# CINDI Health Monitor at students

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**SUMMARY:**

There are submitted /presented the results of behaviour risk factors investigation of population in age to 24 years (n=998) living in the Czech Republic and there are compared to the results of survey effected at representative population in age 25-64 years old (n=2003). For survey of risk factors occurrence was used the methodology WHO CINDI Health Monitor aimed at prevention of non-communicable diseases. Survey proved the possibility of the using methodology of CINDI Health Monitor for the investigation of risk factors behaviour of population at the age to the 25 years and possibility of comparison of results with the results of the survey concerning the population 25-64 years old. The results are the alarming data- the irregular life-style above all young population: high percents of respondents are with the occurrence of risk factors behaviour, which have negative fall on their health.

## INTRODUCTION

Program WHO CINDI (Countrywide integrated non-communicable diseases intervention programme) is aimed on the prevention of four basic chronic non-communicable diseases (cardio-vascular disease, cancer, chronic obstructive pulmonary disease and diabetes) It is comming out from four basic lifestyle-related factors (tabacco, diet, physical activity, alcohol). There are set four basic determinants in wide problems of non-communicable diseases (poverty, lack of educational opportunities, unemployment and social inequality). Prevention is based on four major strategic strategies (policy development, capacity building, surveillance, dissemination of information)

From the basic access programme WHO CINDI is the knowledge of risk factors non-communicable diseases, their distribution in population and their development during the lifetime. Base is monitoring of risk factors, for which was received philosophy CINDI Health monitor. The method was used in 26 European states at population ages 25 - 64 years and was recommended as monitoring of risk factors of population already in an adolescent age. CR was connected into the survey concerning the adult population, records of the survey were used for argumentation at realization campaign and other programmes and projects supported health.

The mentioned methodology in CR was fused or the first time for investigation of population younger 24 years in the year 2005 from three of the chief reasons and foundation:
1. Non-communicable chronic diseases are the most frequent cause of high morbidity and mortality though that the preponderance of causes and their risks factors are given by life-style and rank among the preventable factors.
2. Health of childhood and adolescence determinates whole life health and prosterity.
3. Knowledge of risk factors behaviour is the first step to the effective cautions, activities, and interventional programmes and serve for the realization prevention based in proof.

## METHODOLOGY

Methodology of CINDI Health monitor was used for investigation of population of age less than 24 years for the first time in CR. The survey of risk factors behaviour of students attending four types of high schools, the one of them is primary school.
Guestionnaire was completed by some questions:
- recommendation or advice from friends or partners
- use of protective helmet by bicycle as a roud traffic injury prevention
- question concerning drug use
- questions of free time- time activities
- questions of girl's reproductive health

Guestionnaire contains basic information: health services and health questions, smoking, food habits, alcohol consummation, physical activity, traffic safety, others: change of habits, opinion what is the most importent reason for the rather high death rate. Questions concerning the reproductive health and preventative investigation were supplemented for the survey of adult population in CR and for survey of students were kept.

Sample size was 998 respondents of age from 14 bis 22 years. There were assessed possibilities of using questionnaire CINDI Health monitor for the Czech population younger 24 years.

There were monitored the life-style factors and their differences from already monitored adult population of the CR (age 25-64 year old n=2003). Statistical significance differences of risk factors behaviour was tested by Spearman coefficient, was elected significance level a=5% and 1%. Was used statistical software SPSS- version 13.

## RESULTS

Results of survey prove by evidence of high percentage of risk factors of studying population, some risk factor of their life-style are statistically different from population older 25 years. In some indicators are documented positive changes.

HEALTH SERVICES AND HEALTH STATUS

Only 87,1% of students set the preventative medical visit over the last 2 years. 23,9% of them visits a doctor because of their allergic disorder, disorder of kinetic system or endocrinology disorder – multiple than adult population. 12,6% of students set treatment of pain back, 11,3% eczema, and 25,1% depression. Third of students use analgetic (22,7% due the pain head, 12,7% due the other difficulties). 20% of students use sedative ( two times more respondents than adult population), 14,3% feel to be much stressed or under a lot of pressure (Tab.1).

Tab.1: Health services and health status - %, Spearman coeff. p=0,0001

| item | respondents >25 years | students |
|---|---|---|
| prevent. examination | 55,2 | 87,1 |
| dispensary | 3,8 | 23,9 |
| assessment of poor present state of health | 9,5 | 2,1 |
| taken medication for headache | 35,8 | 22,7 |
| taken medication for other aches and paints | 35,4 | 12,7 |
| taken sedatives | 10,9 | 20,0 |
| taken vitamins, minerals or trace elements | 52,5 | 45,2 |
| feeling tense, stressed more than is usual | 18,2 | 14,3 |
| feeling tense, stressed – life is almost unbearable | 2,0 | 2,5 |

SMOKING

48,4% of students answered, that someone of family members smokes, almost fifth of them (18,9%) every day spend 1 - 5 o'clock in rooms, where is smoked, only 39% are almost never in the room were nobody smokes. Is watched growth of the number of smokers - 72,3% of students answered that they have ever smoked in their life (adults 57,7%). 14,3% of students smoke every day, sometimes 17,4% of students. 12% of students are not much concerned about the harmful consequences that smoking can have on their health (10% of adults). Only small percentage (3,2%) of students answered, that a doctor advised them to stop smoking (Tab.2)

Tab.2: Smoking - %

| item | respondents >25 years | students | Spearman coeff. p |
|---|---|---|---|
| somebody of family members smokes | 60,6 | 48,4 | 0,0001 |
| spends daily 1-5 hours at the room where somebody smokes | 13,0 | 18,9 | 0,0001 |
| ever smoked in his life | 57,7 | 72,3 | 0,0001 |
| ever smoked at least 100 cigaretttes | 42,7 | 37,4 | 0,0001 |
| ever smoked daily | 38,1 | 22,6 | 0,0001 |
| daily smokes at the present time | 21,2 | 14,3 | 0,0001 |
| occasionally smokes | 5,7 | 17,4 | 0,0001 |
| at last smoked yesterday | 23,6 | 20,6 | 0,0001 |
| at last smoked 2 days-1 month ago | 3,0 | 10,5 | 0,0001 |
| likes to stop smoking | 12,8 | 13,8 | 0,1630 |
| during the last month tried to stop smoking and without smoking for 24 | 3,6 | 13,0 | 0,0001 |
| not much concerned about the harmful consequences that smoking can have on his health | 9,8 | 12,1 | 0,0001 |
| a doctor advised him to stop smoking | 9,5 | 3,2 | 0,0001 |

FOOD HABITS

In a comparison with the population of the age 25 - 64 years are watched some positive elements in food habits of students, as is bigger consummation of fruit – 6- 7 times per a week (20,9% of students), 47,4% of students consumed cereals, smaller consummation of fried and grilled food, except fried potato which consume 3- 5 times per week - 27%). On the other side there are high percentage of students who prefer animal fat (68% like used on bread), consummation of whole milk (58%), don´t consume fish (61%), consume meat products 6-7 times per a week (11%) and consume meat (18%) 6-7 times per week. 30% of students drink every day coffee and use more lumps of sugar for one cup of coffee than population older 25 years.

A family members advised to the students more than doctor to change food habits. (Tab3-8)

Tab.3: Use of fat for food preparation -% , Spearman coeff. p=0,0001

| item | respondents >25 years | students |
|---|---|---|
| vegetable oil | 71,1 | 71,8 |
| animal fat | 15,4 | 18,4 |
| no fat | 1 | 0,2 |
| don't know | 3,3 | 9,4 |
| usually no prepared food at home | 9,2 | 0,2 |

Tab.4: Use mostly fat on bread - %, Spearman coeff. p=0,001

| item | respondents >25 years | students |
|---|---|---|
| no fat | 3,4 | 11,7 |
| margarine | 43,3 | 20,3 |
| animal fat | 53,3 | 68,0 |

Tab.5: Milk consumption - %, Spearman coeff. p=0,001

| item | respondents >25 years | students |
|---|---|---|
| whole milk | 36,8 | 57,6 |
| low-fat milk | 41,8 | 31,4 |
| does not drink milk | 21,4 | 10,9 |

Tab.6: Number of coffee cups usually drunk - %, Spearman coeff. p=0,001

| item | respondents >25 years | students |
|---|---|---|
| 1 cup | 20,5 | 30,3 |
| 2 cups | 31,0 | 9,4 |
| 3 cups | 17,4 | 2,6 |
| more | 11,3 | 1,0 |
| does not drink coffee | 19,7 | 56,7 |

Tab.7: Number of lumps of sugar used for one cup of coffee - %, Spearman coeff. p=0,001

| Number of lumps of sugar used for one cup of coffee | respondents >25 years | students |
|---|---|---|
| 1 | 45,2 | 25,4 |
| 2 | 44,1 | 47,9 |
| 3 | 8,1 | 19,0 |
| 4 | 1,9 | 4,4 |
| more | 0,7 | 3,3 |

Tab.8: Comsumption of some food during the last week and advice to change his dietary habits - %, Spearman coeff. p=0,001

| item | respondents >25 years | students |
|---|---|---|
| rye bread | 72,9 | 27,1 |
| white bread | 61,6 | 38,4 |
| boiled potatoes 3-5 times | 34,3 | 25,1 |
| fried potatoes 3-5 times | 2,2 | 27 |
| no cereals | 73 | 52,6 |
| cereals 3-5 times | 5,5 | 10,5 |
| cereals 6-7 times | 1,6 | 5,9 |
| no cheese | 6,5 | 8,4 |
| cheese 6-7 times | 8,7 | 15,3 |
| no chicken | 17,4 | 32,8 |
| chicken 1-2 times | 72,3 | 58,4 |
| no fish | 44,6 | 60,9 |
| fish 1-2 times | 49,4 | 33,6 |
| meat 6-7 times | 7,9 | 17,5 |
| meat products 6-7 times | 9 | 10,9 |
| no fresh vegetables | 5,6 | 10,5 |
| fresh vegetables 3-5 times | 35,5 | 30,9 |
| no fresh fruit | 19,5 | 14,2 |
| fresh fruit 3-5 times | 25,2 | 29,3 |
| fresh fruit 6-7 times | 12,8 | 20,9 |
| no sweet pastries | 20,3 | 10,4 |
| sweet pastries 3-5 times | 24,4 | 33,2 |
| no sweets | 43,9 | 17,1 |
| sweets 3-5 times | 9,9 | 23 |
| sweets 6-7 times | 4,5 | 15,2 |
| no eggs | 15,1 | 33,1 |
| no fried food | 24,2 | 27,5 |
| no grilled food | 59,1 | 73,2 |
| never adds salt to meals at the table | 22,7 | 25,2 |
| a doctor advised him to change his dietary habits | 4,7 | 1,9 |
| a family members advised him to change his dietary habits | 18,1 | 26,5 |

ALCOHOL CONSUMPTION

The students set consummation of alcohol over the last year more than adult population. 71% of respondents older 25 years drink beer, in comparison with 51% of students, the students prefer more cocktail and spirits (only 16% of them abstain spirits). 75% of students drinking beer drink more than 7 glasses of beer a week, 17% over than 14 glasses of beer a week, 8% over than 14 glasses of beer a week. Six and more portion of alcohol at once drink weekly 23% of students, 81% of them consume alcohol without food. (Tab.9).

Tab.9: Alcohol comsumption and advice to drink less - %, Spearman coeff. p=0,001

| item | respondents >25 years | students |
|---|---|---|
| alcohol consumption during the last year | 88,9 | 94,1 |
| 1-7 glasses of beer drunk during the week | 48,8 | 38,3 |
| 8-14 glasses of beer drunk during the week | 7,4 | 7,5 |
| >15 glasses of beer drunk during the week | 37,2 | 4,7 |
| 1-7 glasses of free-mixed highballs drunk during the week | 6,5 | 16,8 |
| >8 glasses of free-mixed highballs drunk during the week | 13,3 | 1,4 |
| 1-7 glasses of strong alcohol, spirits drunk during the week | 27,2 | 32 |
| >8 glasses of strong alcohol, spirits drunk during the week | 1,9 | 5,6 |
| 1-7 glasses of wine glasses drunk during the week | 45,3 | 37,1 |
| >8 glasses of wine glasses drunk during the week | 1,7 | 2,6 |
| drinks beer once a week | 12,8 | 18,6 |
| drinks beer 2-3 times a week | 22,7 | 15,6 |
| does not drink beer | 37 | 49,2 |
| drinks spirits once a week | 8,1 | 15,8 |
| does not drink spirits | 24,1 | 15,9 |
| drinks wine once a week | 10 | 13 |
| does not drink wine | 18,2 | 18,1 |
| once a month drinks 6 or more glasses at once | 15 | 18,8 |
| once a week drinks 6 or more glasses at once | 13,4 | 23 |
| a doctor advised to drink less | 3,7 | 0,6 |
| drinks alcohol only to the menu | 45,1 | 22 |
| drinks alcohol separately without menu | 78,2 | 81 |

## PHYSICAL ACTIVITY

90% of students answered that they did vigorous physical activities, 16,2% of them less than 1 an hour. 82% of students did moderate physical activities (adult population 75%), but 33,6% of students less than 1 an hour. 72% OF students are sitting daily 6- 10 o'clock, more than 10 o'clock 12% students.
24% students of answered that the family member advised them to increase the physical activities. (Tab.10)

Tab. 10: Physical activity, advice to increase physical activity - %, Spearman coeff. p=0,001

| item | respondents >25 years | students |
|---|---|---|
| vigorous physical activities once a week | 12 | 14,5 |
| vigorous physical activities 2-3 times a week | 19,9 | 35,5 |
| vigorous physical activities more then 3 times a week | 20,1 | 28,0 |
| no vigorous physical activities | 40,9 | 21,8 |
| respondents who set vigorous physical activities: PA lasted less 1 hour | 13,6 | 16,2 |
| moderate physical activities once a week | 10,3 | 18,6 |
| moderate physical activities 2-3 times a week | 29,7 | 33,6 |
| moderate physical activities more then 3 times a week | 35,2 | 29,9 |
| no moderate physical activities | 24,8 | 17,7 |
| respondents who set moderate physical activities: PA lasted less 1 hour | 16,2 | 33,6 |
| daily walking for at least 10 minutes at the time | 54,2 | 68,0 |
| no walking | 6,0 | 0,2 |
| spends sitting 1- 5 hours daily | 50,3 | 9,2 |
| spends sitting 6-10 hours daily | 40,2 | 72,2 |
| spends sitting more than 10 hours daily | 9,5 | 11,6 |
| walking to school/work more than 30-60 min. | 15,7 | 25,2 |
| walking to school/work more than 60 min. | 7,4 | 10,9 |
| a doctor advised him to increase physical activities | 12,9 | 4,2 |
| a family members advised him to increase physical activities | 16,9 | 24,1 |

TRAFFIC SAFETY

Higher percentage of students set a use of seat-belt when driving or as a passenger in the front seat, but 20% of them only sometimes, high percentage of them are not use a seat-belt in the back seat (25,1%). More than 1/3 students answered, that someone from their close friends have driven a car under the influence of alcohol (Tab.11)

Tab.11: Traffic safety - %, Spearman coeff. p=0,001

| item | respondents >25 years | students |
|---|---|---|
| never uses a seat-belt in the front seat | 3,6 | 2,5 |
| always uses a seat-belt in the front seat | 73,8 | 79,3 |
| uses a seat-belt in the back seat | 16,6 | 25,1 |
| never uses a seat-belt in the back seat | 33,2 | 36,2 |
| somebody of close friends has driven a car under the influence of alcohol | 26,7 | 38,7 |

CHANGE OF HABITS

Almost third of students anwered that they eat less fat, 18,1% of them drink less alcohol, 45,4% eat more vegetables and 39,2% do more physical exercise. (Tab12)

Tab.12: Change of habits during the last year - %

| item | respondents >25 years | students | Spearman coeff. p |
|---|---|---|---|
| eats less fat | 35,1 | 31,4 | 0,0001 |
| has changed type of fat | 16,3 | 9,9 | 0,0001 |
| eats more vegetables | 42,4 | 45,4 | 0,015 |
| eats less salt | 24,4 | 20,7 | 0,002 |
| has been on a weight-reducing diet | 15,2 | 9,0 | 0,0001 |
| drinks less alcohol | 18,9 | 18,1 | 0,008 |
| does more physical exercise | 23,2 | 39,2 | 0,0001 |

OPINION WHAT IS THE MOST IMPORTANT REASON FOR THE HIGH DEATH RATE

In comparison with population above 25 years of age impute students big influence of smoking (15,4% versus 26,1% of students) and injuries (3% v. 18,4% of students). They impute the less influence to other life-style factors, e.g. consumption of alcohol, hypoactivities, and food habits. (Tab13)

Tab.13: Opinion on the most important reason for the high death rate - %, Spearman coeff. p=0,001

| item | respondents >25 years | students |
|---|---|---|
| wrong diet | 12 | 8 |
| stress | 28,4 | 7,6 |
| difficult living conditions | 9,2 | 5 |
| strenuous work | 1,6 | 0,7 |
| smoking | 15,4 | 26,1 |
| lack of physical activities | 7,5 | 3,3 |
| lack of vitamins, minerals atc. | 1,0 | 0,4 |
| overweight | 6,3 | 5,4 |
| genetic factors | 12 | 9,3 |
| alcohol | 2,3 | 6,7 |
| lack of health services | 1,0 | 1,3 |
| injuries | 3,0 | 18,4 |
| other | 0 | 7,4 |

## DISCUSSION

Monitoring of health behaviour by the help of internationally tested and recommended methodology of programme CINDI has wide foundation

It is a base for a study of behaviour differences of population in international conception, on local base serves as a key intervention strategy for the realization of preventative activities, whose are estimated above all for the young population. Survey has only an informative appreciate, but serves like background material for interventional activities oriented on positive changes of population behaviour and thereby they may bring also positive changes in the development of chronic non-communicable diseases of whole population. Monitoring contribution is knowlege of risk factors behaviour development which can provide the information about effectiveness of interventional activities and realized programmes supported health[1)].

Methodology of CINDI Health monitor admits a modification of questionnaire, the clause is to keep obligatory questions to international comparison[2)]. For monitoring risk factors behaviour of young people were supplemented questions concerning dispenzarizace, reproductive health of

girls, injury prevention, free time- time activities, use of drug, then questions which have close influence on behaviour of young people.

In CR was used methodology of CINDI Health monitor for population younger 25 years of age for the first time, results of survey bring not only new views on life-style of young population. It is possible to use the results for juxtaposition with the population of older age[3)], but they are also a challenge for wide activities which they have an influence on behaviour of young population. Is that a above all education which presents wide backlog activities influencing the behaviour.

Survey of basic health behavioural determinants of school age children produce repeated studies HBSC [4)]. These studies of health components of ages 11 - 15 years children are specialized on the similar areas of behaviour – smoking, alcohol consumption, nutrition ways, kinetic activity. Information about the risk factors behaviour of population among 15 - 24 year age aren't frequent, from this reason was used philosophy CINDI Health monitor for young people.

Young people underestimate the importance of preventative medical visits, in spite of it, that this health service is legislation well-founded. Is that a trend which persist to the adult age. The result of it is that a doctor recommended to only small percentage of respondents to change a behaviour.

*The information which would has had get young population , are matter not only one's resort, results document the evidence about the health services. Only small percentage of young respondents gave an information concerning the change of habits (nutrition, alcohol consumption, smoking or physical activities) from a doctor.*

*Young people also underestimate a meaning of preventative medical visits, in spite of is this service well-founded by legislation.*

Some of behaviour indexes tempt to a wrong consideration that the situation of students is in comparison with grown up population better, but for young people are data alarming. There are otherwise observed some positive data concerning the students, e.g. bigger consummation of fruit, cereals, on the other side are high percentage of students, who prefer animal fat, meat products, do not consume white meat inclusive fish. Alarming are data of young people about the alcohol consumption, which indirectly offer also the knowledge about a toleration of young people to this risk factor.

Gratifying is the findings that the students change positively their life-style – they use less fat, alcohol, salt, more vegetables and do more physical activity. Despite of this data are the high percentage of youth people, who embody no gratifying data some monitored factors of life-style.

Young people well notify themselves a big influence to smoking and injuries in the spectrum of questions concerning cause for high mortality. They impute the less influence on the other factors life-style, e.g . consummation of alcohol, hypoactivities, unhealthy nutrition. It is startling that the almost third young people smoke every day or sometimes and that many of them exclude a worry from harmful consequences of smoking .

**CONCLUSION**

Survey proved the possibilityof using the CINDI Health monitor methods for monitor risk factors of non -communicable diseases of population in ages bis 25 years living in CR and the possibility of comparison data with results of population older 25 years survey. So it is possible to judge on development of population risk behaviour .

It is recommended complete questionnaire about questions concerning dispenzarizace, reproductive health of girls, injury prevention, free time- activities, drug abuse.

There are alarming data about unhealthy life-style not only an adult population, but also about young people. It is the preference of animal fat, small consummation of vegetables, fish, big alcohol consumption, especially at young people - first of all consummation of spirits, smoking and a lack of physical activities. Despite of effort to change health behaviour of population to which is devoted much activities, young people do not behave according to basics of healthy life-style, in spite of some of them know the impact of it.

Results of survey have a strategic importance - there are possible to use them for health promotion projects with an orientation on areas, where's clear and by the prevention the influenceable goal. The one of it is an emphatic education. There is also necessary devote bigger attention to health promotion activities in an other medical sectors. Results of survey confirm, that only small percent age of respondents got advices to change habits from doctors.

It is necessary to target the interventional activities on behaviour already in child's age, to influence the behaviour of children and adolescents, to strengthen positive changes thereby to bring also positive changes in the development of chronic non-communicable diseases of CR population.

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