

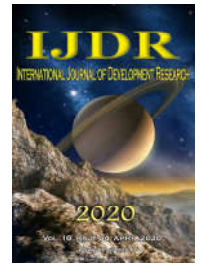


ISSN: 2230-9926

Available online at <http://www.journalijdr.com>

IJDR

International Journal of Development Research
Vol. 10, Issue, 04, pp. 34968-34977, April, 2020



RESEARCH ARTICLE

OPEN ACCESS

THE BASIC PSYCHOLOGICAL NEED SCALE (BPS) – CONSTRUCT AND PREDICTIVE VALIDITY AMONG MIDDLE SCHOOL STUDENTS WITH THE INCORPORATION OF THE NOVELTY IN THE POLISH CONTEXT

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ARTICLE INFO

Article History:

Received 19th January, 2020

Received in revised form

17th February, 2020

Accepted 11th March, 2020

Published online 29th April, 2020

Key Words:

Questionnaire, Validation, Self-determination theory, School environment, Behavior, Student, Psychological Needs.

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ABSTRACT

The content of this article focuses on the construct validity of the Basic Psychological Needs Scale (BPS) within middle school students in Poland. The assessment of students' level of fulfilment of psychological needs can be a powerful tool in enhancing and understanding students' functioning in the school environment and their psychological growth (Deci and Ryan, 2000; Ryan and Deci, 2000, 2002). Theoretical consideration is based on Self-determination theory (SDT) by Deci and Ryan (2000). Theoretical viewpoint is the basis of the empirical part of this article. However, there is still no Polish equivalent to the English version of this questionnaire, validated among middle school students. It was assumed that the aim of the present study was to adapt, validate and determine the psychometric properties of the Basic Psychological Needs Scale (BPS) on a Polish student sample, consisting of 200 teenagers, ages 14–17 from middle schools. First, the translation-back-translation method was used to ensure the linguistic equivalence of the Polish questionnaire. Second, Alpha Cronbach's coefficient was used to determine the level of reliability of individual variables. Third, Pearson's correlation coefficient was used to recognize whether there is statistically significant correlation between variables. Then, analysis of variance (ANOVA) was used to check if there is a statistically significant difference between more than two groups of variables. The final version of the Basic Need Satisfaction in General, the Basic Need Satisfaction at Work and the Basic Need Satisfaction in Relationships consists of 46 items 3 dimensions: the need for autonomy-16 items, the need of competences-12 items, the need for relatedness-18 items. The discriminatory powers of the item: the need of autonomy is: $\alpha = 0.734$, which proves the high reliability of this dimension. The discriminatory power of the item the needs of competences is: $\alpha = 0.675$, which testifies to the satisfactory reliability of this dimension while the discriminatory power of the item the needs of relatedness is: $\alpha = 0.705$ which proves the high reliability of this dimension. The measurement showed good convergent and discriminant validity with other related questionnaires. In summary, the Polish Basic Psychological Needs questionnaire is a reliable and valid self-report instrument for the assessment of the level of fulfill psychological needs within the school environment.

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Citation: Yullia Abreu Viana, Leiliane Teixeira Bento Fernandes, Wanessa Toscano Cavalcante et al. "Permanent health education on care for preterm newborns", *International Journal of Development Research*, 10, (04), 34968-34977.

INTRODUCTION

The issues of the psychological needs and their role in humans life are one of the most traditional and very central subjects of psychology. The popularity and topicality of that case has no wonders. Although predisposed to live and function together, being involved in the system of mutual dependency and various social challenges we are not always able to create positive relations with others. At the same time as we like and even admire some of the people, we envy or just

simply fear others. We also might be eager to help some people but we might hurt others and we usually stay indifferent to the most. This seems to be more or less a pattern of students behaviour in a classroom or school. The main question is what to do and how to act in order to achieve mutual benefits in this type of connections. There is a large scale of science that applies to the coexistence of students in their school environment, conditions supporting their miscellaneous development, methods and techniques of self regulations. This knowledge accumulated by social psychologists helps to understand better the relations between the contemporary

groups and sometimes as well effectively contributes in mitigating and solving conflicts or social tensions. However, these things not always can be foreseen. The significant change in this field seems to be effected by studies about self regulations, which basic assumption thesis and research results can be found in Ryan, Deci (2000). Developed by them the Self Determination Theory maintains that an understanding of human motivation, goal-directed behavior, psychological development and well-being requires a consideration of innate psychological needs of competence, autonomy, and relatedness, that give goals their psychological potency and that influence which regulatory processes direct people's goal pursuits (Baumeister and Leary, 1995; Ryan, 1995). The needs are essential for survival, growth and integrity of the individual (Ryan, Sheldon, Kasser and Deci, 1996). Three psychological needs are considered essential for understanding the what (i.e., content) and why (i.e., process) of goal pursuits (Deci and Ryan, 2000, pp.227). This light of approach lead us to understanding the role of the psychological needs and their impact on the quality of students functioning in their school environment. This theoretical point of view is becoming more and more popular in psychology, and extremely interesting for my research in the region of Podlasie.

Considering the fact that the role of a researcher is to ask questions about ostensibly obvious occurrences but also about occurrences that are not in line with expectations or just simply unwanted I decided to recognise the quality of relation between middle school students. Studies published so far ignored the role of psychological needs and did not show a full image of peer relationships. Moreover, often overlook the role of conditions supporting students' growth, self-control and the teachers' role in the process related to fulfill the students' needs. Previous research in the field of relationships has found that satisfaction of the three intrinsic needs predicted security of attachment (La Guardia, Ryan, Couchman and Deci, 2000). However, researchers also state that children and adolescents who exhibit poor self-regulation abilities are at greater risk of peer rejection, social problems, delinquency and obesity (Trentacosta, Shaw, 2009). For this reason, it is important to establish and improve children's ability to self-regulate and fulfill their psychological needs. The lack of such analyses is a question. Although, from this practical point of view, developing a school prevention tool that would help psychologists and school counsellors make an effective diagnosis of the quality of students' functioning in the school environment can be very interesting. From the scientific point of view, it is crucial to recognise actions which could be taken to increase the level of satisfying students' psychological needs. Also, a diagnosis of the school environment might contribute to a decrease in dysfunctional behaviour at school. The main aim of this article, on the basis of theoretical consideration is to adapt and validate the Basic Psychological Needs Scale (BPS) on a Polish student sample. In addition, the purpose of this study is to determine the psychometric properties of the scale. This article is divided into two main parts: theoretical and methodological. The theoretical introduction describes the theory of humans basic needs, The Self Determination Theory by Ryan, Deci (2000) and shows the main previous research. The methodological section contains both the description of adaptation and investigation of the validity and reliability of the Polish Basic Psychological Needs Scale (BPS). The summary concludes the whole article and highlights that the Polish BPS is a reliable and valid self-report instrument for the assessment of the level of satisfying

the basic psychological needs in the context of the school environment.

About the concept of need in the light of psychology

Basic Psychological Need Theory (BPNT) is one of the six theories within the framework of Self-Determination Theory, which postulates that the needs for autonomy, relatedness and competence are the most important for human beings (SDT; Ryan and Deci, 2000). During the past century the theory that humans have basic needs has been developed and expanded by several different researchers. As early as 1938, Murray has proposed, that needs are psychological in nature, are learned over time. He also postulated the existence of the need for relatedness and the need for power (Murray, 1938). A few years later, Hull's theory proposed that needs are physiological in nature (1943). In the same time Maslow (1943) highlighted that the needs are psychological in nature and physiological in nature. He lists of innate needs which are hierarchically organised, at the top of which stood the need for self-actualisation (Maslow, 1970). Among the previous prominent psychologists, there is Polish psychologist, K. Obuchowski, who defines the need as a property of a specific object or a specific person without which people cannot function in a healthy way. The author highlights the main role of individualization, thanks to which each person creates their own style of satisfying social needs (Obuchowski 2000). In contrast, other researchers e.g. Sheldon, Elliot, Kim, and Kasser (2001) compared, in three studies, ten psychological needs (including safety, self-esteem, and popularity) to find which are truly fundamental to human beings. Furthermore, researchers have differed in regards to what constitutes a need. To explicate a meaning of need I consider the theoretical concept of Self-Determination Theory (Deci and Ryan, 2000) which shows why the needs are fundamental for human being and defines needs as innate, psychological, and essential for well-being. SDT defines needs at the psychological level as organismic necessities (Deci and Ryan, 2000), „innate psychological nutrients that are essential for ongoing psychological growth, integrity, and well-being” (Deci and Ryan, 2000, p. 229). Within SDT needs are essential for people's survival and integrity (Ryan, Sheldon, Kasser and Deci, 1996). Human needs specify the necessary conditions for psychological health or well-being and their satisfaction is associated with the most effective functioning (Deci and Ryan, 2000, p. 229). This theory clarifies that psychological health and optimal development requires satisfaction of three universal needs, namely autonomy, competence, and relatedness.

The first one, the need of autonomy concerns experiencing choice and feeling like the initiator of one's own behavior and act. It refers to the craving for self-organize experience and feel volitional and responsible for one's own behavior (deCharms, 1968). The second one, the need for competence refers to the desire to feel effective, attains craving results (White, 1959), concerns succeeding at optimally challenging duty and desire to feel competent in life activities (Skinner, 1995; White, 1959). The third one, the need of relatedness is about the caring to feel connected to others and concerns establishing a sense of mutual respect and trust each other (Baumeister and Leary, 1995; Harlow, 1958). To conclude the definition of needs in the light of Self-Determination Theory (SDT; Deci and Ryan, 2000) it is important to highlight, that this theory represents a broad conceptual framework for

deliberation about three psychological needs-for competence, relatedness, and autonomy-which are required for understanding the what (i.e., content) and why (i.e., process) people tend to meet their goals (Deci and Ryan, 2000). Why people pursue to attain their desirability outcomes? In which degrees people are able to satisfy their basic psychological needs? The concept of needs clearly specified the content of motivation and provided a substantive basis for the direction of action and personality development. In other words, individuals are more likely to be intrinsically motivated and display signs of healthy psychological adjustment when they can freely choose to perform actions, deal effectively with optimally challenging duty, and feel supported by people who are important to them. SDT maintains that psychological need can be recognised by observing that positive psychological consequences results from conditions that allow its satisfaction (Deci and Ryan, 2000, pp. 229).

About the previous research: Until now autonomy, competence, and relatedness have all been shown to play significant roles in areas such as education (Vansteenkiste, Lens and Deci, 2006). Deci and Ryan (2000) propose that people function and develop most effectively when they experience satisfaction of their autonomy, competence, and relatedness needs. Many studies have shown that the satisfaction of these basic psychological needs predicts psychological well-being (Ryan, Bernstein and Brown, 2010). Furthermore, Patrick, Kneee, Canevello and Lonsbary (2007) found that need satisfaction was positively related with the quality of relation, positive influence, vitality, and adaptive responses to conflict. Other studies (La Guardia, Ryan, Couchman and Deci, 2000; Patrick, et al., 2007) have shown that individuals who stated higher levels of need satisfaction also stated having a better relation with their parents and friends. For example, Deci, La Guardia, Moller, Scheiner and Ryan (2006) highlight that the need fulfilment in close friendships was related to improved relationship quality. In fact, previous studies have shown that people who experience feelings of need satisfaction are more willing to authentically express their emotions (La Guardia, 2007). According to Patrick's research (2007), when one feels that his or her needs are being met, he or she employs more adaptive responses to conflict. Showing this in a broader light, it can be seen that social contextual conditions that support one's needs of competence, autonomy, and relatedness are the basis for maintaining one's intrinsic motivation. The studies proved that in schools, the facilitation of more self-determined learning requires classroom conditions that allow satisfaction of these three basic human needs-that is the support the innate needs to feel connected, effective, and agentic as one is exposed to new ideas and exercises new skills (Ryan, Deci, 2000, pp.65).

On the one hand, further SDT based research is needed to elucidate the role of psychological needs in relational experiences (La Guardia and Patrick, 2008). On the other hand, the relations based on rigid behaviors and poor contact have not been tested empirically yet. To measure these psychological needs, Deci and Ryan (2000a) proposed the instrument called Basic Psychological Needs Scale (BPNS) that evaluates the satisfaction of these needs in general and in two specific fields: at Work and in Relationships. They were adapted to and used in different countries and contexts. I have adapted all of them to Polish conditions. Therefore, in the last paragraph of the theoretical considerations, the important point is to remain true to the concept and to validate the adaptations

fully. I am in agreement with Loevinger (1957) that psychological tests and surveys should serve as an aid in theoretical development. Scales may be in need of adaptation as the research question changes (<http://selfdeterminationtheory.org/self-regulation-questionnaires>).

MATERIALS AND METHODS

The scientific research procedure: The main aim of this article is to adapt, validate and determine the psychometric properties of the Basic Psychological Needs Scale on a Polish student sample. The practical aim is to develop a school prevention tool that would help psychologists and school counsellors to make an effective diagnosis of the quality of students' functioning in the school environment. It is important to recognize actions that could be taken to increase the level of students' self-regulation at school. Besides, a diagnosis of the school environment might contribute to a decrease in dysfunctional behaviour at school.

The population: The final validation research of the Basic Psychological Needs Scale took place in a public middle school in Bialystok, in the period from March to May 2014. There were 200 middle school students from Bialystok in the research: three groups of first grades, three second grades, three third grades, in all 94 girls (47%) and 106 boys (53%), aged 14 to 17.

Statistical Power: All analyses were done in the IBM SPSS Statistics Program.

In the statistical analysis of the data:

1. Alpha Cronbach's coefficient was used to determine the level of reliability of questionnaires (variables). It can take values from 0 to 1. The higher the value, the higher the reliability level.
2. Pearson's correlation coefficient was used to check whether there are statistically significant correlations between the quotient variables.

Statistically significant results at the level of $p < 0.001$ were marked with***, statistically significant results at the level of $p < 0.01$ were marked with**, and statistically significant results at the level of $p < 0.050$ were marked with*.

If the correlation is statistically significant then the coefficient (r) in the table should be interpreted. It can take values from -1 to 1. The further away r is from 0, the stronger the relationship. Positive values mean that as the value of one variable increases, the value of the second variable also increases. It should be remembered that the coefficient only shows a linear correlation between variables, but does not inform in any way which variable is the cause and which is the result. The analysis of variance (ANOVA) was used to check whether there is a statistically significant difference between more than two groups in terms of quotient ratios. The tables include: M-arithmetic mean, SD-standard deviation, F-test value and key value of 'p' - significance of the test.

Statistically significant differences at the level of $p < 0.001$ were marked with***, statistically significant differences at the level of $p < 0.01$ were marked with**, and statistically significant differences at the level of $p < 0.05$ were marked

with*. ANOVA indicates if at least two groups differ significantly. To see exactly which groups differ significantly from each other, the Tukey's multiple comparison test was performed. In the columns of Tukey's Test were presented the numbers of the pairs of groups that differ significantly from one another.

Research Tools-the Basic Psychological Needs (BPS): The concept of basic psychological needs are postulated as the central, innate and universal in self-determination theory by Ryan and Deci (2000). These needs are must be ongoingly satisfied for people to enhance their competences, improve the quality of their life and function in healthy and optimal ways (Deci and Ryan, 2000).

The Basic Psychological Needs Scale is a family of scales: one that addresses need satisfaction in general in one's life, and others that address need satisfaction in specific domains.

The Basic Need Satisfaction in General relates to the entire life, and then indicate how true it is for participants (La Guardia, Ryan, Couchman and Deci, 2000).

The Basic Need Satisfaction at Work Scale has been used by Deci, Ryan, Gagné, Leone, Usunov, & Kornazheva (2001) and by Ilardi, Leone, Kasser and Ryan (1993). The questions concern a feelings about job during the last year. The respondents indicate how true each of the following statement is for him/her given their experiences on this job.

The Basic Need Satisfaction in Relationships Scale was used by La Guardia, Ryan, Couchman and Deci, (2000). This questionnaire was designed for use with respect to need satisfaction in particular relationships. For example, it is to assess the degree to which a person experiences basic need satisfaction while relating to his or her peers. So, to use the questionnaire to assess need satisfaction in a relation with a typical peer, replace the XXX with the relationship you are studying in general.

The structure of the questionnaire

The Basic Need Satisfaction in General adapted to Polish version has 20 items concerning the three needs: the needs of competence, autonomy and relatedness (the original scale has 21 items). The person who filled up the questionnaire have selected the task on the sevenfold scale (from 7-very true to the 1-not at all true) for each question separately. To analyse the score there is a need to form three subscale scores, one for the degree to which the person experiences satisfaction of each of the three needs. To do that, the researcher must first reverse score all items that are worded in a negative way (i.e., the items with (R). To reverse score an item, there is a need to simply subtract the item response from 8. Thus, for example, a 2 would be converted to a 6. Once the researcher have reverse scored the items, simply average the items on the relevant subscale.

They are:

Autonomy: 1, 3(R), 7, 10(R), 13, 16, 19(R)
Competence: 4, 9, 12, 14(R), 18(R)
Relatedness: 2, 5, 6(R), 8, 11, 15(R), 17(R), 20

The Basic Need Satisfaction at School adapted to Polish version has 17 items concerning the three needs: the needs of competence, autonomy and relatedness (the original scale has

21 items). The person who filled up the questionnaire have selected the task on the sevenfold scale (from 7-very true to the 1-not at all true) for each question separately.

They are:

Autonomy: 1, 4(R), 6, 9(R), 13, 16(R)
Competence: 4, 9, 12, 14(R), 18(R)
Relatedness: 2, 5, 6(R), 8, 11, 15(R), 17(R), 20

The Basic Need Satisfaction in Relationships adapted to Polish version has 9 items concerning the three needs: the needs of competence, autonomy and relatedness (the original scale has 9 items). The person who filled up the questionnaire have selected the task on the sevenfold scale (from 7-very true to the 1-not at all true) for each question separately.

They are:

Autonomy: 1, 5, 9(R)
Competence: 2, 4(R), 7
Relatedness: 3, 6(R), 8

The adaptation of the questionnaire

Back-translation: The study comprised of two stages: the first stage in adaptation is the forward translation into Polish, the second – back-translation is a process of validity checking to make sure that the translated version is reflecting the same item content as the original versions. The original English version of the scale was translated into Polish independently by two bilingual speakers. A team of psychologists with expertise in the subject of the Basic Psychological Needs (BPS) reviewed the translations. Based on the translations and the questions raised by the research team, we optimized the Polish version of the questionnaire. The Polish version of the Basic Psychological Needs (BPS) was then back-translated independently by two different bilingual speakers to ensure the conceptual equivalency to the original version. Subsequently, the research team and all translators compared the back-translation with the original version to identify any questions that were not equivalent or problematic.

Data Collection: After all of the researchers and translators reached an agreement of the appropriateness of the translated items, a pre-test evaluating our Polish translation were conducted with a total of 200 middle school students from Bialystok (Poland). This procedure allows the assessment of the amount of understanding achieved by the translated questionnaire (Susic-Vasic et al., 2015). After analysing the obtained results, it was found that the pre-test should be modified to obtain good psychometric properties. The final version of the Basic Psychological Needs (BPS) questionnaire consists of 46 items in 3 dimensions: the need for autonomy-16 items, the need of competence-12 items, the need of relatedness-18 items. The dimensions of the needs of autonomy and need of of competence are characterized by high reliability, and the dimensions of the need of relatedness are characterized by very high reliability. All dimensions have been proven to be relevant.

RESULTS

Relevance and reliability of the questionnaire: Reliability coefficients for three dimensions of the Basic Psychological Needs (BPS) questionnaire: the needs of autonomy, the needs of competences and the needs of relatedness have been

calculated. The discriminatory powers of the item: the need of autonomy is 0.734, which proves the high reliability of this dimension, the discriminatory power of the item: the needs of competences is 0.675, which testifies to the satisfactory reliability of this dimension while the discriminatory power of the item: the needs of relatedness is 0.705 which proves the high reliability of this dimension. Ultimately, after making the changes described below, dimensions of the need of autonomy and competences are characterized by high reliability, and the dimension of the needs of relatedness was described by very high reliability. The dimensions of three categories of needs correlate strongly and positively.

Thus, the higher the need for autonomy, the higher the need of relatedness and competence will be. Similarly, the higher the need for competence, the higher the need of relatedness will be. This demonstrates the high internal compatibility of the tool. Table 1 presents the analysis of the reliability of the BPS questionnaire in the field of the needs of autonomy for all items. The analysis of the table above shows that item the Basic Need Satisfaction at Work 13 does not correlate with the overall result, and removing it would slightly improve the reliability of the dimension. Then, one item was removed (Table 2). After removing one item Basic Need Satisfaction at Work 13, the reliability of the dimension of the need for

Table 1. The analysis of the reliability of the BPS questionnaire in the field of the needs of autonomy for all items

The need of autonomy items	Correlation of items total	Cronbach's alpha for all items
Basic Need Satisfaction in General 1	0,144	0,738
Basic Need Satisfaction in General 4	0,365	0,717
Basic Need Satisfaction in General 8	0,313	0,722
Basic Need Satisfaction in General 11	0,314	0,722
Basic Need Satisfaction in General 14	0,447	0,709
Basic Need Satisfaction in General 17	0,452	0,709
Basic Need Satisfaction in General 20	0,281	0,725
Basic Need Satisfaction at Work 1	0,352	0,718
Basic Need Satisfaction at Work 5	0,450	0,709
Basic Need Satisfaction at Work 8	0,393	0,716
Basic Need Satisfaction at Work 11	0,147	0,737
Basic Need Satisfaction at Work 13	0,048	0,745
Basic Need Satisfaction at Work 17	0,471	0,707
Basic Need Satisfaction at Work 20	0,235	0,729
Basic Need Satisfaction in Relationships 1	0,465	0,707
Basic Need Satisfaction in Relationships 5	0,334	0,720
Basic Need Satisfaction in Relationships 9	0,220	0,732

Source: own research

Table 2. The analysis of the reliability of the BPS in the field of the needs of autonomy after removing one item

The need of autonomy items	Correlation of items total	Cronbach's alpha after removing one item
Basic Need Satisfaction in General 1	0,153	0,750
Basic Need Satisfaction in General 4	0,377	0,729
Basic Need Satisfaction in General 8	0,302	0,736
Basic Need Satisfaction in General 11	0,329	0,733
Basic Need Satisfaction in General 14	0,418	0,725
Basic Need Satisfaction in General 17	0,449	0,722
Basic Need Satisfaction in General 20	0,309	0,735
Basic Need Satisfaction at Work 1	0,346	0,732
Basic Need Satisfaction at Work 5	0,447	0,722
Basic Need Satisfaction at Work 8	0,379	0,729
Basic Need Satisfaction at Work 11	0,168	0,748
Basic Need Satisfaction at Work 17	0,445	0,722
Basic Need Satisfaction at Work 20	0,237	0,741
Basic Need Satisfaction in Relationships 1	0,468	0,719
Basic Need Satisfaction in Relationships 5	0,347	0,731
Basic Need Satisfaction in Relationships 9	0,241	0,743

Source: own research

Table 3. The analysis of the reliability of the BPS in the field of the needs of competences after removing three items

The need of competences items	Correlation of items total	Cronbach's alpha after removing three items
Basic Need Satisfaction in General 3	0,188	0,671
Basic Need Satisfaction in General 5	0,305	0,656
Basic Need Satisfaction in General 10	0,325	0,654
Basic Need Satisfaction in General 13	0,406	0,643
Basic Need Satisfaction in General 15	0,308	0,656
Basic Need Satisfaction in General 19	0,252	0,664
Basic Need Satisfaction at Work 3	0,143	0,676
Basic Need Satisfaction at Work 4	0,330	0,653
Basic Need Satisfaction at Work 10	0,270	0,661
Basic Need Satisfaction at Work 12	0,309	0,656
Basic Need Satisfaction at Work 14	0,120	0,680
Basic Need Satisfaction at Work 19	0,258	0,663
Basic Need Satisfaction in Relationships 2	0,415	0,642
Basic Need Satisfaction in Relationships 4	0,264	0,662
Basic Need Satisfaction in Relationships 7	0,374	0,648

Source: own research

autonomy is high and amounts to 0.745. Items Basic Need Satisfaction in General 1 and the Basic Need Satisfaction at Work 11 which would be remove, could raise the reliability but to a very small extent. These items correlate low with the total score. Due to the fact that removing both of these items would slightly increase reliability, it was decided to leave them in the tool. The Cronbach's alpha reliability coefficient for the needs of competence was 0.675, which indicates satisfactory reliability of this dimension. I also analysed the reliability of the BPS in the field of the needs of competences after removing three items (Table 3).

After removing three items, the reliability of the dimension increased to 0.692, which is already a coefficient, which has an impact on high reliability. Therefore, it was decided to leave the dimension in this questionnaire, even more that none of the dimensions correlates very low with the total score. Besides, analysis of the reliability of the BPS in the field of the needs of competences after leaving 8 items can be considered as important (Table 5). Interestingly, the highest reliability for this dimension is achieved by the version with just 8 items (0.751).

Table 4. The analysis of the reliability of the BPS in the field of the needs of competences after removing three items (final version)

The need of competences items	Correlation of items total	Cronbach's alpha after removing three items
Basic Need Satisfaction in General 5	0,371	0,666
Basic Need Satisfaction in General 10	0,347	0,670
Basic Need Satisfaction in General 13	0,438	0,656
Basic Need Satisfaction in General 15	0,224	0,690
Basic Need Satisfaction in General 19	0,222	0,689
Basic Need Satisfaction at Work 4	0,402	0,661
Basic Need Satisfaction at Work 10	0,325	0,673
Basic Need Satisfaction at Work 12	0,366	0,668
Basic Need Satisfaction at Work 19	0,168	0,697
Basic Need Satisfaction in Relationships 2	0,460	0,653
Basic Need Satisfaction in Relationships 4	0,233	0,688
Basic Need Satisfaction in Relationships 7	0,411	0,661

Source: own research

Table 5. The analysis of the reliability of the BPS in the field of the needs of competences after leaving 8 items

The need of competences items	Correlation of items total	Cronbach's alpha after leaving 8 items
Basic Need Satisfaction in General 5	0,463	0,722
Basic Need Satisfaction in General 10	0,398	0,734
Basic Need Satisfaction in General 13	0,442	0,726
Basic Need Satisfaction at Work 4	0,492	0,716
Basic Need Satisfaction at Work 10	0,384	0,737
Basic Need Satisfaction at Work 12	0,341	0,743
Basic Need Satisfaction in Relationships 2	0,517	0,712
Basic Need Satisfaction in Relationships 7	0,538	0,709

Source: own research

Table 6. The analysis of the reliability of the BPS questionnaire in the field of the needs of relatedness for all items

The need of relatedness items	Correlation of items total	Cronbach's alpha for all items
Basic Need Satisfaction in General 2	0,471	0,677
Basic Need Satisfaction in General 6	0,300	0,692
Basic Need Satisfaction in General 7	0,179	0,704
Basic Need Satisfaction in General 9	0,450	0,676
Basic Need Satisfaction in General 12	0,503	0,672
Basic Need Satisfaction in General 16	0,139	0,709
Basic Need Satisfaction in General 18	0,116	0,709
Basic Need Satisfaction in General 21	0,499	0,675
Basic Need Satisfaction at Work 2	0,488	0,672
Basic Need Satisfaction at Work 6	-0,496	0,763
Basic Need Satisfaction at Work 7	-0,112	0,727
Basic Need Satisfaction at Work 9	0,392	0,682
Basic Need Satisfaction at Work 15	0,469	0,676
Basic Need Satisfaction at Work 16	0,291	0,693
Basic Need Satisfaction at Work 18	0,267	0,695
Basic Need Satisfaction at Work 21	0,489	0,675
Basic Need Satisfaction in Relationships 3	0,482	0,673
Basic Need Satisfaction in Relationships 6	0,136	0,709
Basic Need Satisfaction in Relationships 8	0,495	0,674

Source: own research

As can be seen in the table above, items Basic Need Satisfaction in General 3 and Basic Need Satisfaction at Work 3 and Basic Need Satisfaction at Work 14 correlate low with the total score, so it was decided to remove them. Moreover, the Table 4 presents the analysis of the reliability of the BPS in the field of the needs of competences after removing three items (final version).

However, this is not a significant improvement (and sufficient reliability already) to remove the next 4 items from the tool. The Cronbach's alpha reliability coefficient for the needs of competence was 0.705, which proves the high reliability of this dimension. The analysis of the reliability of the BPS questionnaire in the field of the needs of relatedness for all items are presented in Table 6.

However, as you can see in the table above, that item Basic Need Satisfaction at Work 6 negatively correlates with the total results of the needs of relatedness. Similarly, item Basic Need Satisfaction at Work 7 negatively correlates and correlates low with the needs of relatedness. Therefore, it was decided to remove item Basic Need Satisfaction at Work 7 and recode item Basic Need Satisfaction at Work 6 from the dimension of need of relatedness. The analysis of the reliability of the BPS questionnaire in the field of the needs of relatedness after leaving 13 items were shown in Table 7.

Table 7. The analysis of the reliability of the BPS questionnaire in the field of the needs of relatedness after leaving 13 items

The need of relatedness items	Correlation of items total	Cronbach's alpha after leaving 13 items
Basic Need Satisfaction in General 2	0,580	0,821
Basic Need Satisfaction in General 6	0,419	0,831
Basic Need Satisfaction in General 9	0,488	0,827
Basic Need Satisfaction in General 12	0,500	0,826
Basic Need Satisfaction in General 21	0,556	0,822
Basic Need Satisfaction at Work 2	0,572	0,820
Basic Need Satisfaction at Work 6	0,387	0,834
Basic Need Satisfaction at Work 9	0,442	0,830
Basic Need Satisfaction at Work 15	0,466	0,828
Basic Need Satisfaction at Work 16	0,311	0,840
Basic Need Satisfaction at Work 21	0,521	0,824
Basic Need Satisfaction in Relationships 3	0,548	0,822
Basic Need Satisfaction in Relationships 8	0,563	0,822

Source: own research

Interestingly, the highest reliability (Cronbach's Alpha = 0.838) would be achieved by the dimension of needs of relatedness, which consist of only 13 items. However, this improvement is not significant enough to justify the removal of subsequent items that positively correlate with the overall result. Table 8 presents the final reliability coefficients for the dimensions of the BPS questionnaire.

Table 8. The final reliability coefficients for the dimensions of the BPS questionnaire

Dimensions	Cronbach's alpha
The need of autonomy	0,745
The need of competences	0,692
The need of relatedness	0,799

Source: own research

Ultimately, the dimensions of the needs of autonomy and competence are characterized by high reliability, and the dimension of the need of relatedness is presented by very high reliability. Table 9 shows the correlations between the dimensions of the BPS questionnaire.

Table 9. Correlations between the dimensions of the BPS questionnaire

	The need of autonomy		The need of competences	
	R	p	R	p
The need of competences	0,678	0,000***		
The need of relatedness	0,617	0,000***	0,679	0,000***

Source: own research

Dimensions regarding three categories of needs correlate strongly and positively. Thus, the higher the need of autonomy, the higher the need of relatedness and competence will be. Similarity, the higher the need of competence, the

higher the need of relatedness will be. This demonstrates the high internal compatibility of the tool.

RESULTS

Accuracy of the questionnaire: In order to analyse the accuracy of the questionnaire, it was checked whether it correlate with the results of The Questionnaire Lesson Assessment-Students (each aspect separately) and the list of emotions towards a typical peer (each emotion separately).

Correlations between the dimensions of the Basic Psychological Needs (BPS) (Deci and Ryan, 2000) and the dimensions of The Questionnaire Lesson Assessment-Students (F/D-U) (Gaś, 2004): I will begin my considerations with a presentation of the data that have been collected on the basis of the The Questionnaire Lesson Assessment-Students (F/D-U survey) by Zb. B. Gaś (2004). This questionnaire was used to measure the aspects of the basic conditions in the process of supporting a child in his or her way of achieving maturity. Each question included in the questionnaire focus on the five main variables that constitute conditions for the quality of contact with the student: experience of understanding and acceptance, sense of emotional bonds with the tutor, openness, mutual respect and also sense of certain limits in life and development and sharing the responsibility for changing educational process (Brammer, 1984). Students were given the task to define the 5-degree scale questionnaire (from 5-very to 1-little) how the statement applies to him/her personally. The theoretical basis of the questionnaire is the concept of Helping Theory by L. M. Brammer (Brammer, 1984) adapted by the Zb. B Gaś for understanding an educational contact.

It turned out, there are positive correlations between the need of autonomy and the following dimensions of lesson assessment: *the ability to negotiate the grade with the teacher, possibility to ask questions to the teacher, the teacher's respect shown to the student, the teacher's friendliness shown to the student and the sense of student's safety.* Beside this, the need of competences positively correlate with the dimensions of lesson assessment such as: *the student's interest in the subject, the attractiveness of lessons, use of time during the lesson, the students' knowledge of evaluation criteria, possibility to ask questions to the teacher, the teacher's respect shown to the student, the teacher's friendliness shown to the student and degree of the student's satisfaction with classes.* The analysis shows the positive correlation between the need of relatedness and he following dimensions of lesson assessment: *the student's interest in the subject, the attractiveness of lessons, the ability to negotiate the grade with the teacher, possibility to ask questions to the teacher, the teacher's respect shown to the student, the teacher's friendliness shown to the student, the sense of student's safety and degree of the student's satisfaction with classes.* The analysis did not show any negative correlations. However, it is clear tendency according to which individual needs positively correlate with some of the assessed aspects, which confirms the accuracy of each of these dimensions.

Correlations between the dimensions of the Basic Psychological Needs (BPS) (Deci and Ryan, 2000) and the List of experienced emotions associated with a typical peer (Hendo-Milewska, Nawrocka, 2018). The List of experienced emotions associated with a typical peer by Hendo-Milewska,

Table 10. Correlations between the dimensions of the Basic Psychological Needs (BPS) and the dimensions of The Questionnaire Lesson Assessment-Students (F/D-U)

The Questionnaire Lesson Assessment-Students	The need of autonomy		The need of competence		The need of relatedness	
	R	p	R	p	R	p
Student's interest in the subject	0,024	0,733	0,168	0,017*	0,150	0,034*
Attractiveness of lessons	0,120	0,091	0,150	0,034*	0,156	0,027*
Use of time during the lesson	0,088	0,217	0,147	0,038*	0,124	0,080
Student's independence	0,010	0,883	0,012	0,861	0,052	0,461
Degree of difficulty of the subject	-0,063	0,377	-0,008	0,905	0,057	0,420
Amount of knowledge	0,093	0,188	0,098	0,165	0,123	0,084
Student's activity	-0,113	0,110	0,024	0,736	0,075	0,294
Student's knowledge of teacher's requirements	0,006	0,928	0,106	0,134	0,052	0,465
Students' knowledge of evaluation criteria	0,051	0,469	0,180	0,011*	0,060	0,401
Ability to negotiate the grade with the teacher	0,140	0,049*	0,150	0,033*	0,196	0,005**
Possibility to ask questions to the teacher	0,217	0,002**	0,219	0,002**	0,213	0,002**
Teacher's respect shown to the student	0,216	0,002**	0,266	0,000***	0,248	0,000***
Teacher's friendliness shown to the student	0,204	0,004**	0,222	0,002**	0,257	0,000***
Sense of student's safety	0,147	0,038*	0,137	0,054	0,187	0,008**
Degree of the student's satisfaction with classes	0,087	0,218	0,171	0,015*	0,215	0,002**

Source: own research

Table 11. Correlations between the dimensions of the Basic Psychological Needs (BPS) and the list of emotions toward typical peer

The list of emotions toward typical peer	The need of autonomy		The need of competence		The need of relatedness	
	R	p	R	p	R	p
Anger	0,016	0,826	-0,012	0,865	-0,072	0,314
Sadness	0,014	0,849	0,058	0,411	-0,074	0,301
Disgust	-0,065	0,362	-0,051	0,473	-0,170	0,016*
Contempt	-0,034	0,631	-0,028	0,694	-0,133	0,061
Fear	-0,150	0,034*	-0,078	0,273	-0,055	0,438
Feeling guilty	-0,047	0,511	-0,069	0,333	0,018	0,798
Resentment	-0,050	0,485	0,014	0,849	-0,053	0,456
Shame	-0,199	0,005**	-0,189	0,007**	-0,071	0,317
Jealousy	-0,206	0,003**	-0,157	0,027*	-0,117	0,099
Frustration	-0,047	0,506	-0,020	0,774	-0,112	0,114
Embarrassment	-0,138	0,052	-0,071	0,316	-0,034	0,630
Curiosity	0,271	0,000***	0,317	0,000***	0,302	0,000***
Compassion	0,157	0,026*	0,128	0,071	0,211	0,003**
Pride	0,061	0,388	0,023	0,746	0,184	0,009**
Admiration	0,119	0,093	0,148	0,036*	0,224	0,001**
Sympathy	0,245	0,000***	0,234	0,001**	0,257	0,000***
Joy	0,362	0,000***	0,354	0,000***	0,360	0,000***

Source: own research

Table 12. Norms for the scale of the need for autonomy, competence and relatedness

The need of autonomy		The need of competence		The need of relatedness	
sten	score	sten	score	sten	score
1	1,00-3,13	1	1,00-2,83	1	1,00-2,94
2	3,14-3,50	2	2,84-3,25	2	2,93-3,33
3	3,51-3,75	3	3,26-3,67	3	3,34-3,83
4	3,76-4,13	4	3,67-4,00	4	3,84-4,17
5	4,14-4,56	5	4,01-4,42	5	4,18-4,67
6	4,57-5,00	6	4,43-4,75	6	4,68-5,06
7	5,01-5,50	7	4,76-5,17	7	5,07-5,56
8	5,51-5,88	8	5,18-5,67	8	5,57-6,06
9	5,89-6,50	9	5,68-6,50	9	6,07-6,44
10	6,51-7,00	10	6,51-7,00	10	6,45-7,00

Source: own research

Nawrocka (2018) contains 17 positive and negative emotions, which was prepared in the light of Stereotype Content Model and BIAS Map (Fiske, Cuddy, Glick and Xu 2002). This questionnaire was used to recognise emotions/feelings experienced in relation to a typical peer, which focus on two dimensions, by which the individuals/groups are perceived: competency (i.e. independent, able, self-confident, talented, features associated with abilities and skills) and generosity (i.e. amiable, reliable, honest, friendly, features associated with motivation and intentions) (Fiske, Cuddy, Glick and Xu, 2002). Students were given the task to define the 9-degree scale questionnaire (from 5-very to 1-little) how the statement applies to one's personally.

The need of autonomy negatively correlates with such emotions as: *fear*, *shame* and *jealousy*, and positively correlates with such emotions as: *patience*, *compassion*, *sympathy* and *joy*. The need of competence negatively correlates with tow emotions: *shame* and *jealousy*, and positively correlate with the following emotions: *curiosity*, *admiration*, *sympathy* and *joy*. The need of relatedness negatively correlates with *disgust*, and positively correlates with such emotions as: *curiosity*, *compassion*, *pride*, *admiration*, *sympathy* and *joy*. Summarizing this part of the analysis of correlations it should be stated, that there is a clear tendency according to which needs positively correlate with positive emotions (most strongly with joy, then with curiosity)

and negatively correlates with negative ones, which confirms the accuracy of each of these dimensions. The last thing that is extremely important in showing the results of the accuracy and reliability of the tool adaptation is to show the applicable standards.

DISCUSSION

The aim of the present study is to evaluate the utility of the Polish version of the The Basic Psychological Needs Scale as a self-report measure for need satisfaction in general in one's life and need satisfaction in specific domains: at work and in relationships, by reporting psychometric properties, examining the factorial structure of this scale, assessing construct validity in a large sample of middle school students. The results of the present study indicate that dimensions regarding three categories of needs correlate strongly and positively. This demonstrates the high internal compatibility of the tool. The dimensions of the needs of autonomy and competence are characterized by high reliability, and the dimension of the need of belonging is presented by very high reliability. All dimensions have been proven to be relevant.

To sum up:

1. The final Basic Need Satisfaction in General adapted to Polish version has 20 items concerning the three needs: the needs of competence, autonomy and relatedness (the original scale has 21 items).
2. The final Basic Need Satisfaction at School adapted to Polish version has 17 items concerning the three needs: the needs of competence, autonomy and relatedness (the original scale has 21 items).
3. The final Basic Need Satisfaction in Relationships adapted to Polish version has 9 items concerning the three needs: the needs of competence, autonomy and relatedness (the original scale has 9 items).

Due to the uneven number of items in individual dimensions, the results of each dimension should be given as an average for the sum of its items. Thanks to this it will be possible to compare them. Due to the asymmetrical structure of the questionnaire (different number of items in dimensions and additional areas), the final version of the questionnaire measures 3 dimensions of needs, ignoring the distinction between the Basic Need Satisfaction at Work, Basic Need Satisfaction in General and Basic Need Satisfaction in Relationships.

Limitations

The present version of the Polish The Basic Psychological Needs Scale has been validated in an academic context with students attending to the first and third grades of middle school. The analysis will be enriched by research conducted among students of the seventh and the eighth grade of primary school because of the educational reform conducted by National Ministry of Education in 2017/2018 changed the school structure. Thus, its application among high school students is restricted.

Concluding remarks and *practical implications*

The final version of the Basic Psychological Needs (BPS) questionnaire consists of 46 items in 3 dimensions: the need

for autonomy-16 items, the need of competence-12 items, the need of relatedness-18 items. The dimensions of the needs of autonomy and need of of competence are characterized by high reliability, and the dimensions of the need of relatedness are characterized by very high reliability. All dimensions have been proven to be relevant. Due to the uneven number of items in individual dimensions, the results of each dimension should be given as an average for the sum of its items. The present study conducted with a large representative school children sample demonstrates that the Polish version of the Basic Psychological Needs (BPS) is a reliable and valid self-report instrument for the assessment of the quality of need satisfaction within the school environment among middle school students. In summary, my findings suggest that the Polish the Basic Psychological Needs will be a useful tool within the educational context. However, the analysis of results obtained with the Basic Psychological Needs should be viewed in connection with standards of adolescents' development, which emphasize high self-criticism that during this time of growth students have a tendency towards a high level of internalizing failure and low level of internalizing success.

It is related to the students' perception of situations. They think that what is happening to them does not depend on themselves or their actions. They take no responsibility for their own activity due to the situation of social influence or pressure. Furthermore, the methods which are implemented in my research, might serve as methods to be used in diagnosis and prevention activities. In addition, reliable recognition of the processes that take place in the school environment can help teachers, school management, parents and students in their efforts to prevent risky behavior in the school environment. Ample evidence has already indicated that individual differences in fulfilled needs affect the quality of adjustment to school environment, performance and behavior at school (Kuhnle et al., 2010). For this reason, the following questions are crucial: how to recognize the students' basic psychological needs in the school environment and how to support their satisfaction?

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