

The Role of Compensatory Health Beliefs and Personality Structure in Exercise **Behavior**

Applying the Theory of Planned Behavior on the explanation of exercise behavior

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Abstract

Nowadays, healthy lifestyles, including sufficient exercise, seem omnipresent and more important than ever. However, many people do not engage in sufficient exercise, risking the development of serious diseases (e.g. heart diseases, diabetes etc.). To monitor and improve exercise behavior among the Dutch population, the Dutch Organization for Applied Scientific Research (TNO) developed three exercise norms. In everyday life many temptations interfere with plans to live healthy. To justify unhealthy choices, people may create Compensatory Health Beliefs (CHBs), trying to compensate their unhealthy behavior with healthy behavior. The main objective of this study is to examine if the four constructs of the Theory of Planned Behavior (TPB) attitude, subjective norm, perceived behavioral control and intention, the pesonality traits of the Big Five or use of CHBs can predict the achievement of the three exercise norms. A sample of 242 students participated in an online survey study, consisting of questions from the CHB scale, questions measuring actual exercise behavior, questions measuring the TPB constructs and questions measuring the Big Five personality traits. A chi-square test showed that Dutch students were more likely to achieve the norms than German students and that the four constructs of the TPB correlate with the achievement of the norms. Further, a hierarchical logistic regression showed that university students, compared to students with higher vocational education, and respondents who feel less healthy are not likely to reach the norm. Overall, the TPB is the best predictor. Neither personality, nor CHBs seem to add sign variance in explaining exercise behavior. Explaining exercise behavior, the original CHB scale does not have additional value beyond the TPB. However, for further research the use of a more exercise specific CHB scale is proposed.

List of Abbreviations

- TNO Dutch Organization for Applied Scientific Research
- SDeS Sedentary Death Syndrome
- NNGB Nederlandse Norm Gezond Bewegen
- TPB Theory of Planned Behavior
- TRA Theory of Reasoned Action
- CHB Compensatory Health Beliefs
- BMI Body Mass Index
- TIPI Ten-Item Personality Inventory
- FIPI Five-Item Personality Inventory
- BFI Big Five Inventory
- SN Subjective Norm
- PBC Perceived Behavioral Control

Within today's population, the interest in leading a healthy and active lifestyle has grown. Despite people's knowledge about the importance of sufficient exercise, each year 8000 people in the Netherlands die, because of insufficient exercise and its fatal consequences. This represents about 6% of the total number of deaths in the Netherlands (Rijksinstituut voor Volksgezondheid en Milieu, 2012). Research shows that, on the one hand, inactive people have the highest risk of suffering from negative health effects and, on the other hand, that sufficient exercise can increase the general quality of life (U.S. Department of Health and Human Services, 1996). Regular exercise promotes several health benefits, including physical, psychological and social effects (De Greef, 2009). Insufficient exercise entails risks, which can lead to various diseases such as obesity, heart diseases, diabetes, asthma or breast cancer and it can decrease the life expectancy of individuals, through for example the Sedentary Death Syndrome (SDeS) (Rijksinstituut voor Volksgezondheid en Milieu, 2012). In addition, Berrigan (2003) states that health-related behavior, such as physical inactivity, constitute in developed countries a large influence on morbidity and mortality.

Consequently, the Dutch government focused on emphasizing healthy behavior among its citizens. Since the year 2000, the Dutch organization for Applied Scientific Research (TNO) monitors trends in the exercise behavior and the general health of the Dutch population. Based on this research and its findings, they implemented several health interventions to motivate the society to lead an active and healthy lifestyle. Even though a lot has been done to generate an active population, still 34% of the adults in the Netherlands exercise insufficiently and 5% are inactive, which means that an individual does not even exercise once a week. The goal, which TNO set for 2012, was an active population of at least 70% (TNO, 2010). Although this goal is almost reached, multiple positive and negative health consequences emphasize that it is preferable that as many people as possible meet the norms of adequate exercise.

TNO operationalized objectives concerning the exercise behavior of the Dutch population. To examine those objectives and to quantify the term *sufficient exercise behavior* TNO designed three specific exercise norms. The first one is called the *Dutch Norm for Healthy Physical Activity (Nederlandse Norm Gezond Bewegen (NNGB)).* Its aim is to keep, or rather enhance, an individual's health. To fulfill the

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norm, an adult has to do exercise at least five times a week, for at least 30 minutes on a moderately intense level. An example of a moderately intense level is walking (> 5km/h) or cycling (>16 km/h). This norm is based on findings which show that 150 minutes of exercise per week result in an increase in health (Rijksinstituut voor Volksgezondheid en Milieu, 2012). The second norm is called the *fitness norm* (*Fitnorm*). This norm's objective is to achieve a good general condition. To reach the *fitness norm*, an individual has to exercise at least three times a week for at least 20 minutes on an intensive level, so that the individual starts to sweat. Last, TNO suggests the use of a *combination norm (Combinorm)*, which is achieved, if an individual reaches the *NNGB*, the *fitness norm* or both. All norms need to be reached throughout the whole year, which means in the summer as well as in the winter.

As all types of behavior, physical activity can be explained by several models and cognitive theories. The different models contain different factors which may play a role in the development of an individual's behavior. Icek Ajzens' Theory of Planned Behavior (TPB) is one of the most established socio-psychological models of behavior and in conjunction with the Theory of Reasoned Action (TRA) it guides the majority of research on health and exercise behavior (Hausenblas et al., 1997). The TPB describes factors influencing a person's decision to engage in a particular behavior. Research has shown that exercise behavior can also be explained by the TPB model (Hausenblas et al., 1997) and therefore, this study uses the model as the major predictor of exercise behavior. According to the rational TPB model, attitudes towards a specific behavior, subjective norms and perceived behavioral control can predict intentions to engage in the behavior, which in turn correlates with the actual behavior itself (Ajzen, 1991) (Figure 1).



Figure 1: Theory of Planned Behavior (Ajzen, 1985)

Hausenblas et al. (1997) investigated the utility of the TPB for explaining specific exercise behavior. Their study showed that exercise behavior can be explained by the TPB for about 58%, if individual variance of the different components is calculated (N.B.: The article does not mention the multiple variance). This means that in that research 42% of the variance is not explained and suggests that there are factors that contribute to the explanation of exercise behavior above and beyond the TPB. The results of the study show a relationship between the intention to exercise and actual exercise behavior, attitude and intention to exercise and perceived behavioral control and exercise behavior. Furthermore, their study showed that there is weak relationship between the subjective norm and the intention of an individual, whereas the subjective norm is not associated with actual behavior (Hausenblas et al., 1997).

Another possible approach is to examine if particular personality traits correlate with sufficient exercise. To study this hypothesis, the Big Five personality traits *openness, conscientiousness, extraversion, agreeableness* and *neuroticism* (Costa & McCrae, 1992) serve as important principles. The trait *openness* describes the interest in and the extend to which an individual deals with novel experiences, adventures and impressions. *Conscientiousness* describes the degree to which an individual is thorough and careful. *Extraversion* deals with characteristics such as being social, active, talkative and optimistic. Characteristics such as kind, sympathetic and cooperative describe the trait *agreeableness*. Last, *neuroticism* is characterized by feelings like anxiety, worry, envy and jealousy. Courneya and Hellsten (1998) demonstrated that the traits extraversion and conscientiousness were positively related to exercise behavior. Neuroticism on the other hand was negatively correlated.

Although the TPB and personality seem to have influence on people's exercise behavior, this behavior is not fully explained. Unlike in theoretical considerations, the development and explanation of behavior is much more complex. Investigators who are doing research on the topic of health related behavior are constantly looking for other possible explanations of exercise behavior, and therefore also for explanations for insufficient exercise. Recent studies deal with a rather novel field of research, Compensatory Health Beliefs (CHBs).

CHBs are beliefs that the negative effects of unhealthy behavior can be compensated by engaging in other healthy behavior. Muraven and Baumeister (2000) call it a motivational and mental conflict between the desire (to sit on the couch and watch TV) and the pursuit of health goals (an active lifestyle). Festinger (1957) calls this motivational conflict cognitive dissonance, meaning that both goals are not combinable. Rabiau et al. (2006) suggest that a conflict like this can be solved by several different strategies. An individual can try to resist the desire (to sit on the couch and watch TV), it can adjust the perception of risk and/or reevaluate outcome expectancies or the individual can create or activate CHBs. "Today I feel lazy and spend the day on the couch, but I guess it is ok, because I will just cook healthy tomorrow". This is an example of a CHB which many people recognize in their daily life. Research assumes that individuals use CHBs as a self-regulatory strategy, which may resolve the guilty-pleasure dilemma by means of justifying the unhealthy behavior and thus not experiencing an affect like guilt (Rabiau et al., 2006). Therefore, the individual can do both, because he or she thinks it compensates for the unhealthy behavior. Compensating behavior itself is not always negative, however, this behavior may imply certain difficulties. First of all, compensating behavior, which does not occur, does not compensate. Second, most of the time the healthy behavior just compensates the unhealthy behavior to a certain extend. Eating healthy, as mentioned above, may save calories and compensate the lack of exercise from the day before to some extend, but it does not supersede the importance of regular exercise.

To measure such CHBs, a scale has recently been developed (Knäuper et al., 2004). The CHB scale consists of four factors, which relate to beliefs about *substance use*, *eating and sleeping habits*, *stress*, and *weight regulation*. A high score on the CHB scale indicates that the respondent thinks that he or she is capable of compensating unhealthy behavior with other healthy behavior. Individuals with a high score on the CHB scale have been found to engage in unhealthy behavior and consequently may also have poor health (de Nooijer et al., 2009).

Several studies have focused on the exercise behavior of the Dutch population and on CHBs. To date, however, no studies have focused on a possible relationship between them. According to Ooijendijk et al. (2007) the majority (92%) of the Dutch

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population is totally aware of the fact that 30 minutes of exercise per day are crucial to live a healthy life. Even though almost everybody knows the importance of exercise, there are still many people who are not exercising enough (Rijksinstituut voor Volksgezondheid en Milieu, 2012). Among the Dutch population, according to de Greef (2009), the most occurring reasons for not exercising enough are lack of time, lack of money, being too old, feeling sick or just not being in the mood to exercise. This study could contribute to an important extend to the question which circumstances play a role in the decision to exercise or not. In the context of this thesis, the research question deals with the individual's strength of CHBs and its association with the level of exercise. More precisely, this study tries to investigate if CHBs explain exercising behavior of students above and beyond the four factors of the TPB and personality.

The target group for this particular study consists of Dutch students. Students are an important target group when it comes to ensuring good health among the population. Related to their working field students sit most of the day and spend many hours in front of the computer. Therefore, compensating exercise behavior seems to be an issue. In addition, students belong to the younger population where behavior is not set in its ways and therefore may still be changeable. Results of this study may build a good base for further interventions on that domain and the target group of students.

Methods

Procedure

A cross-sectional convenience sample was used. Via the student research pool of the University of Twente, the social media website <u>www.facebook.com</u> and via personal networks of the researchers, students who are able to understand the Dutch language were asked to voluntarily and anonymously fill out the online questionnaire. Students from behavioral studies, who participated via the student research pool, received 0,5 study credits. The time frame used for this online survey was almost four weeks. To encourage the process of data collection the snowball technique was used in which students were asked to forward the link to other students.

The introduction section of the questionnaire included information about anonymity, duration and general information about the study. In order to avoid priming, CHBs were not specifically mentioned and the purpose of the study was described as investigating lifestyle behavior among students and their opinion on that topic. All components of the questionnaire were initiated with a short introduction and instructions on how to answer the questions.

Measures

The online questionnaire contained four broad sections. First, it covered demographic and health-related questions. Second, it contained questions from the CHB scale in order to examine to what extent people think they can compensate unhealthy behavior with healthy behavior. Third, questions related to four health behaviors of interest, namely *exercise*, *sleep*, *smoking* and *eating* were asked. This section consisted of questions related to the actual behavior, as well as questions, which concern the four constructs of the TPB. Last, a short section was presented in order to ask the respondents questions related to the Big Five personality dimensions.

Four different versions of the questionnaire were used to avoid ordering effects, each with a different order of the sections regarding the health behaviors *exercise*, *smoking*, *sleeping* and *eating*. In total the questionnaire contained 124 items. The whole study focused on the four health behaviors, whereas this paper only deals with exercise and its relation to the CHBs and the respondents' personality. The complete online survey can be viewed in the Appendix.

Demographic and Health-related Questions

In total, demographic variables were assessed with seven items concerning gender, age, nationality, study level and year of study. To determine the Body Mass Index (BMI) questions about weight and length were asked. Also, the respondents were asked to estimate their general health condition on a 5-point-Likert scale ranging from "very good" (1) to "very bad" (5).

Compensatory Health Beliefs Scale

Recently, a scale to measure the strength of CHBs has been developed. This original English CHB scale was established by Knäuper et al. (2004). This study used the validated Dutch version (de Nooijer et al., 2009), comprised of seventeen items,

which showed a high internal consistency among Dutch university students (α =0.80). Therefore, this study used the same seventeen Dutch statements, which showed a high internal consistency as well (α = 0.73). Six beliefs about substance use (α =0.72), four statements about eating and sleeping habits (α =0.59), four statements about stress (α =0.51) and three beliefs about weight regulation (α =0.40) were presented in a random order. Example statements are "It is OK to skip breakfast if one eats more during the day" or "The negative effects of stress can be made up for by exercising". The different items were measured by a 5-point-Likert scale. The respondents had to indicate whether they fully agree (5) or they fully disagree (1) with a particular statement. For each respondent an overall score on the CHB scale was computed by calculating the mean score of all seventeen items. This score therefore ranged from 1 to 5. The higher the score, the higher the respondents' belief, that he or she can compensate unhealthy behavior with other healthy behavior. Contrary to previous research, this study showed insufficient internal consistency for the four subscales. Cronbach's alphas for all four original subgroups were too low to use them for further analysis. Therefore, only the overall score for the total CHB scale was used.

Exercise Behavior

To measure the frequency of exercise, four items were used. The two validated original versions of the TNO surveys were used in order to measure exercise behavior. Questions, such as "How many days a week, during the summer, do you pursue intensive exercise for at least 20 minutes?" were used in order to measure the *fitness norm* of an individual. Socially desirable answers were restricted by letting the respondents answer in open response format. Therefore, the participants were not primed beforehand by knowing what the particular norms are. Both norms were separately assessed for summer and winter, using the standardized norms to ensure an almost objective way of comparing the respondents. The cut-off point for the new calculated variables for the *Dutch Norm for Healthy Physical Activity* and the *fitness norm*, were respectively 5 and 3 days a week. Last, the *combination norm* was calculated and further used for the analysis. The *combination norm* was reached, if a respondent reached the *Dutch Norm for Healthy Physical Activity*, the *fitness norm* or both.

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Theory of Planned Behavior

Based on the TPB (Ajzen, 1991), items for each of the four constructs *attitude*, *subjective norm*, *perceived behavioral control* and *intention* were developed. For the design of the items, Ajzen's description of questionnaire construction was used (Ajzen, 2010). In total, the four constructs were measured by fourteen items. Each statement could be answered on a five-point-Likert scale, ranging from either "good" (1) to "bad" (5), "pleasant" (1) to "unpleasant" (5) or from "I fully agree" (1) to "I fully disagree" (5), depending on the item. All four constructs used separate statements for the *NNGB* and the *fitness norm*.

Attitude. Attitude was measured with four items (α =0.78). The respondents had to evaluate their self-performance of exercise behavior. One item was "Every week, three days at least 20 minutes of intensive exercise until I start to sweat, is something I perceive as (good-bad)".

Subjective norm. This construct was also measured with four items (α =0.76). The respondent had to rate relevant others' beliefs that he or she should or should not exercise. An example statement from the survey is "Most people who are close to me, expect that I accomplish regular intensive exercise three days a week at least 20 minutes until I start to sweat (fully agree-fully disagree)".

Perceived behavioral control. Four statements measured perceived behavioral control (α =0.67). The respondent estimates the perceived ease or difficulty of exercising. The questionnaire used for example the statement "It is up to me to exercise five days a week at least 30 minutes on a moderate level (fully agree-fully disagree)".

Intention. Intention describes an indication of a respondent's readiness to exercise. This was measured with two items (α =0.70). The construct was measured with statements like "For the coming next three months, I intend to accomplish intensive exercise until I start to sweat three days a week for at least 20 minutes (fully agree-fully disagree)".

Personality

Personality was measured with the five items of the short version of the Ten-Item Personality Inventory (TIPI) (Denissen et al., 2008). The Five-Item Personality Inventory (FIPI) (Gosling et al., 2003) is a brief measure of the Big Five personality domains *openness*, *conscientiousness*, *extraversion*, *agreeableness* and *neuroticism* (in this measure called *emotional stability*). The test-retest reliability of the FIPI scale was considered to be substantial. Research of the relationship between the FIPI and the Big Five Inventory (BFI) shows significant correlations (mean r = .66). In addition, the test-retest correlation was also found to be strong (mean r = .68).

Each personality domain was measured with one item. The frame of the statement was the same for all five items ("Some people are ... and ..., whereas other people are ... and..."). For each statement, the respondents had to give an estimate of their personality on a seven-point scale. The first dimension measured *extraversion* and used the continuum from extraverted/enthusiastic (1) to reserved/quiet (7). *Agreeableness*, the second dimension, was presented with the continuum from critical/quarrelsome (1) to sympathetic/warm (7). The third dimension, *conscientiousness*, was measured with a scale ranging from dependable/self-disciplined (1) to disorganized/careless (7). The continuum for the fourth dimension *neuroticism* ranged from anxious/easily upset (1) to calm/emotional stable (7). Last, the dimension *openness* to experience was presented on the continuum ranging from complex/open to new experiences (1) to uncreative/conventional (7).

Data Analysis

First of all, respondents who stopped filling out the questionnaire after the first half were excluded from the data analysis. Respondents who skipped a single question, or gave single incorrect answers (e.g. an age of 99 years) were still included and those answers were analyzed as missing values. This implicates a changing number of respondents; n will therefore be indicated in the further analysis. Second, to ensure satisfactory psychometric properties for all constructs, Cronbach's alphas were calculated. According to good internal consistency of the items, it was decided to calculate one score per construct, which was used for further analysis. This was the case for an overall CHB score, the four TPB constructs and variables for achieving the three exercise norms. No item was excluded from the dataset in order to increase the reliability of the constructs.

First, the chi-square test of association was used in order to analyze the association between the four constructs of the TPB and the achievement of the three

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exercise norms. Further, the χ^2 -test was conducted, analyzing the relationship between the demographic variables sex, nationality and study level and the achievement of the three norms. Last, for each of the three exercise norms, a hierarchical binary logistic regression was conducted. The first block consisted of the demographic variables. In the second block the two health related variables BMI and health status were added. The third block added the four constructs of the TPB, the fourth block added the five dimensions of the Big Five measured by the FIPI, and last the overall CHB score was added in the fifth block. A hierarchical regression was chosen in order to determine which variables add significant variance to the prior blocks.

Results

Sample

In total, 258 Dutch students participated in this study. 16 respondents were excluded due to missing data. The remaining 242 respondents, aged 18 to 47 (M = 21.3; SD = 2.86) were composed of 187 female students and 55 male students. 145 respondents were German and 97 respondents were Dutch. Table 1 gives an overview of the demographics of the respondents who took part in the study.

Table 1

Variable	M (SD) / n (%)
Sex, n (%)	
Female	187(77.3)
Male	55 (22.7)
Age in years, M (SD)	21.27 (2.86)
Nationality, n (%)	
Dutch	97 (40.1)
German	145 (59.9)
Study level, n (%)	
Higher vocational education	84 (34.7)
University	157 (64.9)
Year of study, M (SD)	2.22 (1.37)
BMI, M (SD)	22.29 (3.13)
underweight	12 (5.0)
normal weight	185 (76.4)
overweight	31 (12.8)
obesity	4 (1.7)
Health Status, M (SD)	1.95 (0.67)

Association between demographics and achievement of the norms

In order to analyze the relationship between the demographic variables sex, nationality, study level and the achievement of the three norms, the chi-square test of association was conducted. Table 2 displays the number and the corresponding percentage of the respondents who reached the different exercise norms. The analysis shows that reaching the *NNGB* and *combination norm* was significantly associated with nationality. 55.2% of the Dutch respondents reached the *NNGB*, whereas only 39.0% of the German respondents achieved the norm. The *combination norm* is reached by 70.1% of the Dutch respondents and only 57.2% of the German students. For the variables sex and study level, no significant associations with the achievement of the norms were found.

Table 2			
Relationship between demographic	variables and achie	vement of the three e	exercise norms (N= 242)
Variable	NNGB	Fitness Norm	Combination Norm
	N (%)	N (%)	N (%)
Sex			
female	85 (45.9%)	85 (45.7%)	117 (62.6%)
male	23 (44.2%)	27 (50.0%)	34 (61.8%)
Nationality			
Dutch	53 (55.2%)	50 (52.1%)	68 (70.1%)
German	55 (39.0%)*	62 (43.1%)	83 (57.2%)*
Study level			
higher vocational education	71 (45.8%)	71 (45.5%)	98 (62.4%)
university	36 (44.4%)	41 (49.4%)	52 (61.9%)

Association between TPB constructs and achievement of the norms

In order to analyze the relationship between the four constructs of the TPB and the achievement of the three exercise norms, the chi-square test of association was conducted. Table 3 indicates low, medium and high scores on the TPB scale per construct and the corresponding number and percentage of respondents who reached the respective norm. The analysis shows that the construct *attitude* is significantly associated with the achievement of all three norms. People, thinking positively about their self-performance of exercising sufficiently were more likely to reach the norms than respondents who had a negative opinion about their self-performance. Second, the construct *subjective norm* is associated with achieving the *NNGB* and the *combination norm*. Respondents, believing that relevant others think that the individual should exercise, are more likely to achieve the two norms than respondents who do not rate relevant others beliefs as supporting. Third, *perceived behavioral control* was only associated with achieving the *NNGB*. Individuals, believing that

doing exercise is something they are responsible for, are more likely to reach the *NNGB*. Last, the analysis shows that the construct *intention* is significantly correlated with the achievement of all three exercise norms, meaning that respondents, indicating a high readiness to exercise, are more likely to achieve the norms than respondents who do not feel ready to exercise.

Table 3 Association	n between TPB	constructs and	achievement o	f the norms (N=	= 242)	
Variable	NN	GB	Fitness	s Norm	Combinat	tion Norm
	N ((%)	N (N (%) N (%)		
	yes	no	yes	no	yes	No
Attitude						
1	50 (46.7)**	28(21.9)**	48 (43.6)*	30 (23.4)*	62 (41.6)**	17 (18.7)**
3	2 (1.9)	8 (6.2)	5 (4.5)	6 (4.7)	6 (4.0)	5 (5.5)
5	0 (0.0)	1 (0.8)	0 (0.0)	1 (0.8)	0 (0.0)	1 (1.1)
SN						
1	6 (5.6)*	0 (0.0)*	6 (5.5)	0 (0.0)	6 (4.1)*	0 (0.0)*
3	19 (17.8)	19 (15.4)	21 (19.1)	17 (13.8)	28 (18.9)	11 (12.6)
5	2 (1.9)	3 (2.4)	2 (1.8)	3 (2.4)	3 (2.0)	2 (2.3)
PBC						
1	36 (35.6)**	22 (17.7)**	37 (34.9)	21 (17.2)	44 (31.2)	15 (16.9)
3	2 (2.0)	11 (8.9)	2 (1.9)	11 (9.0)	4 (2.8)	9 (10.1)
5	0 (0.0)	1 (0.8)	0 (0.0)	1 (0.8)	0 (0.0)	1 (1.1)
Intention						
1	36 (33.6)**	18 (14.0)**	35 (31.5)**	19 (14.8)**	43 (28.7)**	12 (13.2)**
3	14 (13.1)	31 (24.0)	16 (14.4)	30 (23.4)	25 (16.7)	21 (23.1)
5	4 (3.7)	8 (6.2)	2 (1.8)	10 (7.8)	5 (3.3)	7 (7.7)

Note. * $p \le .05$; ** $p \le .01$

Variables explaining the achievement of norms

In order to analyze the extend to which a variable is accountable for the achievement of the three exercise norms, a hierarchical binary logistic regression was conducted. For the *NNGB* the following results were found (Table 4). From the demographic variables in this block nationality and study year were found to significantly explain achievement of the norm. German students had a higher chance to reach the norm than Dutch students. Further, the longer a student attains higher education, the higher the chance of reaching the norm. The second block adds the variables BMI and health status, but does not add sign variance to the prior block. In the third block, TPB constructs were added. In this block the constructs *subjective norm* and *intention* added significant variance to the prior variables. The more an individual thinks that relevant others think that the individual should exercise, and the more an individual indicates a high readiness to exercise, the higher the chance the individual achieves the norm. In the fourth block, the five dimensions of the Big Five were added to the

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analysis. Even though, this step is in itself not significant and does not add sign variance to the previous steps, the trait *openness* does explain the achievement of the norm to some extend. People who tend to be uncreative and conventional seem to have a higher chance to reach the norm than people who are more open to new experiences. Last, the fifth step adds the score on the CHB scale, which does not add significant variance to the model. In this last block, only *intention* and the Big Five trait *openness* are significant predictors of achieving the *NNGB*. Together, the model explained exercise behavior by 31%.

For the explanation of the *fitness norm*, the analysis showed the following results (Table 5). In the first block, the demographic variable study level is significantly associated with the achievement of the norm, meaning that university students are less likely to reach the norm, than students with higher vocational education. Even though, health related variables did not add sign variance to the demographic variables, the health status did explain the achievement of the *fitness norm* to some extend. Respondents, who rated their general health condition as poor, were less likely to reach the norm. In the third block, the TPB constructs were added, showing that the construct *intention* adds significant variance to the prior steps. The more a respondent indicates the readiness to exercise, the more likely the respondent achieves the norm. In the fourth and fifth step, no more variance was added by the personality dimensions and the CHB score. In the last block, only *intention* seemed to explain the achievement of the norm significantly. Together, the model explained the achievement of the *fitness norm* by 22%.

For the explanation of the achievement of the *combination norm* the following results were found (Table 6). Neither demographic variables, nor health related variables seemed to explain reaching the *combination norm*. Adding the TPB constructs in the third block showed that the *subjective norm* was a significant predictor of achieving the norm. The more an individual thinks that relevant others think that the individual should exercise, the higher the chance that the individual succeeds. Neither the fourth nor the fifth block adds more sign variance to the TPB construct. Only *intention* and *subjective norm* predicted the achievement of the norm significantly in the final model. Together, this final model explained the achievement of the *combination norm* by 22%.

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Hierarchical binary logistic regression for Dutch Norm of H	Healthy P	hysical Activ	ity							
Variable	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Demographic										
Sex (1=female; 2=male)	.75	.36-1.57	.76	.36-1.60	.69	.31-1.53	.43	.18-1.04	.44	.18-1.08
Age	.91	.78-1.07	.91	.77-1.06	.94	.81-1.69	.92	.77-1.09	.92	.77-1.09
Nationality (1=Dutch; 2=German)	.50*	.2697	.51	.26-1.00	.69	.34-1.41	.67	.31-1.43	.68	.32-1.47
Study level (1=higher education; 2=university)	1.06	.53-2.12	1.06	.53-2.12	1.10	.53-2.30	1.25	.57-2.75	1.27	.57-2.82
Study year	1.37*	1.04-1.81	1.37*	1.04-1.81	1.27	.96-1.68	1.31	.97-1.78	1.32	.97-1.80
Health										
BMI										
underweight			3.34	.67-16.68	3.06	.56-16.00	2.34	.41-13.40	2.39	.41-13.78
normal weight			2.59	.43-15.53	2.35	.36-15.43	1.52	.22-10.41	1.55	.23-10.70
overweight			1.97	.10-39.54	1.83	.07-45.98	1.73	.05-62.03	1.82	.05-65.86
Status (1=very good; 5=very bad)			.90	.57-1.42	1.03	.61-1.73	1.01	.59-1.74	1.00	.58-1.72
TPB										
Attitude					.76	.41-1.41	.70	.36-1.33	70	.37-1.34
SN					.66*	.4499	.67	.43-1.02	.66	.43-1.02
PBC					.85	.44-1.62	.84	.43-1.66	.85	.43-1.68
Intention					.71	.48-1.06	.66*	.43-1.00	.66*	.43-1.00
Big Five										
Extraversion (1=extraverted; 7= reserved)							1.25	.98-1.59	1.65	.98-1.59
Agreeableness (1=critical; 7=sympathetic)							1.17	.85-1.62	1.18	.85-1.63
Conscientiousness (1=dependable; 7=careless)							1.30	.99-1.71	1.30	.99-1.72
Neuroticism (1=anxious; 7=calm)							1.24	.99-1.56	1.23	.98-1.55
Openness (1=open to new experiences; 7=conventional)							1.31*	1.05-1.63	1.31*	1.05-1.64
СНВ									.84	.40-1.77

Note. R^2 (Nagelkerke) = .08* for Step 1; R^2 = .10 for Step 2; R^2 = .23*** for Step 3; R^2 = .31** for Step 4; R^2 = .31 for Step 5. * $p \le .05$; ** $p \le .01$

Table 4

Table 5

Hierarchical binary logistic regression for Fitness Norm

Variable	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Demographic										
Sex (1=female; 2=male)	1.20	.59-2.44	1.16	.56-2.44	1.10	.50-2.42	.86	.37-2.03	.84	.35-2.02
Age	.91	.77-1.07	.90	.77-1.06	.93	.80-1.09	.93	.80-1.07	.93	.81-1.07
Nationality (1=Dutch; 2=German)	.57	.29-1.10	.54	.28-1.07	.75	.36-1.54	.77	.37-1.61	.76	.36-1.60
Study level (1=higher education; 2=university)	.46*	.2492	.45*	.2391	.46*	.2295	.52	.24-1.10	.51	.24-1.10
Study year	1.19	.91-1.57	1.16	.88-1.52	1.06	.80-1.40	1.02	.77-1.35	1.02	.77-1.35
Health										
BMI										
underweight			1.17	.29-4.69	.96	.21-4.36	.88	.19-4.11	.86	.18-4.05
normal weight			1.80	.37-8.86	1.55	.28-8.60	1.43	.25-8.26	1.41	.25-8.11
overweight			3.24	.19-56.63	3.81	.18-81.41	7.24	.26-205.99	6.82	.24-197.07
Status (1=very good; 5=very bad)			.54**	.3386	.55	.3394	.60	.35-1.03	.60	.35-1.03
TPB										
Attitude					.81	.45-1.48	.75	.40-1.39	.74	.40-1.38
SN					.71	.48-1.07	.72	.47-1.08	.72	.47-1.09
PBC					1.01	.54-1.89	1.06	.56-2.02	1.05	.55-2.01
Intention					.65*	.4496	.63*	.4295	.63*	.4295
Big Five										
Extraversion (1=extraverted; 7= reserved)							.95	.75-1.19	.95	.75-1.19
Agreeableness (1=critical; 7=sympathetic)							.90	.66-1.23	.90	.66-1.23
Conscientiousness (1=dependable; 7=careless)							.93	.72-1.19	.93	.72-1.19
Neuroticism (1=anxious; 7=calm)							1.22	.99-1.51	1.22	.99-1.52
Openness (1=open to new experiences; 7=conventional)							1.04	.84-1.28	1.04	.84-1.28
СНВ									1.12	.54-2.30

Note. R^2 (Nagelkerke) = .06 for Step 1; R^2 = .11 for Step 2; R^2 = .22*** for Step 3; R^2 = .25 for Step 4;

 $\begin{array}{l} R^2 = .25 \mbox{ for Step 5.} \\ * \mbox{ } p \leq \ .05; \ ** \mbox{ } p \leq \ .01 \end{array}$

Table 6

Hierarchical binary logistic regression for Combination Norm

Variable	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Demographic										
Sex (1=female; 2=male)	98	.48-1.99	.99	.48-2.04	.99	.45-2.16	.75	.32-1.73	.75	.32-1.77
Age	.95	.85-1.07	.95	.84-1.07	.97	.86-1.10	.96	.85-1.09	.96	.85-1.09
Nationality (1=Dutch; 2=German)	.59	.30-1-13	.59	.30-1.14	.85	.41-1.76	.82	.39-1.72	.82	.39-1.74
Study level (1=higher education; 2=university)	.77	.39-1.50	.75	.38-1.49	.80	.39-1.65	.85	.40-1.81	.85	.40-1.82
Study year	1.16	.91-1.48	1.15	.90-1.48	1.06	.82-1.37	1.06	.82-1.39	1.06	.82-1.39
Health										
BMI										
underweight			2.28	.60-8.57	2.06	.50-8.58	1.87	.43-8.12	1.87	.43-8.17
normal weight			2.57	.56-11.90	2.28	.45-11.66	1.81	.34-9.57	1.81	.34-9.64
overweight			1.41	.12-16.40	1.04	.07-14.54	1.13	.07-18.55	1.14	.07-18.86
Status (1=very good; 5=very bad)			.78	.50-1.22	.82	.50-1.36	.82	.49-1.38	.82	.49-1.38
ТРВ										
Attitude					.73	.41-1.29	.70	.39-1.26	.70	.39-1.27
SN					.60*	.4091	.62*	.4094	.62*	.4094
PBC					1.21	.66-2.24	1.23	.66-2.29	1.23	.66-2.30
Intention						.48-1.01	.70	.4698	.67*	.4698
Big Five										
Extraversion (1=extraverted; 7= reserved)							1.12	.89-1.41	1.12	.89-1.41
Agreeableness (1=critical; 7=sympathetic)							1.06	.79-1.43	1.06	.79-1.43
Conscientiousness (1=dependable; 7=careless)							1.16	.90-1.48	1.16	.90-1.48
Neuroticism (1=anxious; 7=calm)							1.17	.95-1.44	1.17	.95-1.44
Openness (1=open to new experiences; 7=conventional)							1.13	.92-1.39	1.13	.92-1.39
CHB									.97	.47-1.20

Note. R^2 (Nagelkerke) = .03 for Step 1; R^2 = .05 for Step 2; R^2 = .19*** for Step 3; R^2 = .22 for Step 4; R^2 = .22 for Step 5. * $p \le .05$; ** $p \le .01$

Discussion

The aim of the present study was to investigate which factors explain and predict the exercise behavior of students. More precisely, the research investigated which factors contribute to the achievement of the three exercise norms. The main focus of this study concentrated on the relationship between the TPB, CHBs, personality structure and achieving these norms. The analyzed results of the study give an answer to the research objective and show a couple of other interesting findings. Contrary to expectations, neither personality nor CHBs added variance in explaining exercise behavior above and beyond the TPB.

In accordance to the expectations, the TPB model seems to explain and predict exercise behavior quite well. Nevertheless, one cannot disregard the fact that the TPB model describes (exercise) behavior in a rational manner. In normal life, many factors might possibly influence the development of behavior. As one can see, the models analyzed in this study only explain the achievement of the three norms by 22 to 31%. This study also showed that personality and CHBs do not add variance to the model. Therefore, it can be assumed that other factors are responsible for the explanation of the remaining 69 to 78%.

Further, the results show that being Dutch is associated with a higher chance of the achievement of the norms. Considering that point, it needs to be mentioned that most of the German respondents were first year students who went abroad to study. In this regard, looking for an explanation, the process of integration might play a role. Apart from needing time to adapt to the new environment, many German students take their car to go to lectures or to go shopping. In comparison with Dutch students, who are used to take the bike, German students might miss this opportunity of moderate, regular exercise. For the year 2012, TNO postulated a target percentage of 70% for the achievement of the *combination norm* (TNO, 2010). The results of this study show that the Dutch respondents reached this goal to the point. The German students on the other hand missed the goal by almost 13%. Taking into account that regular exercise promotes several health benefits, including physical, psychological and social effects (De Greef, 2009), it seems important to further investigate this difference between the two nationalities. Specific interventions could ensure that

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German students, studying in the Netherlands, also reach the norms and live a more balanced and healthier lifestyle.

Last, the feeling of living less healthily correlates with not reaching the fitness norm. Feeling less healthy therefore hinders people from exercising on an intense level. On the one hand, this might be due to serious illnesses or handicaps, or it might be due to not feeling fit enough. Exercising intensively requires self-assertion as it already constitutes a certain amount of willpower, feeling bad might complicate the process of self-assertion.

Up to this day, few studies have dealt with the association of exercise behavior and the CHBs. Contrary to expectations, this study did not find a significant association between personality structure, CHBs and the achievement of the three norms. Regarding this research, there are some possible explanations, why it might have been impossible to show those results. First, the used CHB scale may not be suitable for the topic of exercise behavior. For further research it might be of greater value to conceptualize a more exercise specific CHB scale. This scale should focus on behavior such as compensating a lack of exercise.

Despite of the limitations of this study, the topic is still a valuable area for further research. Concerning the results, an analysis of the general exercise behavior of German students at the University of Twente might be interesting including the investigation of possible explanations for the difference of the two nationalities. All future studies have to take into account the difference in personal preferences and other possible causes. Furthermore, future research could focus on a difference concerning the strength of an individual's CHB during the cycle of the academic year. This survey study only analyses one short period. Stressful phases, as examination periods, might influence an individual's strength of CHBs. In these phases students might have other preferences or less time to concentrate on a healthy lifestyle than during the general study period. Last, several interventions already try to diminish unhealthy lifestyles by reducing peoples calorie intake or ensuring sufficient regular exercise. Regarding the topic of this study, a possible new lead could be an intervention, addressing CHBs a person believes in. People might eat healthy and therefore think that regular exercise is not essential for their health. However, when applying CHBs in a false manner, by compensating insufficiently or with the wrong

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behavior, people might adhere to an unhealthy lifestyle, which may result in overweight and serious health problems.

Altogether, this study showed some interesting results even though the main research objective did not find significant proof. Showing, that personality structure and CHBs do not add variance to the explanation of the achievement of the norms above and beyond the TPB, the TPB can be used for future research on that domain.

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Appendix

Online Questionnaire

Beste deelnemer, alvast bedankt voor je deelname aan dit onderzoek. Dit onderzoek gaat over je leefstijlgedrag en je mening daarover. Hierbij moet je denken aan gezondheidsgerelateerd gedrag zoals roken, bewegen, eten en slapen. Het onderzoek wordt uitgevoerd in het kader van onze bachelorthese Psychologie. Na een aantal vragen over je persoon, zal de eigenlijke vragenlijst beginnen. Bedenk voor elke vraag, welk antwoord het beste bij jou en jouw leefstijl past. Voor het onderzoek is het van belang dat jij zo eerlijk mogelijk antwoord. Alle antwoorden worden anoniem verwerkt en zijn later niet meer aan jou als respondent te koppelen. Het invullen van deze vragenlijst zal in totaal ongeveer 20 minuten duren. Heel erg bedankt,

Stephanie Heinz, Jana Oehme, Florentine Paus & Melanie Rüskamp

(Start)

1.	Geslacht * vrouw man
2.	Leeftijd *
3.	Nationaliteit *
	⊖ Nederlands ⊖ Duits ⊖ anders
4.	Studie *
	© HBO © WO
5.	Studiejaar [*]
	O 1ejaar O 2ejaar O 3ejaar O 4ejaar O > 4ejaar

6.	Gewicht (kg) *					
7.	Lengte (cm) *					
8.	Hoe is over het algemeen je gezondheid?	heel goed O	0	0	0	heel slecht O
		(verder)				

Mensen hebben verschillende ideeën over hun gezondheid. Hieronder staat een lijst van ideeën die iemand kan hebben over gezond blijven. Lees elke zin zorgvuldig en geef aan in hoeverre je het eens of oneens bent met de zin door het meest passende antwoord aan te vinken. Onthoudt dat er geen goede of foute antwoorden zijn omdat iedereen andere ideeën heeft.

Helemaal Enigzins Niet mee eens, Enigzins Helemaal 9. mee mee niet mee mee mee eens oneens oneens oneens eens Ontspannen in het weekend kan stress doordeweek 0 0 0 0 0 compenseren. Het gebruik van kunstmatige zoetstoffen (zoals in 0 0 0 0 0 koffie en thee) compenseert de inname van extra calorieën. Bewegen kan roken compenseren. Θ Θ 0 Θ Θ Geen alcohol drinken doordeweek kan de effecten 0 0 8 Θ 0 van te veel alcohol drinken in het weekend compenseren. 0 0 Het overslaan van het hoofdgerecht kan het eten 0 0 0 van een dessert compenseren. Ontspannen voor de televisie kan een stressvolle dag 🛛 8 8 8 8 compenseren. 's Avonds eten wat je maar wilt is oké als je 0 0 0 0 0 gedurende de dag niet veel hebt gegeten. Gezond eten kan de effecten van regelmatig alcohol 0 0 0 0 drinken compenseren. Uitslapen in het weekend kan te weinig slaap 0 0 0 0 0 doordeweek compenseren. 8 8 Bewegen kan de slechte effecten van stress 8 8 8 compenseren. Het beginnen van een nieuw dieet morgen maakt 0 0 0 0 0 verbreken van een dieet vandaag goed. De effecten van koffie drinken worden 0 0 Θ Θ Θ gecompenseerd door het drinken van een gelijke hoeveelheid water.

Het is oké om het ontbijt over te slaan als je tijdens de lunch of het avondeten meer eet.	0	0	0	0	0
Slaap compenseert stress.	0	0	0	0	0
Het is prima om veel alcohol te drinken zo lang je er maar veel water bij drinkt om het weg te spoelen.	0	0	0	0	0
Af en toe roken is oké als je gezond eet.	0	0	0	0	0
Het is oké om laat naar bed te gaan als je de volgende ochtend langer kan slapen (Alleen het aantal uren telt)	0	0	0	0	0

verder

Dit onderdeel gaat over jouw BEWE	EGGE	DRAG in	het algen	neen.				
De volgende 2 vragen gaan over M/ tuinieren, sporten of beweging op h tenminste even inspannend is als sl	ATIGE let wei tevig d	lichaam rk of op loorloper	sbewegin school. H n of fietse	ig, zoals l et gaat o en	bijvoorbe m alle lie	eld wan chaamsb	delen of t eweging	fietsen die
	0	1	2	3	4	5	6	7
Hoeveel dagen per week in de ZOMER heb je tenminste 30 minuten per dag matige lichaamsbeweging? Het gaat om het gemiddeld aantal dagen van een gewone week.	0	0	0	0	0	0	0	0
Hoeveel dagen per week in de WINTER heb je tenminste 30 minuten per dag matige lichaamsbeweging? Het gaat om het gemiddeld aantal dagen van	0	0	0	0	0	0	O	0
De volgende wagen gaan over INS	DANNI			wasing (duust Isa		an bar	weatt
De volgende vragen gaan over INS raken), waarvan je merkbaar snelk fietsen (> 16 km/h), sporten en an jouw vrije tijd	PANNE er gaat dere in	ENDE licl t ademe nspanner	naamsber n, zoals b nde activi	weging (ijvoorbe iteiten op	duurt lan ald stevig school/	g genoeg g wandel werk, in	g om bez en (> 5 k het huish	weet t km/h) nouder
De volgende vragen gaan over INS raken), waarvan je merkbaar snelk fietsen (> 16 km/h), sporten en an jouw vrije tijd	PANNI er gaat dere in	ENDE lici t ademe nspanner	naamsber n, zoals b nde activi	weging (ijvoorbeo teiten op 3	duurt lan ald stevig school/ 4	g genoeg g wandel werk, in 5	g om bez en (> 5 k het huish	weet t km/h) nouden 7
De volgende vragen gaan over INS raken), waarvan je merkbaar snelle fietsen (> 16 km/h), sporten en an jouw vrije tijd Hoeveel dagen per week beoefen je in je vrije tijd, in de ZOMER inspannende sporten of zware lichamelijke activiteiten die lang genoeg duren om bezweet te raken. Het gaat om inspannende lichaamsbeweging in je vrije tijd die tenminste 20 minuten per keer duurt.	O O	ENDE licl t ademen nspanner 1 0	naam sben n, zoals b nde activi 2 0	weging (i ijvoorbe iteiten op 3 0	duurt lan ald stevij o school/ 4 0	g genoeg g wandel werk, in 5 0	; om bez en (> 5 k het huish 6 0	weet t km/h) houder 7

	Nu volgen een aantal stellingen over bewegen.					
12.	Elke week, vijf dagen minstens 30 minuten matig bewegen is voor mij	goed O	0	0	0	slecht 0
13.	Elke week, vijf dagen minstens 30 minuten matig bewegen is voor mij	prettig O	0	0	0	onprettig O
14.	Elke week, drie dagen minstens 20 minuten intensief bewegen zodat ik bezweet raak is voor mij	goed O	0	0	0	slecht ତ
15.	Elke week, drie dagen minstens 20 minuten intensief bewegen zodat ik bezweet raak is voor mij	prettig O	0	0	0	onprettig 0
16.		helemaal mee	eens	h	elemaal me	ee oneens
	De meeste studenten waar ik mee om ga bewegen regelmatig vijf dagen per week minstens 30 minuten matig	0	0	0	0	0
17.	De meeste studenten waar ik mee om ga bewegen regelmatig drie dagen per week minstens 20 minuten intensief zodat zij bezweet raken	helemaal mee 0	eens O	e h	elemaal mo O	e oneens O

18.	De meeste mensen die belangrijk zijn voor mij verwachten dat ik regelmatig vijf dagen per week minstens 30 minuten matig beweeg	helemaal mee eens 0 0	0	helemaal mee oneens 0 0
19.		helemaal mee eens	_	helemaal mee oneens
	De meeste mensen die belangrijk zijn voor mij verwachten dat ik regelmatig drie dagen per week minstens 20 minuten intensief beweeg zodat ik bezweet raak	0 0	0	0 0
20.	Ik ben ervan overtuigd dat ik vijf dagen per week minstens 30 minuten matig kan bewegen	helemaal mee eens 0 0	0	helemaal mee oneens
21.	Ik ben ervan overtuigd dat ik drie dagen per week minstens 20 minuten intensief kan bewegen zodat ik bezweet raak	helemaal mee eens 0 0	0	helemaal mee oneens 0 0
22.	Vijf dagen per week minstens 30 minuten matig bewegen, is iets dat ik zelf in de hand heb	helemaal mee eens 0 0	0	helemaal mee oneens
23.	Drie dagen per week minstens 20 minuten intensief	helemaal mee eens	0	helemaal me oneens

24.	Ik ben van plan gedurende de komende drie maanden, vijf dagen per week minstens 30 minuten matig te bewegen
25.	Ik ben van plan gedurende de komende drie maanden, drie dagen per week minstens 20 minuten intensief te bewegen zodat ik bezweet raak.
Pagina: 5	(verder)
	De volgende vragen gaan over ROKEN. Met roken bedoelen we tabakconsumptie in de vorm van sigaretten of shag, maar ook marihuana met tabak (een joint). Voor het gemak spreken we steeds van 'roken' of 'sigaretten'. Je kunt bij elke vraag één antwoord kiezen. Probeer zo eerlijk mogelijk te antwoorden. Er zijn geen goede of foute antwoorden De soort antwoordmogelijkheden kan per vraag verschillen. Ook als je niet-roker bent zou ik je vragen om ook jouw mening over roken mee te delen.
26.	Rook je wel eens? * O Ja, dagelijks. O Ja, af en toe. O Nee, helemaal niet.
	Als je niet-roker bent sla de vragen 27-32 over en ga verder met vraag 33!

27.	Hoeveel sigaretten rook je gemiddeld per dag?
	 10 of minder 11-20 21-30 31 of meer
28.	Hoe snel na het ontwaken steek je de eerste sigaret op?
	© Binnen 5 minuten © 6-30 minuten © 3-60 minuten © Na 60 minuten
29.	Vind je het moeilijk om niet te roken op plaatsen waar het verboden is? (bijv. bioscoop, bibliotheek, kerk, school, ziekenhuis)
	O Ja O Nee
30.	Welke sigaret zou je het moeilijkst op kunnen geven?
	⊖ de eerste 's morgens ⊖ een andere
31.	Rook je in de eerste uren na het opstaan meer per uur, dan gedurende de rest van de dag?
	O Ja O Nee
32.	Rook je als je ziek bent en het grootste deel van de dag in bed ligt?
	O Ja O Nee

	De volgende vragen gaan over NIET roken: al stoppen met roken. En als je al gestopt bent, we steeds van "BLIJVEND NIET ROKEN".	s je nu rookt, r dat je dat pern	noet je dus nanent zult	voorstelle blijven. Vo	n dat je de or het ger	efinitief zou mak spreken
33.		goed				slecht
	In het algemeen is blijvend niet roken voor mij:	0	0	0	0	0
34.	In het algemeen is blijvend niet roken voor mij:	prettig 0	0	0	0	onprettig 0
35.	Stimuleren mensen in je omgeving je om blij veel gemiddeld weinig nee niet van toepassing	vend niet te ro	ken? [*]			
36.	Hoeveel van de mensen in je omgeving zijn r (bijna) allemaal rokers meer dan de helft rokers ongeveer evenveel rokers als niet-rokers minder dan de helft rokers (bijna) geen rokers	okers? *				

ThesisTools - Student&Onderzoek, maak & 37. tie die zich kan voordoen? (Ook invullen als je ^Lverspreid gratis de online enquete voor je hscriptie je zou stoppen met roken.) o zeker wel 🖯 waarschijnlijk wel neutraal/ weet niet 🕘 waarschijnlijk niet o zeker niet 38. Ben je van plan om blijvend niet te roken? 🖯 zeker wel 🖯 waarschijnlijk wel neutraal/ weet niet 🖯 waarschijnlijk niet 🖯 zeker niet verder Pagina: 6

Dit onderdeel gaat over jouw SLAAPGEWOONTEN gedurende de laatste 4 weken.

39.

Hoe lang duurde het meestal voor je in slaap viel gedurende de afgelopen 4 weken?

- 🖯 0-15 minuten
- 16-30 minuten
 31-45 minuten
- 0 46-60 minuten ₀ meer dan 60 minuten

40.

Hoeveel uur sliep je gemiddeld per nacht de afgelopen 4 weken? Vul het aantal uren per nacht in (schat) *

41.

De volgende vragen houden zich met uw slaapkwaliteit bezig.

Hoe vaak gedurende de afgelopen 4 weken...

	Altijd	Meestal	Vaak	Soms	Zelden	Nooit
Had je het gevoel dat je niet rustig sliep (woelen, gespannen voelen, praten etc. terwijl je sliep)?	0	0	0	0	0	0
Kreeg je genoeg slaap om 's morgens uitgerust wakker te worden?	0	0	0	0	0	0
Werd je kortademig of met hoofdpijn wakker?	0	0	0	0	0	0
Voelde je je overdag suf of slaperig?	0	0	0	0	0	0
Had je moeite met inslapen?	0	0	0	0	0	0
Werd je midden in je slap wakker en had je moeite om weer in slap te vallen?	0	0	0	0	0	0
Had je moeite om overdag wakker te blijven?	0	0	0	0	0	0
Snurkte je tijdens je slaap?	0	0	0	0	0	0
Deed je overdag dutjes (van 5 minuter of langer)?	0	0	0	0	0	0
Kreeg je zoveel slaap als u nodig had?	0	0	0	0	0	0

42.	Elke nacht tussen de 7 en 9 uur slapen zou voor mij	goed zijn O	0	0	0	slecht zijn O
43.	Elke nacht tussen de 7 en 9 uur slapen zou voor mij	prettig zijn O	0	O	0	nprettig zijn O
44.	Elke dag rustig en zonder onderbrekingen slapen zou voor mij	goed zijn O	0	0	0	slecht zijn O
45.	Elke dag rustig en zonder onderbrekingen slapen zou voor mij	prettig zijn O	0	0	0 0	nprettig zijn O
46.	De meeste mensen die belangrijk voor mij zijn, vinden dat ik elke nacht voldoende uren zou moeten slapen.	helemaal mee O	eens 0	0	helemaal 0	mee oneens O

Nu volgen een aantal stellingen over de kwantiteit en kwaliteit van slapen. Bij de kwantiteit van slapen wordt vaak aangehouden dat een volwassene iedere nacht tussen de 7 en 9 uur slaap dient te krijgen. Bij optimale kwaliteit van de slaap gaat het erom dat iemand rustig en zonder onderbrekingen slaapt.

47.	De meeste mensen die belangrijk voor mij zijn, vinden dat ik elke nacht rustig en zonder onderbrekingen zou moeten slapen.	helemaal mee eens 0 0	0	helemaal mee oneens
48.	De meeste studenten krijgen elke nacht voldoende uren slaap	helemaal mee eens 0 0	0	helemaal mee oneens O O
49.	De meeste studenten slapen elke nacht rustig en zonder onderbrekingen	helemaal mee eens 0 0	0	helemaal mee oneens
50.	Ik ben ervan overtuigd dat ik elke nacht tussen de 7 en 9 uur slaap kan krijgen	helemaal mee eens 0 0	0	helemaal mee onees
51.	Ik ben ervan overtuigd dat ik elke nacht rustig en zonder onderbrekingen kan slapen	helemaal mee eens 0 0	0	helemaal mee oneens 0 0
52.	Het krijgen van voldoende en goede slaap heb ik zelf in de hand	helemaal mee eens 0 0	0	helemaal mee oneens 0 0

Alle Lesez	<mark>eichen einblenden</mark> at over het ETEN van Groente	e en Fruit.				
53.	Hoeveel uur geleden heb je je laatste maaltij maak uw keuze 🛊	id gehad?				
54.	Hoeveel uur geleden heb je je laatste tussend enkel broodje) (maak uw keuze 🛊)	doortje gehad? (D	enk aan	een reep, k	oek, fruit	t, kroketje,
55.	Hoeveel honger heb je?	veel honger O	0	0	0	geen honger O
56.	Heb je zin in eten?	Veel zin O	0	O	0	Geen zin O
57.	Heb je een vol gevoel van eten?	Heel vol	0	0	0	Niet vol O

58.	Groenteconsumptie						
		1 2	3	4	5	6	7
	Hoeveel dagen per week eet je groenten (inclusief rauwkostsalades en groenten op brood)?	0 0	0	0	0	0	0
	Hoeveel opscheplepels eet je gemiddeld op een dag dat je groenten eet? (Een opscheplepel is ongeveer 50 gram)	0 0	0	0	0	0	0
59.	Fruitconsumptie						
		1 2	3	4	5	6	7
	hoeveel dagen per week eet je fruit (inclusief ongezoet vruchtensap en appelmoes)?	0 0	0	0	0	0	0
	Hoeveel stuks fruit eet je gemiddeld op een dag dat je fruit eet? (1 stuk fruit is bijvoorbeeld een middelgrote appel of 2 mandarijntjes. Bij klein fruit, zoals kersen, kun je een handje vol voor 1 stuk tellen)	0 0	0	σ	0	O	O
60.	Elke dag tenminste 200 gram groente en eten zou voor mij	2 stuks fruit	Goed zijn	0	0	0	Slecht zijn 0
61.	Elke dag tenminste 200 gram groente en eten zou voor mij	2 stuks fruit	prettig zijn 0	0	0	0	onprettig zijn O
	Nu volgen een aantal stellingen ove	er het eten va	an voldoende	aroente er	n fruit. Dit	is vastoe	steld op

minimaal 200 gram groente en 2 stuks fruit per dag.

	Helemaal	mee eens		He	lemaal mee
De meeste mensen die belangrijk voor mij zijn vinden dat ik elke dag voldoende groenten en fruit zou moeten eten.	0	0	0	0	0
De meeste studenten eten elke dag voldoende groente en fruit.	0	0	0	0	0
Ik ben er van overtuigd dat ik dagelijks 200 gram groenten en 2 stuks fruit te eten.	0	0	0	0	0
Het eten van voldoende groente en fruit heb ik zelf in de hand.	0	0	0	0	0
Ik ben van plan om de komende drie maanden tenminste 200 gram groenten per dag te eten.	0	0	0	0	0
Ik ben van plan om de komende drie maanden tenminste 2 stuks fruit per dag te eten.	n	n	n	0	n

verder

	Hieronder volgen vragen over je persoonlijkheid daarvoor angegeven dimensies.	. Probeer je zo goed mog	elijk in t	e schatten in de
63.	Schat jezelf in op deze schaal:			
	Sommige mensen zijn extravert en enthousiast, terwijl andere mensen juist terughoudend en stil zijn.	extravert, enthousiast	0	terughoudend, stil
64.	Schat jezelf in op deze schaal:			
	Sommige mensen zijn kritisch en ruzieachtig, terwijl andere mensen juist sympathiek en warm zijn.	kritisch, ruzieachtig 0 0 0	0	sympathiek, warm 0 0 0
65.	Schat jezelf in op deze schaal:			
	Sommige mensen zijn betrouwbaar en gedisciplineerd, terwijl andere mensen juist ongeorganiseerd en nonchalant zijn.	betrouwbaar, gedisciplineerd 0 0 0	0	ongeorganiseerd, noncharlant 0 0 0
66.	Schat jezelf in op deze schaal:			
	Sommige mensen zijn bezorgd en gemakkelijk overstuur, terwijl andere mensen juist kalm en emotioneel stabiel zijn.	bezorgd, gemakkelijk overstuur 0 0 0	0	kalm, emotioneel stabiel O O O

67.	Schat jezelf in op deze schaal:

	reflectief, geinteresseerd in kunst				pragmatisch, conventioneel			
Sommige mensen zijn reflectief en geïnteresseerd in kunst, terwijl andere mensen juist pragmatisch en conventioneel zijn.	0	0	0	0	0	0	0	

68.

Geef aan welk antwoord het beste bij jou past.

	Helemaal mee oneens/ Klopt helemaal niet	Beetje mee oneens/ Klopt niet	Beetje mee eens/ Klopt wel	Helemaal mee eens/ Klopt helemaal
Ik ben tevreden.	0	0	0	0
Ik denk vaak niet goed na, voordat ik iets zeg.	0	0	0	0
Ik zou graag parachutespringen.	0	0	0	0
Ik ben gelukkig.	0	0	0	0
Ik begeef mij vaak in situaties waar ik later spijt van heb.	0	0	0	0
Ik geniet van nieuwe en spannende ervaringen, zelfs als deze ongewoon zijn.	0	0	0	0
Ik heb er vertrouwen in dat mijn toekomst veelbelovend is.	0	0	0	0
Het is beangstigend om je duizelig of flauw (slap) te voelen.	0	0	0	0
Ik houd ervan dingen te doen die me een beetje beangstigen.	0	0	0	0
Het maakt me bang als ik mijn hartslag voel veranderen.	0	0	0	0
Normaal gesproken doe ik iets zonder eerst na te denken.	0	0	0	0
Ik wil graag leren hoe ik motor moet rijden.	0	0	0	0
Ik ben trots op mijn prestaties.	0	0	0	0

Ik word bang als ik zenuwachtig ben.	0	0	0	0
Over het algemeen ben ik een impulsief persoon.	0	0	0	0
Ik ben geïnteresseerd in ervaringen, puur om de ervaring zelf, ook als het illegaal is.	0	0	0	0
Ik heb het gevoel dat ik een mislukkeling ben.	0	0	0	0
Ik word bang wanneer ik iets raars aan/in mijn lichaam voel.	0	0	0	0
Het lijkt me leuk lange afstanden te wandelen op ruig en onbewoond terrein.	0	0	0	0
Ik voel me prettig.	0	0	0	0
Het maakt me bang wanneer ik me niet op een taak kan richten.	0	0	0	0
Ik heb het gevoel dat ik anderen moet manipuleren (bespelen) om te krijgen wat ik wil.	0	0	0	0
Ik ben erg enthousiast over mijn toekomst.	0	0	0	0

verder

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69.	Geef hier je Sona nummer aan als je je via Sona- Systems hebt ingeschreven! Zonder nummer kunnen we je geen 1/2 credit geven!
	(vrageslijst afronden)

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Bedankt voor je deelname aan het onderzoek!