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Health related behavior of young people not in education, employment or training (NEET) living in Austria

Elisabeth Höld, Claudia Winkler, Anita Kidritsch, Petra Rust

Abstract

Young people with NEET status are often among the most socially disadvantaged and/or least well-educated population groups, and are more likely to be affected by social exclusion and health inequality. Only limited data is available regarding their health behavior. Existing data suggests that the aforementioned factors influence dietary behaviors and physical activity and thus worsen the health status of adolescents. Against this background, data from young people with NEET status living in Austria were compared with the reference group in the WHO Health Behavior in School-aged Children Study (WHO HBSC Study) and Austrian Recommendations for Health-promoting Exercise. Results show that young people with NEET status have a less favorable dietary behavior than adolescents in the WHO HBSC study. The prevalence of obesity was significantly higher than in the WHO HBSC study. In addition, the use of TV and game consoles was found to be lower in this vulnerable target population. The results highlight the problematic interactions between socio-economic disadvantages and health, which are at work even as early as during adolescence.

Keywords: health behavior, dietary behavior, adolescents, low socio-economic status, health inequality

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Introduction and aims

Adolescence is an important time regarding the development of health-related habits. Thus the WHO describes adolescence as a "window of opportunity" in which the basis for long-term health is laid, and the occurrence of nutrition-related diseases can be prevented. As a consequence, young people (especially those from disadvantaged groups) deserve special attention [1].

Due to high rates of youth unemployment, there has been an increasing focus on young individuals and adults with NEET status (= not in employment, education or training) [2]. The European Commission Employment Committee defines young people and young adults[1] with NEET status as those aged 15 to 24 years, who, according to the labor force concept[2], are either seeking work or are not in an active employment and are not undergoing any training or education [3]. Older age groups are often also considered as NEETs for comprehensive analyses [2]. Based on the consequences of the financial and economic crisis, NEET is established within Europe as an additional indicator alongside youth unemployment [4] and as a sign of social exclusion [5]. In 2011, 13% of 15 to 24-year-olds and 20% of 25 to 29-year-olds had NEET status in Europe [2]. Austria reports on the age group of 16 to 24-year-olds and demonstrated that on average 8.6% (~78,000 people) belonged to the NEET group in the period from 2006 to 2011 [5]. Young people with NEET status mainly experience a difficult family background. These factors include a low level of educational attainment and a low household income, immigrant status, secluded and less accessible neighborhoods, or health-related prob-

[1] Hereinafter referred to as "young people" for short.

[2] Under the labor force concept, employed persons are persons who, "during the reference week performed work for at least one hour a week in return for payment, profit, or family gain, or who were not at work but had a job or business from which they were temporarily absent because of something like vacations, illness, etc. Unemployed persons are persons who are actively seeking employment and are currently available for work." [40]

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lems [2]. In Austria, young mothers, unemployed young men, early school leavers and apprenticeship graduates living in remote areas are predominant within the group of NEET status [5].

Young people with NEET status have particularly poor future prospects. They are more likely than other groups to have a low income [2]. Additionally, they have higher rates of unemployment and rely more on social support. Substance abuse, suicide, diseases [2, 6, 7], homelessness, criminal behavior, and teenage pregnancy are reported more frequently in the lives of NEETs than in others of the same age. Besides individual suffering, NEET status results in direct and indirect economic costs for society, such as the need to pay unemployment benefits and the loss of tax income. In 2011, the calculated cost for Austria was €3.17 billion, which is 1.1% of the gross domestic product. Furthermore, there are social consequences, such as a mistrust in democratic institutions, low political engagement, and limited participation in the society due to limited financial resources. All of these factors increase the risk of social exclusion and antisocial behavior [2].

These living circumstances encourage detrimental health behavior, resulting in adverse dietary and exercise behavior. However, only a few studies on dietary behavior in this risk group exist to the present date. Davison et al. observed that the foods, which British young people with NEET status choose, are influenced by the following factors:

- "Downward spiral": adverse social and economic circumstances, lack of social support, substance abuse
- External factors: financial constraints, relatively high cost of "healthy" options compared to other options, overabundance of fast food
- Individual factors: low self-efficacy to make food choices, limited control over the purchase and preparation of food in households, drug abuse/addiction [8].

A recent cross-over study from the UK found that young people with NEET status tend to smoke more often, drink alcohol excessively, hardly do any sports, consume fewer than 5 portions of fruit and vegetables per day, and are less likely to have a normal weight compared to others of the same age-group [9].

This publication examines the health behavior of young people with NEET status living in Austria for the first time and compares it to Austrian adolescents (from the Austrian WHO HBSC study 2014) and to the Austrian recommendations for health-promoting exercise [10]. The results shall provide insights into the health behavior of this group, improve the understanding of social and health inequality, and serve as a foundation for the development of health promotion measures that can be implemented as part of extracurricular youth work, specifically aimed at the target group.

Methodology

Study design and methods

The GAAS project (*Projekt zur Förderung der Gesundheitskompetenzen von Jugendlichen, die sich nicht in Ausbildung, Arbeit oder Schulung befinden* [project for the promotion of health literacy among young people not in education, employment or training]) was executed by the *Produktionsschule spacelab* [production school spacelab], *Nordrand Mobile Jugendarbeit* [Nordrand mobile youth work], the University of Vienna, Department of Nutritional Sciences, and the St. Poelten University of Applied Sciences, Institute of Health Sciences from 2015 to 2018. At 4 locations in Vienna, *Produktionsschule spacelab* offers the lowest threshold option within the framework of the Vienna Employment Promotion Fund for adolescents aged 15–25 years either with or without an immigrant background and with NEET status [11]. The Vienna Employment Promotion Fund aims to ensure that young people receive training beyond compulsory education. Within the context of *Produktionsschule spacelab*, this includes measures to stabilize learning and fill any educational gaps that were not filled at school, as well as internships to help young people preparing for the labor market [12]. *Nordrand Mobile Jugendarbeit*, part of the association *"Jugend & Lebenswelt"* in St. Pölten offers outreach social work in public spaces as well as an open workshop with a protected room for young people who are interested [13].

Within the scope of the GAAS project data on health behavior (with a focus on dietary behavior and physical activity, and anthropometric measurements (body height and weight) was assessed from a subsample of volunteering young people with NEET status. The data collection took place during November 2015 and January 2016. The questionnaire used to collect data on health behavior, body perception, subjective assessment of personal health status, and life satisfaction was based on the WHO HBSC study [14]. It uses the Family Affluence Scale [15, 16] to describe the socio-economic status (SES). Some additional study specific questions were also developed, regarding the project focus, the special characteristics of the target group, and the setting. These questions focused on the perception of various food groups, hunger, and general eating conditions. The online questionnaire was implemented using SoSci Survey [17] and was made available to the participants at → www.socisurvey.de. Additionally, body height and weight were measured in a subsample of participants. The measurements took place in the morning, in a fasted state, and with light clothing. Body weight was assessed using the Seca bella 840 scale. To measure body height the Seca 214 stadiometer was used. The Cole et al. percentiles [18] were chosen to assess body height and weight, as in the WHO HBSC study 2014, and were divided into the categories underweight/normal weight, overweight, and obesity [14].

This study compares the data of NEETs living in Austria with the Austrian

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Recommendations for Health-promoting Exercise [10], and with the results of the Austrian WHO HBSC study of 2014 for the corresponding age group (pupils aged 15 to 17 years). The WHO HBSC data periodically records the health behavior of Austrian pupils at the ages of 11, 13, 15 and 17 years, and is suitable as a reference population due to the similarity regarding the age groups.

Statistical analyses

To illustrate descriptive parameters, the arithmetic mean and the 95% confidence interval were stated for metric data. Interval variables or nominal scaled variables were shown as frequencies. The mean differences between two groups were calculated using the t-test for independent samples. To calculate the differences between the mean values obtained from the sample and the Austrian Recommendations for Health-promoting Exercise [10], the random sample t-test was calculated. If the criteria were not met, these analyses were perfomed with the Mann-Whitney U test or the one sample median test. Contingency tables with chi-square and standardized residuals were created for statements on distribution differences in nominal scaled variables. If one of the expected frequencies was less than 5, Fisher's exact test was calculated. Correlations were established to identify significant associations. For normally distributed data, the Pearson correlation was used, and for data that was not normally distributed, the Spearman correlation was calculated. The significance level was set at 5%.

Results

Sample description

A total of 53 adolescents and young adults from the GAAS project (hereinafter referred to as "young people with NEET status") were interviewed. The age-matched data from the WHO HBSC study 2014 included results from 2,900 adolescents living in Austria. Whereas two thirds of the participating young people with NEET status were male, the interviewees in the WHO HBSC study were predominantly female. More than 50% of the young people with NEET status who participated had an immigration background, compared to 12% of the HBSC pupils. Different results were also found regarding the SES and unemployment of parents. While 90.3% of the young people with NEET status lived in families with low to medium SES, 90.7% of the adolescents in the WHO HBSC study were settled in families with medium to high SES. Referring to the young people with NEET status it can be stated that, the majority of mothers and fathers were seeking employment, whereas only a few parents of adolescents in the WHO HBSC study experienced the same situation. In the case of 43.4% of all young people with NEET status, both parents were seeking employment, whereas only 1.5% of all parents of school-aged children from the WHO HBSC study matched these criteria (◆ Table 1).

Dietary and exercise behavior

When asked about their dietary and exercise behavior, young people with NEET status were found to consume less fruit (NEET 26.4%; WHO HBSC 53.0%) and vegetables (NEET 28.3%; WHO HBSC 50.1%) per day and more fast food (NEET 9.4%; WHO HBSC 7.5%) per day than the adolescents in the WHO HBSC study. No differences can be described regarding the consumption of confectionery and soft drinks (◆ Figure 1). In addition (and this data was not collected in the WHO HBSC study) 29.4% of young people with NEET status consumed energy drinks on a daily basis, and 11.8% consumed fruit juices/diluted fruit juices every day. Two thirds (66%) of NEETs drank water daily. Other beverage groups, such as "wellness drinks" were not consumed to a significant extent. Half of those surveyed (50.9%) ate meat or sausages every day, 43.4% had foods rich in simple carbohydrates on a daily basis. It was reported that 9.4% ate ready to eat meals every day, and 7.7% consumed fish or seafood every day. 20.8% of all participants stated the intake of wholegrain products every day and 47.2% consumed milk products every day.

On average, neither the young people with NEET status nor the adolescents from the WHO HBSC study met the recommendations for Health-promoting Exercise of at least 7 hours

	GAAS 2015: Young people with NEET status n = 53	WHO HBSC 2014: adolescents n = 2,900
Sex (n; %) *		
Girls	21; 39.6	1,702; 58.7
Boys	32; 60.4	1,195; 41.2
Age in years (mv [95% CI])***	17.9 [17.4; 18.4]	16.0 [16.0; 16.08]
Migrant background (n; %)***	28; 54.9	335; 11.9
Family Affluence Scale (n; %)***		
low	17; 41.5	253; 9.3
medium	20; 48.8	1,554; 57.4
high	4; 9.8	901; 33.3
Unemployment of parents (n; %)		
Mother***	33; 62.3	361; 14.2
Father***	28; 52.8	121; 4.7
Both parents***	23; 43.4	39; 1.5

Table 1: **Sample description of the GAAS project (n = 53) and selected age-specific data from the WHO HBSC study 2014 (n = 2,900)**
95 % CI = 95 % confidence interval; mv = mean value; n = sample size
* p ≤ 0.050; *** p ≤ 0.001 GAAS vs. WHO HBSC

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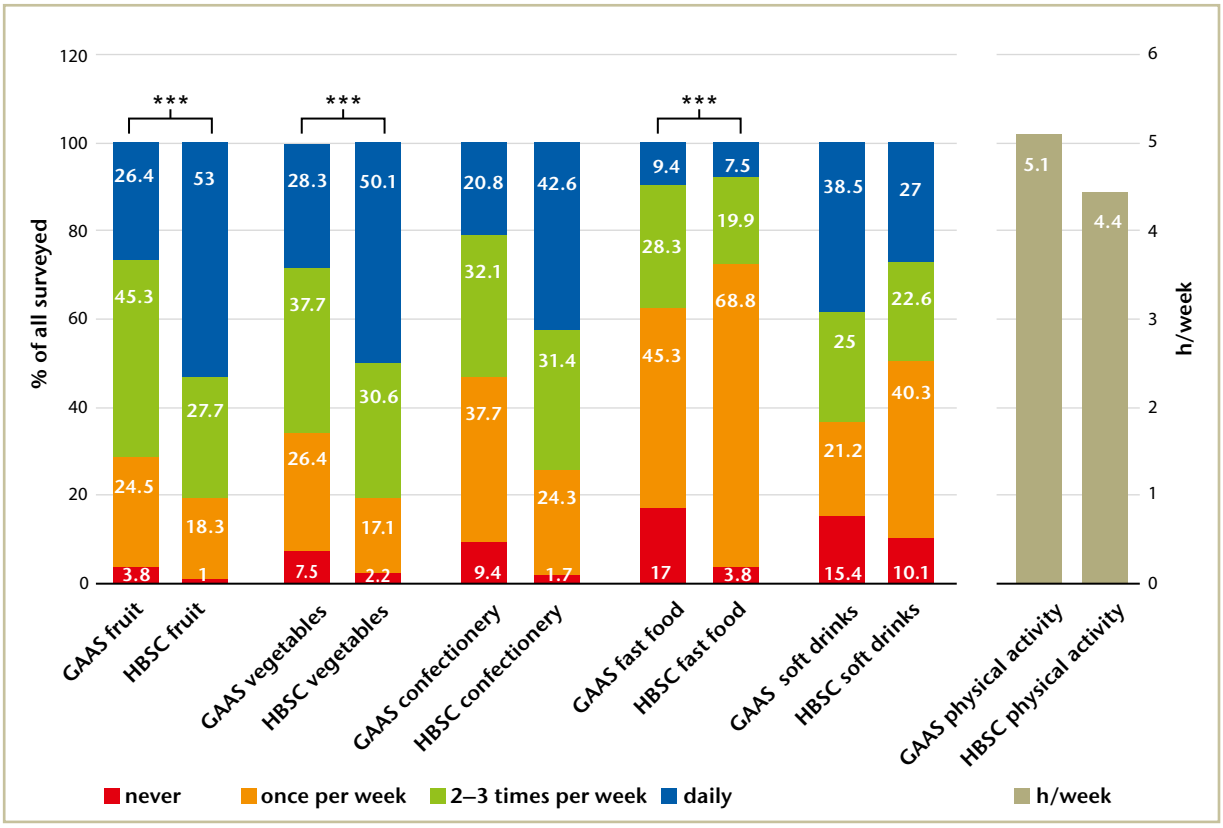

Fig. 1: **Dietary and exercise behavior of adolescents from the GAAS project (n = 53) and from the WHO HBSC study (n = 2,900) – frequency of consumption of fruit, vegetables, confectionery, fast food, and soft drinks, and frequency of physical activity**
GAAS = young people with NEET status from the GAAS project 2015; HBSC = adolescents from the WHO HBSC study 2014
*** p ≤ 0.001 GAAS vs. WHO HBSC

per week [10]. 24.5% (n = 13) of the young people with NEET status and 22.9% (n = 637) of the adolescents from the WHO HBSC study performed the recommended amount of exercise. There was no statistically measurable difference between the two groups (p = 0.783). Only among the adolescents from the WHO HBSC study a correlation between exercise and dietary behavior was found. The more the pupils exercised, the more fruit and vegetables they consumed (p ≤ 0.001).

Inactive leisure behavior on days off from school

The extent of inactive leisure activities, especially TV consumption, differed between young people with NEET status and adolescents from the WHO HBSC study (◆ Figure 2). It was found that WHO HBSC adolescents spent more time watching television and playing game consoles during days off from school than NEETs. The differences are particularly evident in those who stated that they never watch television (NEET 22.6%; WHO HBSC 4.7%) or never play on a game console (NEET 58.5%; WHO HBSC 24.6%). Only for PC usage the opposite conclusion was described. Young people with NEET status spent more time using computers than those in the WHO HBSC study. For NEETs, there was a slight positive correlation between TV consumption and the consumption of confectionery (p = 0.003; r- = 0.397), soft drinks (p = 0.002; r- = 0.414), and energy drinks (p = 0.033; r- = 0.300). In the WHO HBSC study, these correlations were also observable, but less evident.

Assessment of body weight

Body weight was assessed in 24 young people with NEET status and in 2,661 adolescents from the WHO HBSC study. In the WHO HBSC study, underweight and normal weight adolescents were put into a single category. The young people with NEET status group did not include any underweight participants. Analyses showed that NEETs were more likely to be obese and less likely to be underweight/normal weight (obesity 20.8%; underweight/normal weight 66.7%) than those in the WHO HBSC study (obese 2.1%; underweight/normal weight 85.8%) (p ≤ 0.001). The prevalence of overweight status was similar across both samples (NEET 12.5%; WHO HBSC 12.1%) (◆ Figure 3).
Among all participating adolescents, the higher their BMI, the more likely

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they felt that they were too fat ($p \leq 0.001$). Only in the adolescents from the WHO HBSC study a correlation between exercise behavior and body perception was shown: the more active, the less likely they feel that they were too fat ($p \leq 0.001$). In this study, exercise behavior did not correlate with the percentiles ($p = 0.248$). The examined people with NEET status were less likely to be satisfied with their body weight (NEET 24.5%; WHO HBSC 50.8%) and more likely to think that they needed to lose or gain weight than the adolescents from the WHO HBSC study.

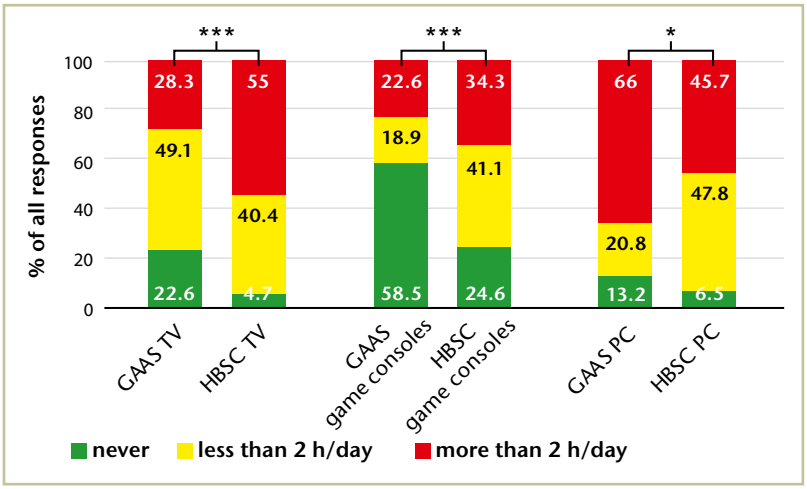

Fig. 2: **Inactive leisure behavior on days off from school (TV consumption, gaming, time spent using PCs) among the adolescents in the GAAS project (n = 53) and in the WHO HBSC study (n = 2,791)**
GAAS = adolescents from the GAAS project 2015;
HBSC = young people from the WHO HBSC study 2014
* p< 0.050; *** p< 0.001 GAAS vs. WHO HBSC

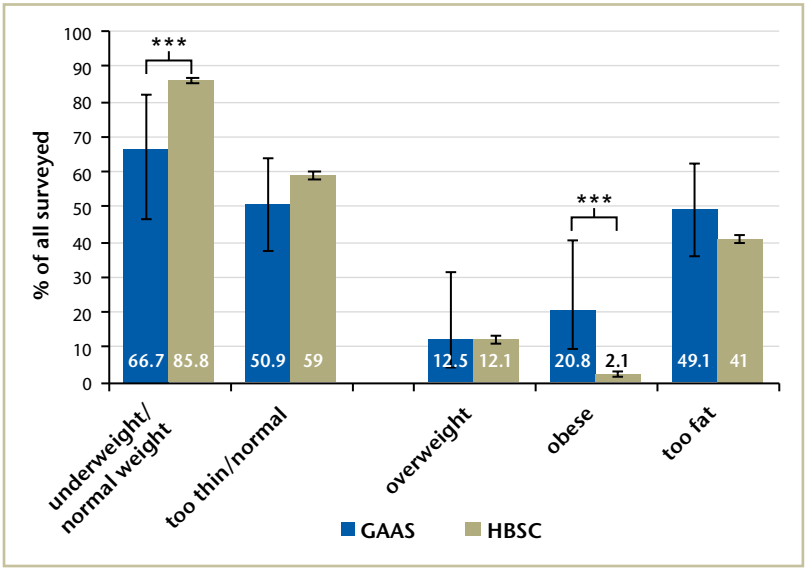

Fig. 3: **Comparison of body weight classes (n_{GAAS} = 24, measured data; $n_{WHO\ HBSC}$ = 2,661, self-reported data) and perception of own body weight (n_{GAAS} = 24; $n_{WHO\text{-}HBSC}$ = 2,652)**
GAAS = adolescents from the GAAS project 2015; HBSC = young people from the WHO HBSC study 2014
Error bar = 95% confidence interval; *** p < 0.001 GAAS vs. WHO HBSC

Health status and life satisfaction

Young people with NEET status reported a perception of their health that is more negative than the one experienced in the reference group of the WHO HBSC study. 15.1% of NEETs described their health status as excellent, 47.2% as good, 34.0% as satisfactory, and 3.8% as poor. By contrast, 30.7% of adolescents from the WHO HBSC study considered their health status as excellent, 52.9% as good, 14.4% as satisfactory, and 2.0% characterized it as poor ($p \leq 0.001$). Regarding life satisfaction, the results were similar and mildly positive across all participating adolescents. On a 10-points Likert scale, with 10 being the best evaluation, the average result for young people with NEET status was 6.9 [6.3; 7.5] points. For the WHO HBSC study it was 7.4 [7.4; 7.5] points ($p = 0.102$). Among the adolescents from the WHO HBSC study, a positive association was observed between their estimation of their own health status and their life satisfaction ($p \leq 0.001$).

Discussion

This study investigated the health-related and dietary behavior of young people with NEET status in Austria within the framework of the GAAS project. Age-matched data from adolescents in the WHO HBSC study 2014 and the Austrian recommendations for health-promoting exercise [10] were used as references.

Young people with NEET status were more likely to grow up in socially disadvantaged families with parents who were seeking employment. Additionally, their chances for an immigration background were higher. These factors correspond to the main risk factors for NEET status [2, 19], and confirm the results of other studies [19, 20].

Dietary and exercise behavior

The dietary behavior of young people with NEET status was less satisfy-

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ing than that from adolescents in the WHO HBSC study. They consumed fruit and vegetables less frequently. This finding corresponds to the results of a British cross-over study showing that 81% of NEETs did not meet the recommended intake of 5 portions of fruit and vegetables per day; in comparison to 76% of those without NEET status [20]. Additionally, young people with NEET status reported a more frequent fast food consumption than other adolescents. Only two thirds of those surveyed stated to drink water every day. The others often consumed soft drinks, energy drinks, or other energy-dense beverages. The association between low SES and unfavorable dietary behavior has been found in many studies [21–25]. These studies showed that socially disadvantaged groups consumed more energy-dense but low on nutrient groceries such as fast food or sweetened drinks. Furthermore, the intake of nutrient-dense (and low-energy density) foods such as fruit and vegetables or wholegrain products is decreased [25, 26]. An inactive lifestyle, especially frequent TV consumption, has negative effects on the dietary behavior of adolescents as well. Particularly, those with a low SES tend to snack on energy-dense, nutrient-poor foodstuffs while watching TV [22, 27]. The same trend was observed in the present study, although NEETs exhibited lower use of TV and game consoles than adolescents of the WHO HBSC study. A potential explanation is the fact that young people with NEET status spend more time using PCs than adolescents of the WHO HBSC study. An international comparison shows an increase in media consumption with age for people with NEET (starting with 18 years of age). That phenomenon continues until the age of 25 years with > 4 h of TV consumption (68.6%) and computer/console gaming (57.7%) per day [28]. Unlike other studies [20, 28], apart from inactivity influenced by media use, the results of the present study showed no differences in the exercise behavior of adolescents of different social classes. Neither young people with NEET status nor adolescents of the WHO HBSC study performed the amount of health-promoting exercise [10] in compliance with the Austrian recommendations of 7 h/week. This study did not provide further details regarding the reasoning. The available data does not allow any comparison to determine whether the type and intensity of exercise done was in accordance with the recommendations.

Body weight classification

The prevalence of obesity was ten times higher among young people with NEET status compared to adolescents of the WHO HBSC study. These results are in line with those of the cross-over study conducted by Stewart et al. [20], which showed that NEETs are more likely to have an unfavorable BMI – either too low or too high. Comparable results are observed in similar populations: According to Austrian data those attending vocational schools (21% of the girls; 31% of the boys) [29] and those attending *"Hauptschule"* [lower secondary school] (21.1% of the girls; 22.8% of the boys) were more likely to be overweight/obese than their counterparts attending general education schools with a higher level of study e. g. *Gymnasium* (13.1% of the girls; 15.9% of the boys) [30]. These differences often persist for life, as shown in a recent systematic review/meta-analysis by Newton et al. [31]: The average BMI of people with a lower SES remains higher than of people with a higher SES over the course of a lifetime. This reaffirms the importance of the "window of opportunity" and the fact that the foundations for health-promoting behavior should be laid at younger years to allow people to maintain their health, as they get older.

Subjective estimation of own health status

The fact that young people with NEET status estimated their own health lower than those from the WHO HBSC study could be a result of unfavorable health behavior, a disease, or an interaction between these parameters. In the case of a disease, the risk of NEET status increases and this in turn leads to a higher occurrence of mental illness [2, 20]. In general, adolescents from families with a lower SES complain of health problems more frequently than their counterparts with a higher SES family background [32].

Reasons for behavior that is detrimental to health

There have been some attempts to explain why socially disadvantaged adolescents exhibit behavior that is harmful to health more frequently than other adolescents. Particularly, having fewer formal educational qualifications appears to be a decisive factor for such behaviors because it is often associated with lower health literacy [20, 26]. A lower level of educational attainment repeatedly leads to lower income for the adolescents or their parents, which in turn limits the adolescents' ability to participate in health-promoting activities (such as planning healthy meals) [20, 22]. One explanation for this is that energy-dense, nutrient-poor foods are cheaper per calorie than low energy density, nutrient-dense groceries [26]. In addition, certain foods or dietary behaviors are known as a coping strategy [33]. Psychosocial factors, such as stable health-related habits, greater self-efficacy, and perceived control of one's own behavior have a knock-on effect regarding an encouraging health-promoting behavior [34, 35]. Furthermore, people with a higher SES tend to live in neighborhoods that provide a health-promoting environment. For example, they are more likely to have access to safe cycle paths and fresh food [26, 34, 35]. People with different social statuses are also subject to various conditions of socialization, which shape their behaviors and perspectives differently

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[33]. However, these factors must be considered in the whole scheme of things as they interact with each other, like it was demonstrated by Schreier and Chen in a review [36].

Limitations

Limitations of this study include the variance in sample sizes, the difference in the wording of individual questions used in the questionnaires for the GAAS project and the WHO HBSC study, and the voluntary nature of participation in the GAAS project. It also should be noted that the majority of the participating young people with NEET status were recruited from the *Produktionsschule spacelab*. At the *Produktionsschule spacelab*, the adolescents were taught in the context of a structured day, which potentially influences their health behavior (for example due to having regular meal times). However, the uniqueness of data focusing on health-related and dietary behavior of young people with NEET status in Austria deserves particular attention and can be seen as a strength.

Conclusion

This publication confirms that adolescents and young adults with NEET status often have been raised in socially disadvantaged families and are a vulnerable group. As with other socially deprived population groups, unfavorable health behavior can be observed in this group as well. Some initial adverse health effects were also reported and documented within the study population. Of particular attention is the very high rate of obesity.

To minimize these partially unavoidable, health-detrimental influencing factors, suitable strategies are needed. They should be tailored to this target group, strengthen adolescents' health literacy and help to stop the vicious cycle of social inequality across generations eventually. Extracurricular youth work is an excellent setting where these efforts can be concentrated. The aim of strengthening health literacy is in line with both WHO 21 Objective 2 [37] and Objective 2 of the Austrian Health Targets [38], which aim to achieve health equality between the sexes and between socio-economic groups. One strategic goal of the "Austrian Nutrition Action Plan" is to reduce social, age or gender-specific health inequalities [39]. The results regarding health behavior of young people with NEET status living in Austria that have been collected serve as a basis for a better understanding of social inequality and for the development of health promotion measures that are tailored to this target population and that can be implemented in an extracurricular youth work context.

Conflict of interest
The authors declare no conflict of interest.

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