillean (n=145)	**2.04 (1.02-4.07)**	1.79 (0.87-3.68)	**2.29 (1.33-3.95)**
Turkish background (n=150)	**3.12 (1.74- 5.59**	0.93 (0.38-2.24)	**5.31 (3.44-8.20)**
Moroccan background (n=156)	**4.36 (2.58- 7.38)**	**2.56 (1.40-4.70)**	**3.87 (2.45-6.12)**
Other non-industrialized (n=110)	**2.17 (1.01- 4.65)**	1.18 (0.46-2.01)	**2.38 (1.29-4.41)**

Source: Crone MR, Bekkema N, Wiefferink CH, Reijneveld SA. Professional identification of psychosocial problems among children from ethnic minority groups: room for improvement. *J Pediatrics 2010*; 156: 277-84.

Different informants, different ratings

- Asylum seekers aged 4-16 years (n=267)
- SDQ scores increased
  - Parent : 38%
  - Teacher : 23%
  - Self (adolescent) : 9%

  (Dutch population: about 10% for all)

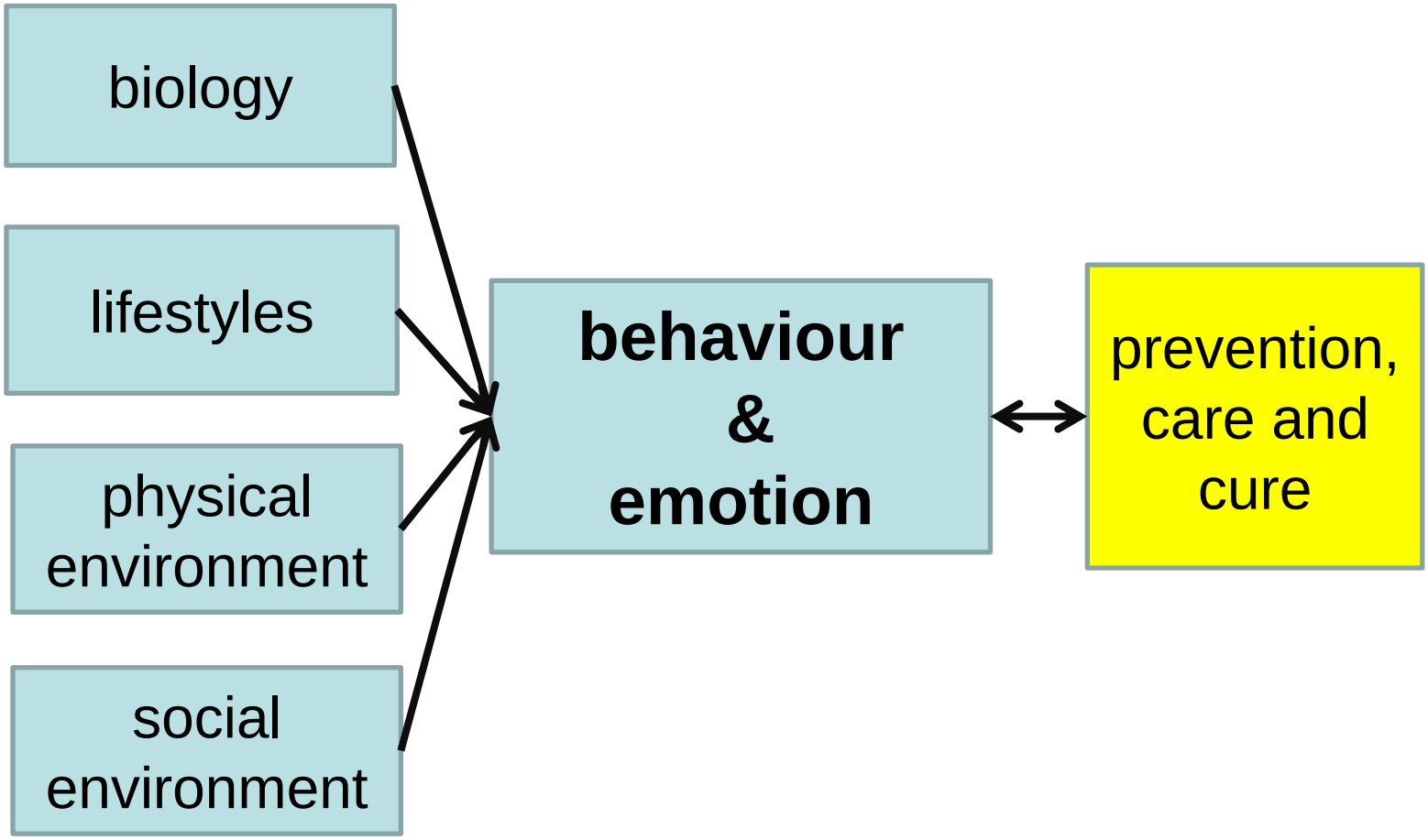
Source: Wiegersma PA, Stellinga-Boelen AAM, Reijneveld SA. Psychosocial problems in asylum seekers' children: the parent, child and teacher perspective using the Strengths and Difficulties Questionnaire. *J Nerv Mental Dis 2011*; 199: 85-90.

So what?
Consequences for prevention and care

- Prevention
  - Early detection and treatment
  - Potentially huge effects for public health
  - Requires well-developed well-child care

- Hot topic in research currently
  - How to improve early detection?
  - How to improve early treatment?

Aetiology – Back to conceptual model



Recent findings for prevention

- Professionals identify children with increased scores about 5 times more frequently

  Brugman E, Reijneveld SA, Verhulst FC, Verloove-Vanhorick SP. *Arch Pediatr Adol Med 2001*; 155: 462-9.

  Reijneveld SA, Brugman E, Verhulst FC, Verloove-Vanhorick SP. *Arch Ped Adolesc Med 2004*; 158: 811-7.

  Klein Velderman M, Crone MR, Wiefferink CH, Reijneveld SA. *Eur J Public Health 2010*; 20: 332-8.

- This has to be improved further

  Theunissen MH, Vogels AG, Reijneveld SA. Early detection of psychosocial problems among 5-6 years old by preventive child health care: has it improved? *J Pediatrics 2012* (prepub).

Regarding clinical care

- Be aware of risk groups
  - Pre-terms, also moderates
  - Societal deprivation
  - Disease of child or parent (including intellectual disability)
- Promote favourable circumstances
  - Prenatally (maternal lifestyle)
  - At delivery (maybe a trade-off between maternal health and health of the child)
  - In early life

Much can be gained!

Additional slides

Routes for improvement of early detection

- Good system for monitoring of youth (well-child care)
- In that e.g.
  - Short questionnaires, e.g. SDQ: lead to improvement
    Crone MR, Vogels AGC, Hoekstra F, Treffers PD, Reijneveld SA. *BMC Public Health 2008*, 8:106.
  - Computerised assessments: idem
    Vogels AGC, Jacobusse G, Reijneveld SA. *BMC Med Res Method 2011; 11: 111.*
  - Further training of child health professionals: limited effects
    Wiefferink CH, Reijneveld SA, de Wijs J, Swagerman M, Campman D, Paulussen TWG. *Patient Educ Couns* 2006; 60: 57-65.

Routes for better prevention: improve early treatment

- Rates of parental stress are high in case of behavioural problems

  Spijkers E, Jansen DEMC, Reijneveld SA. The impact of area deprivation on parenting stress. *Eur J Public Health 2012* (prepub)

- Short interventions in primary care: promising, currently under study