

## Minortrack Child healthcare

### CAT Child and Adolescent Public Health, 22 December 2017

This examination contains 19 open questions. Each question contains information about how many points can be earned. The maximum number of points to earn for the test is 60.

Only write down answers in logical sentences, no loose information with lack of structure.

Your grade is not influenced by the number of words you use in your answers, unless this is specified otherwise at the question.

It is not permitted to give more answers than specified in the question (e.g. three criteria, four aspects). So don't write down six answers in hoping three of them are correct.

This examination takes two hours (+ 30 minutes for the students with extra time).

The end of the exam is marked by instructions how to submit your exam.

#### **Practical matters**

- Mobile phones have to be switched off and be put in your bag under your chair.
- Only necessities for this examination are allowed on the table.
- Questions about the content of the examination will not be answered.
- You can send your comments to the course representation (CVW) afterwards.
- Visiting the toilet is not permitted.
- Fraud will be punished.
- You are obliged to follow the instructions of the invigilator at all times.
- In the event of a technical malfunction, raise your hand so that your name can be written down by the invigilator. If your name is not written down, you have no right to complain afterwards.
- If you have not signed up for this examination, you will not receive a result.
  - You can object to the fact that you can no longer sign up for the examination after the subscription deadline.
  - Send in your appeal within one week after the examination. More information you will find on [www.vu.nl/intekenen](http://www.vu.nl/intekenen).

Good luck!

***Fill in your details and save your document regularly(Ctrl+s).***

***When you have answered all questions, please close the document and upload your file.***

***See the instructions on the last page.***

Student number	
First name	
Prefix	
Surname	

### **Question 1 (4 points)**

Many children and adolescents are not aware of their health risks, and unhealthy behavior in childhood is not necessarily accompanied by health problems. However, promotion of health and prevention of health risk behaviors in childhood and adolescence is very important. Explain why this is important (2 points) and support your answer with an example (2 points).

Several health problems/behaviors track from childhood, into adolescence and adulthood. It has been shown that being unhealthy or having health risk behaviors in childhood/adolescence lead to/ predict health problems later in life.

Examples:

- obesity in childhood => adulthood
- alcohol use <16 => greater risk of substantial alcohol use in adulthood
- physical inactivity in childhood/adolescents => physical inactivity in adulthood
- chronic trauma in childhood => brain, psychological and physical consequences later in life
- feeding low-birth weight children -> rapid grow -> health risk factor for diseases in adulthood / on the long term.
- malnutrition in mother during pregnancy -> influence on development fetus ('schaarse omgeving' : past aan op kortere levensverwachting; lange termijn effecten).

and other examples given in lectures/literature

### **Case 1 (total of 8 points)**

(Question 2 – 4)

You want to set up a Participatory Action Research (PAR) project with the following research aim: developing an educational tool to introduce refugees to the Dutch healthcare system.

**Question 2.** What is the role of your target group in the research project? (1 point)

**Question 3.** Name two other important partners that have to be involved in the research project. (1 point; 0.5 point per good answer)

**Question 4.** Name each phase of the "PAR-cycle" and describe the possible steps that you can take in each phase of the cycle when conducting the research project (6 points)

Question 2: The target group is the refugees in the Netherlands; their role: they are co-researchers, included in every phase of the research project. You collaborate with them in the research project.

Question 3: the family doctor, policy makers, people working with refugees such as counselors and people working at the AZCs.

Question 4:

Name the phases of the PAR-cycle: Plan, Act & Observe, Reflect, Replan (*4 phases, each phase 0.5 pt*)

Plan: Understand the context – work together with the community to get there – go into the community and find out who you need to involve. When you've found your target group and key stakeholders, set up a research group. Together with them develop a research question and research plan. What do you want to accomplish?

Take action! The participants determine what kind of action this is. This can for example be contacting care givers and other refugees to discuss what information the refugees want on the child healthcare system. With this information a tool can be developed and tested.

Together with the participants you observe how the tool is being received... and reflect. Does it work? What has to be changed? + Replan.

*(1 point per good explanation (plan, take action, observe, reflect); total 4 points).*

## Case 2 (total of 6 points)

(Question 5 and 6)

Insufficient sleep in adolescents has been recognized as a serious health risk, associated with obesity, stimulant use, and negative impacts on mood, attention, and school performance (Owens, 2014).

**Question 5.** Name the 2 biological, regulatory processes that are associated with insufficient sleep in adolescents (2 points, 1 point per good answer).

**Question 6.** You are asked to develop an evidence-based health education program to prevent sleep problems in adolescents. Describe 2 factors that can be addressed in the program, and explain why you choose for these factors (4 points; 1 point per topic; 2 points for the explanation).

Question 5:

-more evening-type circadian phase preference (preferred timing of sleep and wake as well as daytime activities).

-sleep-wake homeostasis (system that accounts for greater pressure to sleep as one stays awake longer).

Question 6: Factors:

-electronic media use

-caffeine consumption

-early school start times

-physical activity before bedtime

-food

(licht therapie, melatonine ook genoemd in college, maar dat ging over behandeling van slaapproblemen bij adolescenten, dus niet om preventie van slaapproblemen).

Why: These factors has been shown to be related to insufficient sleep/ sleep problems in adolescents. These factors are potentially modifiable, and thus a good starting point for the intervention.

*Source: Lecture Sleep and article Owens (2014).*

**Question 7 (3 points).**

Give three reasons why researchers should conduct a process evaluation alongside a randomized controlled trial when evaluating health promotion programs. (1 point per good reason)

Answer:

- Improve intervention for future roll out
- Explain (lack of) effects – interpretation of outcomes
- Explain intervention pathways
- Explore contextual factors

*Source: lecture prevention of obesity in teenagers, Do-It*

**Question 8 (4 points)**

In the school-based obesity prevention program DOiT an implementation plan (existing of different implementation strategies) was developed to support teachers during the adoption, implementation and maintenance of delivery of the program.

Give an example of an implementation strategy used in the DOiT program (1 point) and explain how this can promote implementation in real life (3 points).

# Implementation strategies

Diffusion stage	Implementation strategies	Practical application
Adoption	One-on-one approach	DOIT office contact person
	Providing persuasive program information	Website with different levels Printed materials: factsheet, brochure, test lesson with short term benefits, positive use
	Involve key decision makers Modelling	Write project plan with stakeholders in school Success stories at DOIT website Training program by instruction movie
Implementation	Achieve on-going support from organisation	DOIT office supports, helps and contacts schools
	Build a favourable school climate	Involve other colleagues in the program
	Involve users in program development Guided practice	Teachers can share success elements with other teachers Flexible use of materials Teacher manual and online instruction movie
Maintenance	Conduct program evaluation Anticipate in broader context	Evaluation tools available on the website Implementation toolkit for intermediaries in order to implement whole-school approach
	Obtain funding and develop policy	Provide school with advice for funding by DOIT office and website.

Source: lecture prevention of obesity in teenagers, Do-It

## Case 3 (7.5 points)

(Question 9 and 10)

Michael is fifteen years old and has two sisters.

As a toddler he had many ear-nose-throat infections and his mother wanted to know if he had an underlying disease. When he was three years old, he once had a low serum IgG and since then he is treated with intravenous injections with gammaglobulin (IVIG) every month at the pediatrics department. Two pediatricians in two hospitals are involved in his treatment and although both have in the past proposed to stop the IVIG treatment this had never happened so far.

Michael uses a wheelchair when he is in school, he also plays wheelchair tennis. He is often very tired and lies on his bed after school playing computer games. He often misses school because of his fatigue. He eats a special diet and drinks a bottle of extra protein drink when in school. Michael's mother arranges all kind of special events for him, ranging from Cliniclowns to special visits by famous DJ's.

You are the student who this time inserts the drip. You notice that Michael is extremely afraid of the needle, and that he doesn't use his wheelchair on the ward. You ask Michael about this and he answers that he uses the wheelchair mainly in school. His mother who remains on the ward the whole afternoon gets a bit angry at you. His mother says that Michael has an auto-immune disease and that the complaints can vary from day to day.

You discuss the case afterwards with the staff and they propose to try to stop the IVIG. When you and the paediatrician report this to the mother she doesn't agree and wants to continue. When you explain that there is a possibility that Michael has grown out of his hypogammaglobulinaemia she gets angry again. When you mention that Michael was very afraid to get the drip she laughs at you and says that he is a tough boy and that he is always feeling better after the injection. When you ask Michael he says that he wants to stop but that he also wants what his mother wants.

**Question 9.** Mention three observations that support the hypothesis that there is a form of Pediatric Condition Falsification (PCF). (1.5 point; 0.5 point per good observation)

**Question 10.** Mention three things that you can do to substantiate or investigate the hypothesis that there is a form of PCF in this case. (6 points; 2 points per good answer)

Question 9:

- Mother wants treatment that is painful
- Mother laughs at observation of Michael being afraid of the drip
- Michael gives the impression of having a symbiotic relation with mother

Also good observations:

No use of wheelchair (Michael doesn't need the wheelchair)

Mother gets angry at you

Mother mentions auto immune disease when it was only a hypogammaglobulinaemia,

Question 10:

- Talk to Michael about his complaints and about his medical and social history
- Study all the medical files of Michael and family members
- Stop the monthly IVIG and observe what happens
- Admit Michael to a rehabilitation ward – with only observed visits from mother- where he can learn to function without his wheelchair

**Question 11 (3 points).**

Research has shown that adolescent girls suffer from more depressive symptoms compared to adolescent boys. Hankin and colleagues (2007) used two models to explain this sex difference in depression.

Name these models and explain the sex differences using these two models (3 points; 1.5 point for each model).

The models are called "stress exposure model" and "stress reactivity model" (0.5 point for naming each model; 1 point in total).

According to the stress exposure model, adolescent girls experience more stressors than boys and as a result have a higher chance of becoming depressed. According to stress-reactivity models, girls exhibit greater reactivity to stressors than boys. In other words, they show higher levels of depressive symptoms in response to stressors compared to boys. (1 point per good explanation; 2 points in total)

Source: Hankin et al. (2007), and lecture Development and risk and protective factors for depression in adolescents.

### Question 12 (4 points)

Answer the question based on the abstract section below.

**BACKGROUND:** The objective of the current study was to identify mediators of the effects of a combined resistance and aerobic exercise program on Health-related Quality of Life (HrQoL) in childhood cancer patients.

**METHODS:** In this multicenter randomized controlled trial, 57 cancer patients (aged 8-18 years) were randomly assigned to 12 weeks of resistance and aerobic exercise or usual care. HrQoL was assessed by questionnaire. Muscular fitness was assessed with the standing long jump and handgrip tests. Linear regression analyses were conducted on the residual change scores of the variables. The mediating effects of muscular fitness on the intervention's effect on HrQoL were examined using the product of coefficients method. Bootstrapping was used to calculate the 95% confidence intervals (95% CIs).

**RESULTS:** The exercise intervention was found to significantly improve HrQoL (beta, 5.03; 95% CI, 1.01-9.04). Muscular fitness significantly mediated the intervention effect on HrQoL (beta, 2.65; 95% CI, 0.64-5.54), accounting for 53% of the total effect.

**CONCLUSION:** A combined exercise training for children with cancer had beneficial effects on HrQoL, which was mediated by muscular fitness.

The researchers concluded that muscular fitness significantly mediated the relation between the exercise program and HrQoL. Describe the steps in the mediation analysis leading to this conclusion.

A series of linear regression analyses needs to be conducted according to the product of coefficient method. First, the total effect of the intervention HrQoL (main effect, c-path) is calculated. Second, the effect of the intervention on muscular fitness (a-path) is calculated. Third, the effect of the potential mediator (muscular fitness) on HrQoL, controlled for intervention group (b-path) is calculated. This final regression model provides estimates for the b-values and for the direct association (c'-path). Finally, the product of coefficients  $a \times b$  is calculated providing an estimate of the relative strength of the mediation effect.

### Question 13 (3 points).

## CASE

A five-year-old boy is brought by his mother to consultation with a primary care psychologist. The boy was referred by his teacher because he was not able to do activities proposed in class. He was always quiet and alone, refusing peers' invitations to play. The mother could not understand his behavior. In their second consultation, the psychologist invited the boy to play offering him some toys. The boy only could play when the mother came into the room and gave him verbal instructions about what to do. He only moved or changed toys after she gave him permission. After that, the psychologist enquired more about his habits and noticed that he was not allowed to do anything the mother had not planned.

The psychologist decides to set up a treatment plan. What would be the main focus of the treatment? Substantiate your answer based on your observations of the case.

De focus van de behandeling moet liggen op het verbeteren van de ouder-kind relatie/interactie. Het sturende/leidende gedrag van moeder heeft een sterke invloed op het gedrag van de jongen; Hij wordt heel stil/teruggetrokken, vermijdend, en toont sterk meegaand gedrag richting moeder; hierdoor wordt hij beperkt in zijn ontwikkeling. Moeder heeft een belangrijke rol om een veilige basis (secure base and secure haven) te bieden, waarbij ze haar zoon stimuleert en uitdaagt om zelf te exploreren/de wereld te verkennen.

*Source: lecture treatment of young children with behavioral problems.*

## Case 4 (total of 4 points).

(Question 14 and 15)

**Question 14.** Give the definition of binge drinking. (1 point)

**Question 15.** After a night out, Tom (15 years) ended with alcohol intoxication in the hospital. The day after, you meet him and his parents. Give 3 suggestions to the parents to prevent alcohol intoxication in the future. (3 points; 1 point for each suggestion)

Question 14

Drinking > 5 units alcohol (for girls > 4) in few hours (per occasion)

Question 15

- No alcohol under 18 years
- No drinking at home (niet drinken samen met je (jonge) kind)
- Ban alcohol and set boundaries
- Be an example for your child (drink less; imitation effect)
- continue/finish the after-care program (na opname kind met alcohol intoxicatie)
- attitude ouder tav alcohol gebruiken veranderen, bijv. psycho-educatie over de gevolgen van alcoholgebruik/misbruik in adolescentie op brein, en drinkgedrag latere leeftijd.

Or other suggestions based on (one of) the following factors:

- protective factor: strengere houding van ouders, met duidelijke regels, blijkt effectief in het voorkomen van alcoholmisbruik.
- risk factors: ontbreken ouderlijke regels voor alcoholgebruik, het geven van (slokjes)

alcohol aan jonge kinderen en regelmatig alcoholgebruik door ouders; problematisch alcoholgebruik in de familie verhoogt kans op veel gebruik bij kinderen met ongeveer 5%.

*Bron: lecture Nico van der Lely, and article "Alcohol en jongeren, geen goede combinatie" (van der Lely, 2016).*

### **Question 16 (4 points)**

De Hoog et al. (2012; ABCD study) report in their article that mothers frequently underestimate the actual weight status of their child.

Name the ethnic background of the mothers that need the most help from a health professional to acquire a realistic perception of their children's weight status (1 point) and name the 3 determinants that explained the ethnic differences in this study (3 points).

Mothers from Turkish or Moroccan\* origin tend to underestimate the weight status of their child more than children from Dutch mothers or other ethnic backgrounds.

Determinants: lower SES/educational level, first-generation immigrant, and young mother.

\*Of Turks of Marrokaans antwoorden is voldoende voor het verkrijgen van 1 punt.

### **Question 17 (4 points)**

You are approached by 3 schools that have embedded an 8-week group intervention in their curriculum to prevent depression in overweight children (10 – 12 years). The schools are curious about the results of the intervention and ask you to set up a study to investigate the effects of the intervention on depressive symptoms of the children.

Which study design would you choose? Substantiate your choice.

(Non-randomized) Controlled trial or quasi-experimental study.

De scholen voeren het interventieprogramma al uit, dus je zult het programma niet random/willekeurig kunnen toewijzen aan de scholen (zoals in een randomized controlled trial). Er zijn al 3 interventiescholen en hierbij zul je hier 3 vergelijkbare/ gematchte controle scholen moeten zoeken.

### **Question 18 (1.5 points)**

Name 3 instances that are involved in public health for refugee children in the Netherlands.

JGZ (child healthcare)  
Tuberculose bestrijding  
GGD

### Question 19 (4 points)

A physical education teacher reads the abstract below, and concludes that implementing daily physical activity breaks will lead to higher school grades. In other words, he expects a causal effect of increased physical activity on academic performance.

#### ABSTRACT

Low levels of physical activity among children have raised concerns over the effects of a physically inactive lifestyle, not only on physical health but also on academic performance. This study examined how objectively measured physical activity is associated with academic performance in school-aged children. The study population consisted of 224 children from five schools (mean age 12.2 years; 56% girls), who participated in May 2015 in the study. Physical activity was measured objectively for seven consecutive days using the ActiGraph GT1M/GT3X accelerometer. Academic performance was measured by standardized test in mathematics and English. Linear regression analyses were applied to examine how objectively measured moderate-to-vigorous intensity physical activity (MVPA) was associated with academic performance. High levels of objectively measured MVPA were associated with good performance in Mathematics and English. The results of the present study propose that physical activity may benefit academic performance

Is the conclusion of the physical education teacher correct? Explain why or why not.

De conclusie van de gymleraar is niet correct. Op basis van dit abstract kun je geen uitspraak doen over het causale effect van meer bewegen op de schoolprestaties. Het onderzoek zoals beschreven in het abstract betreft een cross-sectionele studie; hierin wordt gekeken naar associaties/samenhang tussen variabelen. De mate van fysieke activiteit en de schoolcijfers van de leerlingen zijn op 1 moment gemeten. De kinderen die fysiek actiever waren tijdens die meting, hadden hogere scores voor wiskunde en Engels. We weten alleen niet of fysieke activiteit leidt tot hogere cijfers, of dat kinderen met hogere cijfers ook meer fysiek actief zijn. Daarnaast zijn er geen andere variabelen meegenomen, zoals sociaal-economische status van de ouders, die ook van invloed kunnen zijn. Om het effect van extra bewegen op schoolcijfers te onderzoeken, is een interventie/effect-onderzoek nodig. Dan kan gekeken worden of meer bewegen (in een interventiegroep) ook daadwerkelijk zorgt voor hogere cijfers tov een controlegroep.

(\*antwoord is goed als er beschreven wordt dat je met een cross-sectionele studie geen causaal effect kan aantonen, maar dat daar associaties mee onderzocht worden).