

# Emotional intelligence vs. health behaviour in selected groups in late adulthood

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## Abstract

**Introduction.** The study deals with the relationship between the emotional intelligence of people in late adulthood and their health behaviour not described in the earlier literature on this subject. The objective of the research was to study the impact of emotional abilities on positive mental attitude, preventive behaviour, correct dietary habits and pro-health practice in selected older persons.

**Materials and methods.** The inventory of Pro-Health Behaviour (IZZ) by Juczyński Z was applied, together with the Polish adaptation of the INTE Questionnaire of Emotional Intelligence by Ciechanowicz A, Jaworowska A and Matczak A. A total of 199 people were examined. Two groups were taken into consideration: residents of care homes (DPS group) and attendees of the Third Age University (UTW group).

**Results.** Analyses of results showed statistically significant relationships between the variables: emotional intelligence and the individual categories of pro-health behaviour. This correlation had a positive nature: an increase in the intensity of emotional abilities, including the awareness of such abilities, led to the increase of health-care oriented behaviours. The division into DPS and UTW groups proved to be significant for the relationships between emotional intelligence, a positive mental attitude, and correct dietary habits.

**Conclusions.** The result of the study show that pro-health activities are directly associated with the abilities to understand and to control the emotions of older people. The data obtained confirm the positive relationship between the high level of emotional intelligence and pro-health behaviour.

## Key words

health behaviour, emotional intelligence, aged

## INTRODUCTION

The life style of contemporary people is an important topic for specialists in the field of health protection and promotion. As early as the 1970s, a Canadian minister, Lalonde M, described *life style* as one of the most crucial factors having an influence on health. Health determinants – diet, body weight control, physical exercise – are closely related to the life style adopted by the individual [1]. As indicated by Sheridan Ch and Radmacher S, bad life style habits, in consequence, are responsible for about 80% of deaths in the USA [2]. The above- activities have various names in the literature: *pro-health behaviour, medical behaviour, pro-health practice, preventive activities* [3].

Behaviour can have both positive and negative effects on the individual's health. For this reason, Dolińska-Zygmunt G separated and described pro-health behaviour (e.g. the observance of healthy diet, regular physical exercise, coping with the stress) and anti-health behaviour (as e.g. alcohol and drug abuse, high-fat diet, aggressive behaviour) [4]. Gochman D assumes that pro-health behaviour includes such personal attributes as: *convictions, expectations, motives, insights and other cognitive elements, personal features, feelings, as well as emotional conditions and states, patterns of open conduct, activities and habits related to maintenance, recovery and*

*improvement of health included.* [5]. This is a concept which places the emphasis on the importance of psychological mechanisms for shaping the pro-health behaviour. Papers from the field of health psychology indicate more and more frequently that the individual features of a person, such as self-awareness, adopted family patterns, and intelligence level, are the factors contributing to a large extent to pro-health behaviour. Heszen-Klemens I recognized as variables, determining pro-health behaviour those of subjective nature, among others [6], composed of the style of coping with difficult situations, the attitude towards the health care system, general personal features, valuing and assessment of one's own health, sickness perception and accompanying emotions.

The shaping of abilities serving to protect one's health can also originate from the results of teaching, as well as competences in the field of emotional functioning. The emotions experienced and managed by the individual contribute to the awareness of one's own cognitive processes and supply the energy necessary for them. They facilitate the selection of the most effective solutions [7]. Academic contributions in the fields of psychology and medicine make us assume that the emotionality of individuals has its reflection in their health condition.

The effect of academic reports on the issues of coping with emotions was the creation of the term 'emotional intelligence', which spread following the publishing of the book by Goleman D [8]. This American psychologist and writer drew attention to the fact that the emotional intelligence has a larger impact on achieving success than the

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intelligence quotient. According to his theories, emotional intelligence means first of all becoming aware of one's own feelings and their optimum control. The term *emotional intelligence* was first used by Salovey P and Mayer J [8] who defined emotional intelligence as: *the ability to perceive emotions, access them and activate them to accompany the process of thinking; the ability to understand emotions and having emotional knowledge allowing to control emotions and foster emotional and intellectual development* [9, 10].

In the presented study, the terminology suggested by Salovey P and Mayer J [8] constitutes the basis for scientific considerations. The definition presented combines the terms of intelligence and emotions without, however, changing their meanings.

Emotions as potential resources, either to maintain or to achieve the health condition, are of particular importance to older persons (i.e. persons in late adulthood). This stage of development brings about quite a few changes on the grounds of human psycho-social properties, which can reflect on the emotions experienced. Notwithstanding the widening offers for activating older persons, their psycho-social wellbeing can deteriorate in consequence of disadvantageous life changes [11]. With the phenomenon of society becoming older widely described in the literature taken into account, the group under study faces the challenge of a good and healthy life when aged.

## OBJECTIVE

The objective of the study was to perceive the relationships between the variables tested, i.e. emotional intelligence versus health behaviour, of the population aged over 60 through verification of the advanced academic theses. An analysis of the general index of pro-health behaviour was carried out, combined with its individual categories typical for older persons. As a result of professional literature reports, the following scientific hypothesis was formed to be verified: there is a link between the general level of emotional intelligence and the characteristics of pro-health behavior, such as: the general index of pro-health behaviour, positive psychological attitude, preventive behaviour, correct nutritional habits, and pro-health practice. Comparative analysis of the results was made between two groups: attendees of the Third Age University (UTW group) and people from care homes (DPS group). It was assumed that, among other things, because of higher education, the levels of examined variables will be bigger among the Third Age University attendees than in the DPS group.

## MATERIALS AND METHOD

199 people aged over 60 were examined. Differential, comparative examinations were carried out in two purposefully selected groups: 95 Third Age University attendees from the cities of Bydgoszcz and Toruń (UTW) and 104 persons from care homes in Bydgoszcz and Toruń (DPS). The groups were selected according to the key: people whose behaviour in the health area, such as diet, physical exercise, and preventive health care, is under permanent external control (DPS group) and that those who have university education and because of participation in university courses

have wider knowledge on health issues, at the same time deciding on their own on their pro-health activities (UTW group).

Among others, the INTE Questionnaire on Emotional Intelligence was applied in the research, in the Polish form adapted by Ciechanowicz A, Jaworowska A and Matczak A [12]. The INTE questionnaire is composed of 33 items which have the form of statements, mostly written in the first person. The respondents choose from a scale of 1–5 the degree of response most applicable to them. The INTE result is computed by summing up the points obtained for the replies to the 33 questions. The minimum INTE result is 33 points, and the maximum – 165 points. The Health Behaviour Inventory by Juczyński Z [13], containing 24 statements related to health behavior was also applied. The statements are divided into four categories. Proper dietary habits refer primarily to the type of food consumed. The category of preventive health behaviour relates to the observance of health recommendations and obtaining information about health and diseases. Pro-health practices relate to sleeping and leisure habits and physical activity. Positive mental attitude is a category that contains statements concerning the avoidance of severe stress, tension, emotions, and depressing situations. The numerical values obtained in the whole test provide a general index of the intensity of health behaviours (24–120 points). Using the survey attached to the questionnaires, socio-demographic data were collected. There was also a question about the activity undertaken at the Third Age University and life in care homes.

The groups under study were homogeneous by gender. Heterogeneity of groups because of their age and education, was associated with the need to use specific statistical methods. The analysis used the U Mann-Whitney test, nonparametric Spearman test, and chi – square ( $\chi^2$ ) test for bipartite tables. The choice of these non-parametric tests was made due to the fact that the analysed variables are nominal or interval, deviating from the normal distribution. In addition, the effectiveness of the U Mann-Whitney test is similar to that of parametric tests, and is about 98% of the t. test efficiency. In the statistical analyses conducted, the level of statistical significance  $p < 0.05$  was assumed. In the descriptive analysis of results, tables were used in which the number and per cent of responses to the individual questions of the questionnaires are presented. A graphical interpretation of the data is contained in the form of: frame – mustache. For the description of the variables, descriptive statistics were used, giving the arithmetic mean and the standard deviation, the median, and the quartile as well as maximum and minimum values. All calculations and figures were performed by Statistica 6.0 (Statsoft, Poland), and on an Excel spreadsheet (Microsoft, Poland), using the standard features of this software.

## RESULTS

Each of the DPS (104 people) and UTW groups (95 people) were dominated by the number of women. In the DPS group, there were 33 men, whereas in the UTW group there were 23. The subjects were divided into three age groups, ranging from 60–74, 75–89 and over 90 (Tab. 2). The largest group was aged from 60–74 (62.3% of the total). The DPS group comprised 45 people (43.3%). In the UTW group, the youngest respondents



were 79 persons (83.2%). The least numerous were those aged over 90–5 people (2.5% of the total). The average age of respondents was 72. On average, the DPS group turned out to be almost eight years older, average age 75.9, with an average of 67.8 in the UTW group.

Considering all the subjects, the largest group had high school education – 78 people (39.2%). The least numerous groups were respondents with primary – 34 people (17.15%) and basic vocational education – 32 people (16.1%). At the same time, they were also from the DPS group. The results showed that subjects in the DPS have a lower level of education than the UTW group. In the DPS group, only 6 respondents (5.8%) had a university degree, and only every third had secondary education – 36 people (34.6%). In the UTW group, in turn, only four people (4.2%) had vocational education, and every other person had a university degree – 49 people (51.6%). Others had high school education. There were no respondents in this group with primary education.

A comparison of the results in terms of emotional intelligence and various categories of health behaviour was made in relation to the distribution of the respondents into residents of care homes and university attendees. The difference in the average of the INTE questionnaire between the groups was 5 points. The UTW group received a score higher than the residents of care homes. None of the respondents had low results. Among the DPS, more than a half of the respondents received an average score – 63 people (60.65%). Among university attendees, more than a half of respondents received high scores – 60 (63.2%). As demonstrated by U Mann-Whitney Test, the groups differed from each other at a statistically significant level ( $p = 0.000$ ). As for the results of the overall index of health behaviour, it should be noted that the group as a whole showed an average level of these activities, close to a high level. 17 respondents received low (8.5%) results, the average result – 66 people (33.2%), and high scores 116 people (58.3%). Higher average results were obtained by the UTW group – an average of 93.53.

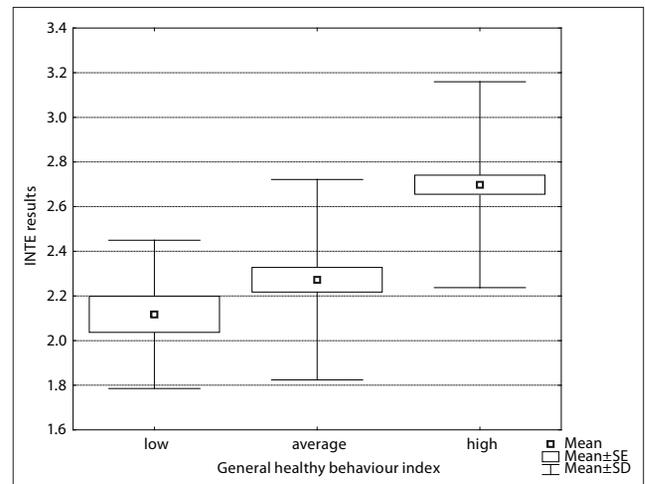
The respondents as a whole showed an average level of health practices, dietary habits and preventive behaviour. The standard deviation of the first and last variables is accordingly over 14% and 17 % of the average, which indicates considerable diversity. The DPS group received a slightly lower score in the field of prevention and a slightly higher one in relation to health practices. All respondents also obtained an average level of positive mental attitude. The DPS group had average lower scores than UTW in this field. Analysis by U Mann-Whitney test showed additionally that only the results in the area of positive mental attitude differentiated the DPS group from the university attendees in a statistically significant way ( $p=0.002$ ).

The objective of this study was to illustrate the relationship between the INTE data and the health categories. The results showed that there was a statistical relationship between the results in the area of emotional intelligence and the general index of health behaviour, which is made up of a total of four categories of IZZ questionnaire (Tab. 1). A graphical analysis of the result shows a positive correlation between these variables (Fig. 1). With the increase in the INTE result, the overall index of health behaviour also increased.

There is also a significant statistical correlation between the general level of emotional intelligence and the individual categories of health – a positive mental attitude,

**Table 1.** Correlations between the INTE results and individual categories of pro-health behaviour

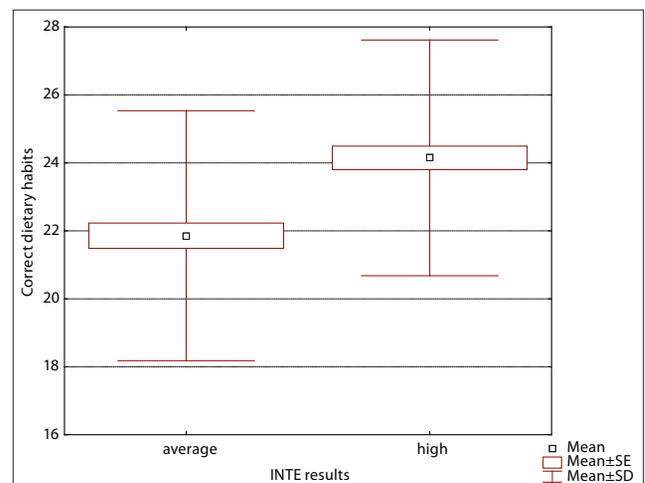
Variables	N	R	t(N-2)	P level
INTE and general rate of health behaviour	199	0.457860	7.22858	0.000000
INTE and correct dietary habits	199	0.303298	4.467424	0.000013
INTE and preventive behaviour	199	0.457311	7.217601	0.000000
INTE and positive mental attitude	199	0.519859	8.541471	0.000000
INTE and health habits	199	0.178594	2.547647	0.011608



**Figure 1.** Distribution of general healthy behaviour index depending on INTE results

preventive behaviour, correct dietary habits, each in average correlation (Tab. 1). In relation to emotional intelligence, the performance in terms of health practices remains in low but clear correlation.

Distributions of scores in each category of pro-health behaviour changed, depending on the INTE level. The groups of people with high performance in terms of emotional intelligence achieved higher average scores than those with lower levels of emotional abilities in the area of positive mental attitude, preventive behaviour, healthy dietary habits, and health practices (Fig. 2, 3, 4, 5). Generally, the performance of health behaviour followed the increase in the INTE results.



**Figure 2.** Distribution of correct dietary habits. depending on INTE results

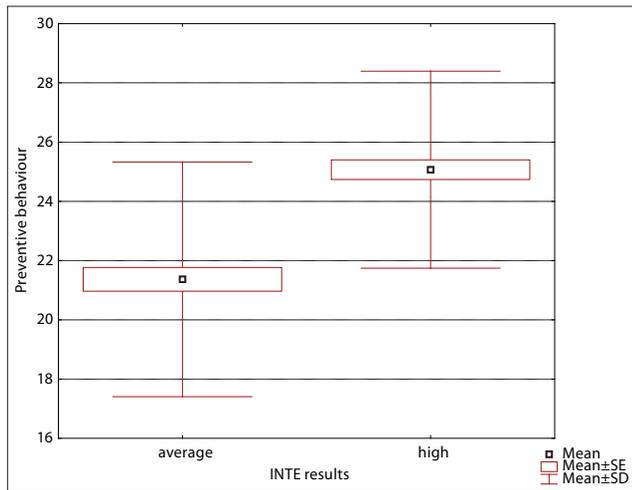


Figure 3. Distribution of preventive behaviour depending on INTE results

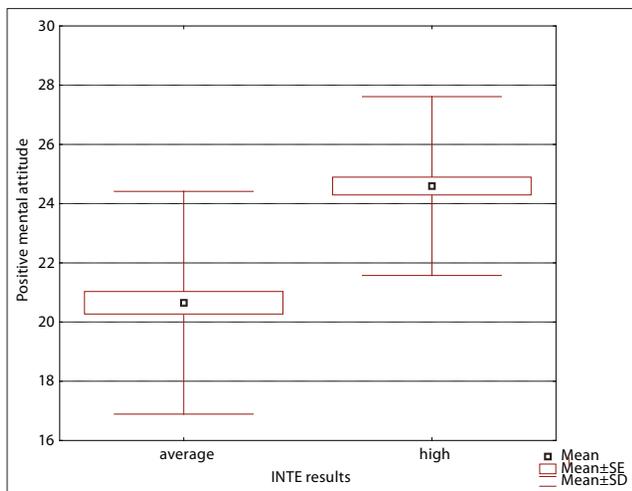


Figure 4. Distribution of positive mental attitude depending on INTE results

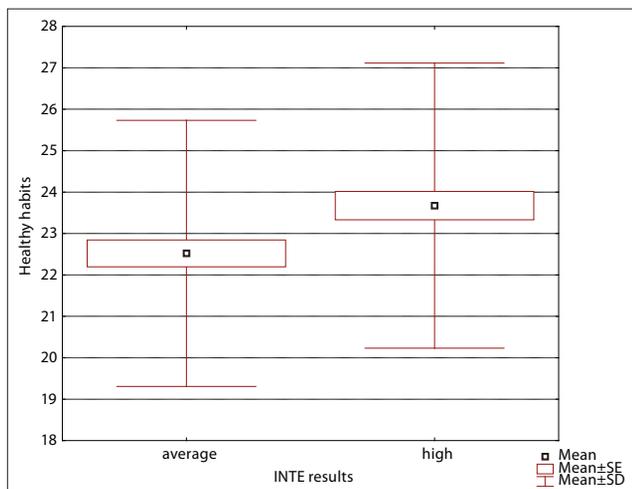


Figure 5. Distribution of healthy habits results. depending on INTE results

Considering the results of INTE intervals in the context of belonging to the analysed DPS and UTW groups, a  $\chi^2$  test for bipartite tables was used. In relation to variables: positive mental attitude and dietary habits, the difference between groups was found to be statistically significant (Tab. 2). With the increase in the INTE results, the performance in both

Table 2. Correlation of INTE results and positive mental attitude and dietary habits in people examined from DPS and UTW groups

	R rang Spearman	Chi-square	df	P
INTE and positive mental attitude in DPS/UTW	0.1791389	t=4.0593	0.00006	
INTE and dietary habits in DPS/ UTW	0.1208585	t=2.7143	0.00687	
INTE and preventive behaviour in DPS/UTW	0.0471059	t=1.0513	0.29362	
INTE and healthy habits in DPS/ UTW	-0.077790	t=-1.739	0.08257	

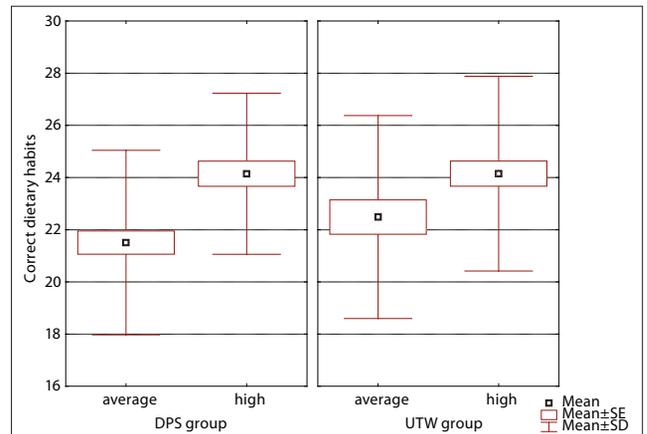


Figure 6. Distribution of correct dietary habits. depending on INTE results in DPS and UTW groups

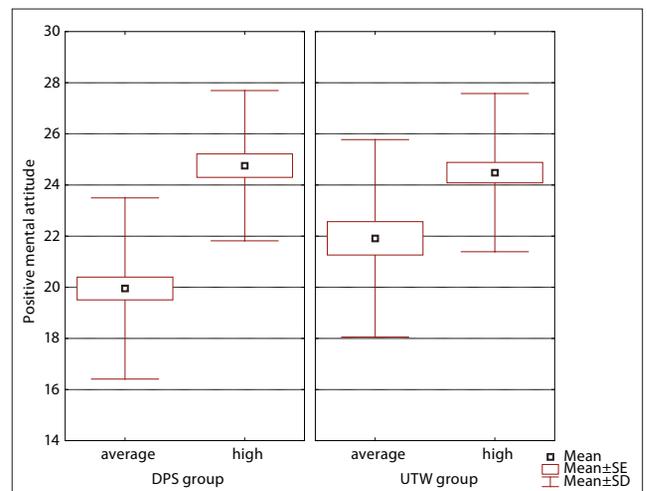


Figure 7. Distribution of positive mental attitude. depending on INTE results in DPS and UTW groups

categories of health behaviours grew in both university attendees and residents of care homes (Fig. 6, 7). In the DPS and UTW groups, in people with high performance in terms of emotional intelligence, on average, higher scores were reported in the area of positive mental attitude (Fig. 7). The results of normal dietary habits are analogous. In the DPS and UTA group, lower scores were reported in the care of healthy diet in individuals with lower average INTE scores (Fig. 6). The results of positive mental attitude and healthy dietary habits in people with a high level of emotional intelligence of DPS and UTA groups were at a similar point level. An analysis of results showed no significant relationship between membership in the DPS and UTA groups in relation to the proportion between emotional abilities and health practices, as well as preventive behaviour.



## DISCUSSION

Emotional intelligence can be a predictor of the potential health behaviour of the elderly. No research on the elderly, based on the concept of emotional ability, has been reported to-date in the literature. This paper is in harmony with current research conducted, among others, by Salovey P et al., and the team of Claros E and Sharma M [14,15]. The authors suggest that the components of emotional intelligence, such as impulse control and self-awareness, reduce the likelihood of risky (anti-healthy) behaviour and also affect wellbeing [15]. Research on college students showed that high scores on emotional intelligence were associated with a lower likelihood of alcohol and marijuana consumption. Salovey P et al. refers to the mental health experts who assess emotional intelligence as a factor essential to mental health [14].

The presented study aimed to determine the mutual relationship between emotional intelligence and pro-health behaviour of people in late adulthood. An attempt was undertaken to analyse the correlation between the abilities of emotional nature and the intensity of pro-health activities which foster the wellness of an individual. The dependencies between the level of emotional intelligence and health behaviour were analysed from the aspect of the overall rate of health behaviour and specific categories, such as healthy dietary habits, preventive behaviour, positive mental attitude, and health practices. As shown, all the systems of variables related to pro-health behaviour in relation to the level of emotional intelligence are statistically significantly dependent. This is the same as reported in the studies by Goleman D and Trinidad DR, and Johnson CA [16, 17]. Emotional intelligence is the feature conducive to health behaviour and reduces the likelihood of damaging behaviour. It allows one to function better in a manner that promotes health, among other things, by maintaining inner peace and increased self-care [18, 19]. The presented study also confirms a positive correlation between emotional intelligence and positive mental attitude, which, according to the theory, determines the health of an individual. This is analogous to the results of tests carried out on a group of students by Sulaiman SMA, who showed that there is a negative correlation between emotional abilities and depressive symptoms, and a positive correlation between emotional intelligence and psychological adjustment [20].

The graphical distribution of the results shows that with the increase in the INTE result, the overall index of health behaviour and its various categories grow. This means that when discussing the issues of healthy lifestyle, one should refer to the personal ability to cope with emotions. This study is far from being exhaustive; it merely indicates the direction of the relationship in which to seek solutions and to design further studies. Results of analyses do not refer to the control group, i.e. people operating in their natural social environment, not attending university courses, nor residents of care homes. Research would be also necessary on the level of intellectual ability that can differentiate the examined groups. Some authors of the concept of emotional intelligence, e.g. D. Goleman, assume the primacy of emotional ability. However, the authors of the presented study are of the opinion that analyses of purely mental abilities should not be underestimated. In addition, the overall results related to emotional intelligence do not discuss the level of its individual abilities. Bar-On M [21] mentions, among

others, good decision-making, optimism and hope, as those areas which – if taken into consideration in further research – could potentially provide new insights into the role of emotions in caring for health.

Emotional intelligence is an important aspect for the considerations of the level of activity in the area of health. A positive mental attitude according to the IZZ tool means the avoidance of too strong emotions, stress, tension, or situations depressing the individual. Mayer J, Salovey P and Caruso D mention as personality traits related to the concept of emotional intelligence, among others, optimism, self-esteem, and achievement motivation [12]. Pessimists do not take care of their health, smoke and drink more, and exercise less than optimists. They do not make efforts to develop healthy habits at home. The study showed that with the increase in the INTE results, the positive result of mental attitude grows. This complies with the studies conducted with the MEIS Multifactor Emotional Intelligence Scale by Salovey P, Mayer JD, Caruso D. They showed that all areas of emotional intelligence (identification, use, understanding and managing the emotions) negatively correlated with depression [22]. In relation to the comparison of the feature of optimism against emotional competence, one can presume that they have an impact not only on the psychological well-being but also on the motivation to undertake and sustain health activities.

Analyses of these studies have shown that people with high emotional competence achieve, on average, higher scores in the field of positive mental attitude and healthy dietary habits, depending on their DPS or UTW groups membership. This means, among other things, that emotional competences significantly alter coping with emotions, stresses included, depending on the social and living conditions of the elderly. The relationship between dietary habits and the level of emotional intelligence amongst DPS and UTW groups should be justified by other psychological regulatory mechanisms. For example, the etiology of eating disorders (e.g. obesity and overeating) focuses on the problems of speaking about emotions such as literacy, i.e. the ability to express them and other forms of coping with them.

## CONCLUSIONS

1. A significant relationship was found between the variables describing health behaviour and emotional intelligence. The hypotheses assumed were confirmed.
2. It was shown that an increase in the intensity of emotional abilities and the knowledge of pro-health behaviour induced a growth in the behaviour oriented towards health care.
3. It was proved that pro-health activities are strictly related to the emotionality of the elderly, differentiated between the examined groups.

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