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Adaptation of a Polish version of the National Youth Tobacco Survey Questionnaire. A pilot study

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ABSTRACT

Introduction. In today's world, tobacco is the most common cause of morbidity and mortality and is associated with unhealthy behavior. Poland is among the countries with high rates of smoking, and occurrence of tobacco related diseases. Tobacco use by children and adolescents is a serious public health problem because of the immediate and long-lasting harmful effects on health. A large group of current smokers begin smoking during youth. The goal of the work was to culturally and linguistically adapt, and test and pre-evaluate a Polish version of the National Youth Tobacco Survey (NYTS), which identifies and monitors trends in tobacco use among young people.

Materials and methods. The test was administered by a test-retest method in 2015 with participation of 47 (25 girls and 22 boys) people aged 17–18. Respondents filled out the questionnaire twice within two weeks. The compliance percentage of individual test items and correlations between individual items in repeated measurements were evaluated.

Results. More than seventy percent have reliability ratios at very high or high levels with twenty five percent at moderate levels.

Conclusion. The tested Polish version of the NYTS questionnaire may be used in adolescent studies.

Keywords. validation study, smoking questionnaire, tobacco, youth, attitude

Introduction

In the modern globalized world, the most common reason for the occurrence of sickness and death of an otherwise healthy human being is tobacco usage. It can be directly avoided by quitting the use of any kind of tobacco product, yet this seems to be not so easy. The World Health Organization (WHO) estimates that over 1 billion people are using cigarettes world-wide, and 5 million deaths each year are registered due to the smoking habit.[1] If current trends continue, the number of deaths due to

tobacco use will rise up to 10 million every year, according to the WHO.[2] The region of the European Union reports epidemiological data indicating that sicknesses caused by tobacco are responsible for 650 thousands deaths per year among Europeans, whereas Poland accounts for 100 thousand of these deaths every year. It is important to emphasize that Poland is among 14 countries that host half of all smoking people living in the world. A high rate of smoking, along with Poland, are the nations of Bangladesh, Brasil, China, Egypt, India, Mexico, Philippines,

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Russia, Thailand, Turkey, Ukraine, Uruguay, and Vietnam. These countries suffer high health and economic consequences in direct connection with the unhealthy behavior of using tobacco.[3]

Multicenter, nationwide Poles Health Condition Examinations (WOBASZ) administered during the years 2003–2005 demonstrated that 42% men and 25% women smoked tobacco on a regular basis, yet significant inter-regional differences in this area were observed. The highest number among men was observed in the Podlaskie and Malopolskie regions (42% and 34%), and the lowest in the Podkarpackie region (14%). The average number of cigarettes smoked per day was high as well as among men and women (18 and 14 cigarettes).[4]

Research carried out among Polish children and teenagers showed a significant percentage of tobacco users are in puberty. The cyclical study, Health Behavior in School-aged Children (HBSC), showed a growth of tobacco smoking among Polish teenagers in the last decade of the 20th century. Since the beginning of the 1990's, the percentage of smoking among 13 years old girls increased from 3% to 10% and in 15 year old girls from 16% to 28%.[5] This trend was observed to slow down in the following years and the percentage of smoking 15 years old girls went down to 20%.[6,7] The results were also confirmed by the Global Youth Tobacco Survey (GYTS) taken among middle school students (aged 13–15) in Poland in the years 1999, 2003, and 2009.[8] These statistics reaffirm that smoking is one of the most urgent problems of public health.

Tobacco use among children and teenagers is a serious problem of public health considering the immediate and long-lasting harmful health consequences such as a higher risk of asthma, cardiovascular diseases, chronic cough, chronic obstructive airway disease (COPD), and cancer. Numerous studies have demonstrated a meaningful higher risk of developing the above mentioned diseases later in the life of smoking adolescents as compared to their non- smoking peers.[9–12] Using tobacco during one's early years has an impact on physical development, and may lead to mood disorders.[13] WHO data shows that vast majority of smokers start to use tobacco before entering adulthood. Almost a quarter of all smoking teenagers in the world had their first cigarette before reaching an age of 10 years.[2] Young people using tobacco are more vulnerable to use of other psychoactive substances such as alcohol and drugs, and exposed to more risky behavior when compared to their peers.[14] Source literature points out that the chances of successfully quitting among those who started to smoke before turning 16 years old where half as good as those who started later in life.[15]

Exposing children and teenagers to passive tobacco smoke by adults (parents, caregivers, etc.) is another serious public health problem. This so-called passive smoking can cause sicknesses like pneumonia, bronchitis, cough and breathing problems, asthma, otitis and a higher risk of neurobehavioral disorders as well as circulatory diseases later in the life. Numerous studies show that smoking parents or close caregivers increase the risk of tobacco using by the children in the future.[12,16]

In order to design activities necessary for prevention of smoking among children and teenagers, facilitators that cause one to start smoking, resulting in regular usage of tobacco products, should be identified first. Many of the facilitators have been already identified. However, taking into consideration fast changes in modern life, which continually offers new stimuli, products and trends, there is a great need for a dynamic diagnosis of the predictive factors influencing the beginning of tobacco product use and later regular smoking by teenagers.

The American National Youth Tobacco Survey (NYTS) questionnaire was designed to identify and to monitor trends concerning exposure to the use of tobacco by teenagers. Studies pursued with the NYTS deliver information on tobacco usage predictive factors, monitor usage in different products, and results are being used for design and application of practical preventive programs for teenagers according to the regulations of the Healthy People 2020 strategy.

The first study to use the NYTS questionnaire was in the USA in 1999, subsequently followed in 2000, 2002, 2004, 2006, 2009, and 2011. After 2011, the test has been administered every year. Areas that are analyzed in the survey are concerned with the spreading usage of tobacco products by the teenagers, knowledge and attitude towards smoking tobacco, anti and pro-smoking activity exposure (e.g. companies producing tobacco products), adolescent access to tobacco products, and nicotine addiction.[17]

Aim of the study

Aim of this study was to culturally and linguistically adapt and pre-evaluate a Polish version of the National Youth Tobacco Survey (NYTS) questionnaire.

Material and methods

The NYTS questionnaire consists of an introduction and a main section containing questions about tobacco. The introduction explains the purpose of the study, ensures that the respondent's overall anonymity is maintained and that the study could be discontinued at any time without any consequences. The main part of the questionnaire consists of an instruction section and an American version of 81 questions.

The questionnaire for respondents consists of the following sections:
1. Socio-demographic data
2. Smoking cigarettes
3. Smoking cigars
4. Using snuff
5. Using a tobacco pipe
6. Use of other tobacco products

7. Addiction to tobacco
8. Exposure to pro-tobacco activities
9. Tobacco warning labels
10. Cessation of smoking and use of other tobacco products (smoking cessation)
11. Attitudes towards the use of tobacco products
12. Home environment and tobacco

The questionnaire contains two test item formats: question or statement. The measurement scales on which the respondent can respond to on the individual test items in the following sections are categorical scales and are divided into nominal, ordinal and Likert's scale of responses. So the questionnaire consists of both scales with a metric response and nonmetric measures.

The questionnaire is most often used for research in the group of adolescents of an age that corresponds to the level of last classes in primary and secondary schools in Poland. The study is conducted with use of the auditing questionnaire. Respondents complete the questionnaire in paper form in the presence of the researcher. The entire procedure, including handing out the instructions and collecting questionnaires at completion, takes about 45 minutes. The NYTS version of the survey from 2012 (approved and used by the American Academy of Pediatrics AAP), was used. The owners have given permission to use this questionnaire to conduct the survey. At this stage, there was no request for approval made to the Bioethics Committee, because they were small-scale surveys, and did not constitute medical research (eg controlled clinical trials for the diagnosis, treatment of diseases or physiological, biochemical and pathological processes in the human body). Currently, the Bioethics Committee is proceeding on approval of subsequent studies for a wider group of respondents.

Work on the cultural adaptation of the questionnaire began with the translation of the original US version of NYTS 2012 in accordance with international recommendations for the adaptation of tests and questionnaires.[18] First, two independent translators translated the original English questionnaire into a target language (foreword translation). Initially, the transcription method was used for this purpose, which is characterized by a maximum accuracy of translation, with identical graphic form, question form and content. The planned intercultural comparisons of the results of the study were discussed. However, after a preliminary study (n = 14), a translation method was chosen, which is characterized by the maximum accuracy of the translation, but allows modifications in cases where the literal translation is incomprehensible.[19] This decision was made due to problems with understanding the questions reported by the respondents during the preliminary research. However, the original form of the questionnaire and question formats were retained in their entirety. The next step was to back-translate the Polish version into English and compare it with the American version of the survey. During the translation, questions about racial and ethnic origin were removed from the first section, «Socio-demographic data,» because of the different structures of American and Polish societies in this respect. Unlike American society, Polish society is not multicultural and multiethnic, so there is no need to address questions in this regard. Thus, the Polish version of the questionnaire eventually contained 79 entries.

Proper pilot studies were conducted in October and November 2015 in the Wroclaw district. They were made in an adolescent group aged 17–18 (n = 60) including 36 girls and 24 boys. Respondents were secondary and high school students. The final analysis included 47 complete first and second measurement questionnaires. The study was conducted by the auditor questionnaire, which was completed by the respondents for up to 45 minutes. In the case of a preliminary assessment of the questionnaire, a study group of between 30–40 persons is recommended.[18]

The reliability of the questionnaire was measured using the retest method where a two-week gap was used between the first and second (repeated) measurement. The decision on interval time between studies in the same group was made on the basis of recommendations of methodologists on the nature of the studied concepts and literature of the subject.[20] The percentage compliance of the questions in the first and second measurements was assessed using the following compatibility criteria: excellent (90% – 100%), good (75% – 89%), medium (60%-74%), poor (<60%). Correlations between the individual test positions in the repeated measurements were then analyzed. Depending on the measurement scale, rhoSpearman which takes values from -1 to + 1 (> 0.4 medium, > 0.7 very good, > 0.9 excellent) , tau b- Kendala, which is from -1 to +1, kappa Cohna from -1 to 1 (> 0.41 medium, > 0.61 good, > 0.81 very good, 1.0 excellent) were used. A significance of correlation was assumed at $p \leq 0.05$. The internal consistency using Cronbach's alpha was estimated (for scales where it was possible), which takes values from 0 to 1. It is believed that a value above 0.7 represents the correct scale accuracy.[21–23] Data was analyzed using the IBM SPSS version 23.

Results

The first questionnaire was completed by 60 respondents comprized of 36 girls and 24 boys of age 17–18. 53 respondents (91%) fully completed the questionnaire. 52 people completing the first assessment also completed the second one. Only those who fully completed first and second survey were included the evaluation of the NYTS questionnaire. There were 47 (× 2) fully completed questionnaires submitted by 25 (53.2%) women and 22 (46.8%) men. The average age of this group was 17.23 (SD = 0.428) years old with a median of 17 years old.

Within the group of respondents, 10 people (23.3%) have smoked more than 100 cigarettes. Basing on the literature, this amount is considered to qualify them as a group

Table 1. Agreement (per questionnaire item) between questionnaires (test-retest reliability) as indicated by intraclass correlation and percentage agreement (agree) in the 'Smoking cigaretes section'

Section: Smoking cigarettes	Percentage agreement % (n)	rho Spearman r	tau b- Kendala Tb	Kappa Cohena	p
1 – Item 5	85 (40)	0.954			< .0001
2 – Item 6	93 (44)	0.838			< .0001
3 – Item 7	83 (39)	0.861			< .0001
4 – Item 8	80 (38)	0.914			< .0001
5 – Item 9	80 (38)	0.843			< .0001
6 – Item 10	76 (36)	0.984			< .0001
7 – Item 11	85 (40)		0.959		< .0001
8 – Item 12	91 (43)		0.993		< .0001
9 – Item 13	89 (42)		0.965		<,0001
10 – Item 14	78 (37)		0.961		< .0001
11 – Item 15	62 (29)			0.680	= 0.301
12 – Item 16	91 (42)			0.810	0.000
13 – Item 17	85 (40)			0.722	0.000
14 – Item 18	91 (43)			0.784	0.000
15 – Item 19	89 (42)			0.744	0.000
16 – Item 20	89 (42)			0.677	0.000

in high risk of smoking tobacco in future. Thus, 23.3% of respondents are qualified. The rest of the examined respondents have either never smoked before (n = 11) or they have smoked up to 20 cigarettes (n = 24) or they have smoked more than 20 but less than 100 cigarettes (n = 2).[24]

The reliability of the questionnaire was analyzed by percentage agreement by a test re-test method and correlation coefficients of the individual item level. Tables 1–11 present test results.

Table 1 presents percentage agreement, correlations and significance regarding smoking cigarettes. This section shows sixteen positions, consisting of six in the Likert scale, six in nominal scale and four in the ordinal scale. Four positions characterized a very good percentage agreement (90% – 100%), eleven positions good (75% – 89%), one medium (60% – 74%). Correlations between repeated measurements are characterized by high indicators from Tb = 0.993 do Kappa = 0.677. All correlations (excluding no.11 p = 0.301) are under the assumed statistical significance level p ≤ 0.05.

Table 2 presents percentage agreements, correlations and significance regarding smoking cigars. Two positions show very good percentage compatibility (89% – 100%), four show good percentage compatibility (75% – 89%). Correlations between repeated measurements are characterized by medium high indicators from a r = 0.904 do Kappa = 0.465. All correlations are under the assumed statistical significance level of p ≤ 0.05.

Table 3 presents percentage agreement, correlations and significance regarding using snuff. This section shows six positions, consisting of three in the Likert scale, one in the nominal scale and three in the ordinal scale. Four positions are characterized by a very good percentage agreement (90% – 100%), two positions good (75% –89%). Correlations between repeated measurements are characterized by excellent indicators and very good from Kappa = 1 to r = 0.672. One position shows (4) significance over that assumed at p ≤ 0.05 (p = 0.312) but with high percentage agreement.

Table 4 presents percentage agreement, correlations and significance regarding the use of tobacco pipes. Sec-

Table 2. Agreement (per questionnaire item) between questionnaires (test-retest reliability) as indicated by intraclass correlation and percentage agreement (agree) in 'Smoking cigars section'

Section: Smoking cigars	Percentage agreement % (n)	rho Spearman r	Tau b- Kendala Tb	Kappa Cohena	p
1- Item 21	78 (37)	0.904			< .0001
2 - Item 22	93 (44)	0.741			< .0001
3 - Item 23	85 (40)	0.992			< .0001
4 - Item 24	91 (43)		0.693		= 0.024
5 - Item 25	80 (38)			0.465	0.000
6 - Item 26	80 (38)			0.579	0.000

Table 3. Agreement (per questionnaire item) between questionnaires (test-retest reliability) as indicated by intraclass correlation and percentage agreement (agree) in the 'Using snuff section'

Section: Using snuff	Percentage agreement % (n)	rho Spearmana r	tau b- Kendala Tb	Kappa Cohena	p
1 - Item 27	89 (42)	0.911			< .0001
2 - Item 28	93 (44)	0.672			< .0001
3 - Item 29	83 (39)	0.799			< .0001
4 - Item 30	96 (45)		0.680		= 0.312
5 - Item 31	100 (47)			1	0.000
6 - Item 32	100 (47)			1	0.000

Table 4. Agreement (per questionnaire item) between questionnaires (test-retest reliability) as indicated by intraclass correlation and percentage agreement (agree) in the 'A pipe with tobacco section'

Section: A pipe with tobacco	Percentage agreement % (n)	rho Spearman r	tau b- Kendala Tb	p
1 - Item 33	85 (40)	0.637		< .0001
2 - Item 34	89 (42)		0.817	= 0.023

Table 5. Agreement (per questionnaire item) between questionnaires (test-retest reliability) as indicated by intraclass correlation and percentage agreement (agree) in the 'Other tobacco products section'

Section: Other tobacco products	Percentage agreement % (n)	Kappa Cohena	p
1 – Item 35	61 (28)	0.620	= 0.204
2 – Item 36	59 (27)	0.51	0.000
3 – Item 37	62 (29)	0.478	0.000
4 – Item 38	76 (36)	0.742	0.000

Table 6. Agreement (per questionnaire item) between questionnaires (test-retest reliability) as indicated by intraclass correlation and percentage agreement (agree) in the 'Addiction to tobacco section'

Section: Addiction to tobacco	Percentage agreement % (n)	rho Spearman r	tau b- Kendala Tb	p
1 – Item 39	91 (43)	0.787		< .0001
2 – Item 40	93 (44)	0.775		< .0001
3 – Item 41	87 (41)		0.972	< .0001
4 – Item 42	83 (39)		0.857	< .0001

tion shows two test positions: one in the Likert scale, one in the nominal scale. Both positions show good percentage compatibility (75% – 89%). Correlations between repeated measurements are characterized by high indicators from r = 0.637 to Tb= 0.817 levels. All correlations are under the assumed statistical significance level of p ≤ 0.05 (one position is p < 0.0001 and the next p = 0.023).

Table 5 presents percentage agreement, correlations and significance regarding other tobacco products. This Section shows four test positions, all are in the nominal scale. One position shows good percentage agreement (75% – 89%), two positions show medium (60% – 74%), with one poor (< 60%). Correlations between repeated measurements are characterized by good indicators from a kappa = 0.478 to kappa = 0.742 levels. All correlations (excluding no. 1) are under the assumed statistical significance level of p ≤ 0.05.

Table 6 presents percentage agreement, correlations and significance regarding addiction to tobacco. This section shows four test positions, 4 in the Likert scale, the rest in the ordinal scale. Both positions show very good percentage agreement (90% – 100%), next good one (75% -89%). Correlations between repeated measurements are characterized by high indicators from r = 0.775 to Tb = 0.972 levels. All correlations are under the assumed statistical significance level of p ≤ 0.05.

Table 7 presents percentage agreement, correlations and significance regarding exposition to tobacco products. The section shows nine test positions, consisting of six in the ordinal scale and three in the nominal scale. One position has a very good percentage compatibility (90% – 100%), three positions have a good compatibility (75% – 89%), four have moderate (60% – 74%) and one has weak (< 60%). Correlations between repeated measurements are characterized by medium and high indicators from

Table 7. Agreement (per questionnaire item) between questionnaires (test-retest reliability) as indicated by intraclass correlation and percentage agreement (agree) in the 'Exposure on tobacco section'

Section: Exposure on tobacco	Percentage agreement % (n)	tau b- Kendala Tb	Kappa Cohena	p
1 – Item 43	83 (39)	0.524		< .0001
2 - Item 44	64 (30)	0.750		< .0001
3 - Item 45	62 (29)	0.566		< .0001
4 - Item 46	83 (39)		0.493	0.000
5 - Item 47	93 (44)		0.478	0.000
6 - Item 48	74 (35)	0.877		< .0001
7 - Item 49	53 (25)	0.530		< .0001
8 - Item 50	64 (30)	0.669		< .0001
9 - Item 51	83 (39)		0.725	0.000

Table 8. Agreement (per questionnaire item) between questionnaires (test-retest reliability) as indicated by intraclass correlation and percentage agreement (agree) in the 'Warning label section'

Section: Warning label	Percentage agreement % (n)	tau b- Kendala Tb	p
1 – Item 52	83 (39)	0.903	< .0001
2 - Item 53	68 (32)	0.804	< .0001
3 - Item 54	80 (38)	0.919	< .0001
4 - Item 55	87 (41)	0.830	< .0001

Table 9. Agreement (per questionnaire item) between questionnaires (test-retest reliability) as indicated by intraclass correlation and percentage agreement (agree) in the 'Smoking cessation section'

Section: Smoking cessation	Percentage agreement % (n)	tau b- Kendala Tb	p
1 - Item 56	83 (39)	0.958	< .0001
2 - Item 57	87 (41)	0.969	< .0001
3 - Item 58	93 (44)	0.985	< .0001
4 - Item 59	87 (41)	0.958	< .0001
5 - Item 60	96 (45)	0.989	< .0001
6 - Item 61	96 (45)	0.998	< .0001

a Kappa = 0.478 to Tb = 0.877 levels. All correlations are under the assumed statistical significance level p ≤ 0.05.

Table 8 presents percentage agreement, correlations and significance regarding warning labels on tobacco products. All questions are evaluated on a nominal scale. Three positions show good percentage compatibility (75% – 89%), one shows moderate (60% – 74%). All correlations between repeated measurements are characterized by very high indicators from a Tb = 0.804 to Tb = 0.919. All correlations are under the assumed statistical significance level of p ≤ 0.05.

Table 9 presents percentage agreement, correlations and significance regarding quitting smoking. The section shows six questions, all in the ordinal scale. Three positions show very good percentage compatibility (90% – 100%), the remaining three show good (75% – 89%). Correlations between repeated measurements are characterized by high indicators from a Tb = 0.958 to Tb = 0.998 levels. All correlations are under the assumed statistical significance level of p ≤ 0.05.

Table 10 presents percentage agreement, correlations and significance regarding attitude towards smoking. Section shows sixteen test positions, 10 in the Likert scale, 4 in the ordinal scale, 2 in the nominal scale. One position shows very good percentage compatibility (90% –100%), three show good (75% – 89%), eleven show moderate (60% – 74%) and one shows weak (< 60%). Correlations between repeated measurements are characterized by high indicators from a Kappa = 0.548 to r = 0.998 levels. All correlations are under the assumed statistical significance level of p ≤ 0.05.

Table 11 presents an analysis of percentage agreement, correlations and significance in the section household and smoking. This section consists of two questions in a nominal scale. First position is characterized by a very good percentage compatibility (90% – 100%), the other one has good compatibility (75% – 89%). Correlations between repeated measurements are characterized by a high indicator kappa = 0.931 in the first case, and kappa

Table 10. Agreement (per questionnaire item) between questionnaires (test-retest reliability) as indicated by intraclass correlation and percentage agreement (agree) in the 'Attitude and susceptibility to smoking section'

Section: Attitude and susceptibility to smoking	Percentage agreement % (n)	rho Spearmana r	tau b– Kendala Tb	Kappa Cohena	p
1 – Item 62	72 (34)	0.758			< .0001
2 – Item 63	68 (32)	0.793			< .0001
3 – Item 64	66 (31)		0.863		< .0001
4 – Item 65	72 (34)	0.770			< .0001
5 – Item 66	68 (32)	0.689			< .0001
6 – Item 67	91 (43)	0.998			< .0001
7 – Item 68	83 (39)			0.747	0.000
8 – Item 69	66 (31)	0.760			< .0001
9 – Item 70	70 (33)	0.760			< .0001
10 – Item 71	72 (34)	0.828			< .0001
11 – Item 72	72 (34)		0.751		< .0001
12 – Item 73	76 (36)	0.803			< .0001
13 – Item 74	66 (31)		0.866		< .0001
14 – Item 75	47 (22)		0.720		< .0001
15 – Item 76	87 (41)			0.548	0.000
16 – Item 77	70 (30)	0.778			< .0001

Table 11. Agreement (per questionnaire item) between questionnaires (test-retest reliability) as indicated by intraclass correlation and percentage agreement (agree) in the 'Home environment and tobacco section'

Section: Home environment and tobacco	Percentage agreement % (n)	Kappa Cohena	p
1 – Item 78	96 (45)	0.931	0.000
2 – Item 79	78 (37)	0.529	0.000

Table 12. Internal consistency (Cronbach's alpha) of the subscales (n = 47) for smoking susceptibility, attitudes toward smoking, and media messages about smoking

Subscales	Positions number	α Cronbacha	p
Trying tobacco in various form	7	0.801	< 0.0001
Susceptibility to tobacco use	7	0.859	< 0.0001
Opinion on tobacco	9	0.850	< 0.0001
Awareness of danger connected with tobacco use	5	0.708	< 0.0001
Exposition to pro- and anti-smoking initiatives	7	0.732	< 0.0001

= 0.529 in the other. Both correlations are relevant statistically at the taken criteria of p ≤ 0.05.

Additionally, an analysis of structures of internal thematic groups, which consisted of questions with the same measurement scale was performed.

The analysis of two answer question groups showed that they fathom one thematic field which has been called "Trying tobacco in various forms". In the questionnaire, the field is represented by seven questions: 6, 22, 28, 39, 40, 76, and 79 (Table 14). Another group of questions with a metric scale of answers consists of sixteen questions on a four point scale. These questions

form two thematic fields (7 and 9 questions respectively) called "susceptibility to tobacco use" and "opinion on tobacco." The next group of 5 questions with metric scales of five point answers, create another thematic group called "Awareness of danger connected with tobacco use." Another group consists of seven questions with a six point scale answers and create a group called "exposition to pro- and anti-smoking initiatives." The rest of the questions did not create any other consistent thematic groups which would be connected with the type of measurement scale (Table 12).

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Discussion

Due to the ever-increasing use of tobacco by children and young people in both developed and developing countries, we have a serious problem in public health: not only pediatric diseases but rather an epidemic in pediatrics. Health Behaviour in School-aged Children (HBSC) has been introduced in European countries. The program also monitors tobacco prevalence. In the USA, the NYTS study has been conducted since the late 1990s. The Tobacco FreeInitiative (TFI) is run by the Global Tobacco Survey (GYTS).[25] So it would appear that we have a lot of tools and data for comparative analysis, drawing conclusions and planning effective interventions yet that is not the case. Important comparisons between countries and continents are difficult due to the different methodology of the individual studies, and despite the language adaptations of some tools, in many situations, they lack their own versions that need to undergo a full linguistic adaptation process. This problem was reported by the authors of the Chinese version of the GYTS, who noted that despite the translation of English into French, Arabic and Spanish, they lack cultural adaptation in the countries where they use the language.[26] However, it is noticed that most of the questionnaires use similar statements or questions in the study of tobacco prevalence, attitudes, exposure to passive smoking, and marketing susceptibility by children and adolescents. The construction of the GYTS questionnaire is quite similar to the NYTS and perhaps the NYTS questionnaire was the basis of its construction. What differentiates these tools is the range of age groups to which they are addressed. The NYTS survey examines children and adolescents from 9 to 19 years of age, and the GYTS is in the 13–15 age range. The number of test items is also different. The NYTS questionnaire is 81 items and the GYTS 56.[17,27] Also, the coverage of the NYTS area is considerably higher than the GYTS. Because no cultural adaptation of NYTS was found, the results of this initial Polish adaptation to cultural adaptations of very similar questionnaires including GYTS were reported. By analyzing the literature on the adaptation of this type of research tool, we can see the authors main difficulty. The translation of the English version into Mandarin (Chinese version) required a radical change in the design of some items, but also the removal of 15 of them from the final version.[26] The adaptation of the Polish version of the NYTS has not encountered so many problems during translation. Although the authors are still thinking about correcting some of the test items of the Polish NYTS tool, it was not necessary to remove as many questions. Only questions about the ethnic origin of the respondent, which in the multicultural American society are standardized, have been removed.

The authors of the tobacco questionnaire adaptation most often use the test-retest method, cotinine blood test, self-exacerbation of exposures to smoking or addiction, interviews.[26–28] Pre-made adaptation of the NYTS test questionnaire revealed that the items are of quite good stability. The correlation between repetitive measurements is high, and the percentage repetition in most cases is also high. For example, it can be observed that the first section of cigarette test items shows similar repeatability as the items from this area in Chinese adaptation of GYTS – very good and good (75% – 100%). The questions in this section and in NYTS and GYTS are the same: Have you ever tried cigarettes, even 1–2 puffs?, How old were you when you tried cigarettes?, How many cigarettes did you smoke in the last 30 days?, How many cigarettes have you smoked within 1 day of the last 3 days? Similar indicators can also be observed by comparing the consistency of questions with the same measurement scales that form the thematic groups. In the Iranian version of the Global School-based Student Health Survey questionnaire, which has only a small smoking section but similar construction to NYTS, similar levels of indicators have been demonstrated.[28]

The adapted version of the NYTS also showed a satisfactory degree of coherence of the inner group of items forming sub-themes and at the same scale of measurement. Thus subscale «Trying tobacco in different forms» has an alpha index of 0.801, subscale «Tobacco susceptibility» 0.859, subscale «Tobacco opinion» 0.85, subscale «Thinking about health risks from tobacco» 0.708, subscale «Exposure to pro and anti-tobacco activities» .732. In the Chinese adaptation of GYTS, the Cronbach alpha level in the «Tobacco Tax» subscale is also high, it is 0.94.[26] The questions that are alike in this subscale are similar in both surveys, for example: if one of your best Friends offered you a cigarette, would you smoke?

The NYTS questionnaire also includes other sections of questions such as the smoking section of cigars, cigarillos, etc., using snuff, using tobacco pipes, other tobacco products, tobacco addiction, tobacco product warning labels, tobacco and the quitting smoking section. Questions in these sections mostly meet high repetition criteria, both repetition percentages and correlations of repetitive measurements. In the section on smoking attitudes, which consists of 16 items, almost all (15) meet high repetition criteria. The last section of questions about the home environment in the context of tobacco presents good and very good repeatability indicators.

Conclusion

In this study, satisfactory reliability ratios were demonstrated in adaptation of the cultural NYTS questionnaire by the test-retest method. Somewhat more than seventy percent of test items have a very high or a high level, twenty five percent of a moderate level, and three items did not meet the assumed level of statistical significance, but showed a moderate level of compliance. The tested Polish version of the NYTS questionnaire may be preused in adolescent studies. Therefore, more research is planned on a larger group of respondents.

Compliance with ethical standards

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