Health Behaviours and Sense of Coherence
Among Female Students of Selected Polish Universities of the Third Age

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Abstract
The purpose of the study was to answer 4 research questions: 1. What is the state of health behaviours among female U3A (University of the Third Age) students? 2. What is the sense of coherence among the students of U3As? 3. What is the meaning of the conducted research for health promotion?
The study was conducted by means of a diagnostic survey. For the assessment of selected indicators, Juczyński’s Inventory of Health Behaviours and Antonovsky’s Life Orientation Questionnaire were used. The study included 104 female students of universities with varying organisational and legal forms.

In each of the 3 U3As, a similar state of health behaviour is maintained, interpreted as average. It has been shown that respondents exhibit a mean sense of coherence. Elderly people received the highest scores in the comprehensibility component, whereas the lowest in the 3 groups tested regarding the meaningfulness component. In research, it has been shown that there is a correlation between the sense of coherence and the pro-health behaviours of the female students.

Keywords: health behaviours, sense of coherence, elderly people, social support.
was indicated by the elderly as the greatest difficulty in the times of the pandemic (Grudziewska 2021). Among the strategies of coping with difficult emotions, the best one turned out to be to accept the current situation that is beyond one’s control (Timoszyk-Tomczak, Bugajska, Piotrowska 2021). Therefore, when the pandemic ends, one of the many tasks to be carried out will be helping the elderly return to social life. Which of the social assistance institutions will assume responsibility for that?

A wide variety of events addressed towards people at a retirement age can be found in didactic institutions called the Universities of The Third Age (U3As). In 1973, the world’s first University of the Third Age was established in Toulouse, France (Guangzhou Elderly University 2017). In Poland, the first U3A was established in the year of 1975 by the Centrum Medycznym Kształcenia Podyplomowego [Medical Centre of Postgraduate Education] in Warsaw. It was, after France and Belgium, one of the first institutions of this type in Europe (Rawiński, Zakowicz 2018). The goal of these institutions is to optimise the conditions of life of students and to create conditions for their comprehensive development (Czerniawska 2009). U3As are a part of the concept of continuing training; hence, they should promote health education, stimulate intellectual as well as physical activity, and artistic expression, as and work for the local community (Czerniawska 2007). Due to the mentioned benefits of participating in classes dedicated to older students, in Poland, U3As are garnering increasing attention. Additionally, the classic model of U3A functioning assumes conducting scientific research, oscillating around the problems of old age and aging (Marcinkiewicz 2012). In the light of modern gerontological research, old age is not identified with disease. Research findings show that a sense of coherence develops over one’s entire lifespan, in other words, it increases with age [Feldt, Leskinen, Koskenvuo 2011]. This is in agreement with the idea proposed by Antonovsky, which defines ageing as a process of human development instead of just biological and mental degradation of the body (Antonovsky 1993). Research on the sense of coherence among elderly people provides knowledge as to whether the potential growth of social-psychological salutary factors is actually utilised. A great opportunity for observation are classes offered to seniors, because they bring a desirable research group together.

The U3As become not only an instrument for social support, but also, a helpful tool in shaping health patterns among elderly people. The common feature of their functioning is the propagation of widely-understood health and the prevention of late adulthood conditions. The role and importance of prophylaxis is widely-known, but the proper practice does not follow (Knyp 2000). The situation may be changed by preventive measures proposed by family doctors. It is anticipated that the diagnosis of health behaviour state and the level regarding serene sense of coherence will encourage the medical community to co-operate with U3As, so that the enriched offer of classes responds to the needs of an aging society.

The purpose of the research was to diagnose the state of health behaviours and the sense of coherence among female students from U3As, leading to the examination of the relationship between the varied profile of U3A activity and the state of health behaviours among older students, as well as the correlation between coherence and pro-health behaviours. In pursuit of these goals, it was necessary to pose the following questions:

1) What is the state of health behaviours among female students of U3As in the studied environments?
2) What is the sense of coherence among female students of U3As in the studied environments?
3) What is the meaning of the conducted research for health promotion?

The study was conducted by means of diagnostic survey. For the assessment of selected indicators, Juczyński’s Inventory of Health Behaviours (IZZ) and Antonovsky’s Life Orientation Questionnaire (SoC29) were used.

The Inventory of Health Behaviours (IZZ) contains 24 statements which are related to various behaviors connected with health. The obtained results indicate an increase in pro-health behaviours, such as healthy eating habits (type of consumed food), prophylactic behaviours (complying with health recommendations, obtaining information on health and diseases), health behaviours (everyday habits regarding sleeping, leisure, physical activity) and positive mental attitude (avoiding too strong emotions, tension, depressing situations). The results are within the range of 24–120 points. The higher the result, the greater the intensity of declared health behaviours. The result is calculated separately for each of the 4 mentioned categories – the indicator is the mean number of points in each of them obtained by dividing the sum of the points by 6. The core in a single category is within the range of 1–30 (Juczyński 2001).

Antonovsky’s Life Orientation Questionnaire from 1983 was been adapted 10 years later to Polish conditions by Zakład Psychologii Klinicznej Instytutu Psychiatrii i Neurologii [Department of Clinical Psychology at the Institute of Psychiatry and Neurology] in Warsaw, Zakład Psychoprophylaktyki Instytutu Psychologii Uniwersytetu Adam Mickiewicza [Department of Psychoprophylaxis of the Institute of Psychology - Adam Mickiewicz University] in Poznań and Zakład Psychologii Pracy Instytutu Medycyny Pracy [Department of Occupational Psychology, Institute of Occupational Medicine] in Łódź. It allows to determine the general level of SOC, as well as its 3 dimensions: comprehensibility (PZR – 11 statements), manageability (PZ – 10 statements) and meaningfulness (PS – 8 statements). Each of the 29 questions can be answered using 1 of 7 possible answers, assigned points from 1 to 7, and determining the reaction of the respondent to different situations. The result is calculated by adding points from individual answers according to the key – allowing to determine global SOC and its 3 components. Obtaining a high result indicates a high sense of coherence (Antonovsky 2005).
The study included 104 female students in the age group between 50 to 79 years. The difference in the age of the audience is justified by the fact that U3A’s offer is addressed both to the oldest and those just above the age of 50. Only the COVID-19 epidemic clearly showed the difference of 2 generations and the need for structural changes related to the division of U3A into U3A and U4A (Rosochacka-Gmitrzak 2021). At the time of the study, at the selected social assistance centres (U3A in Wrocław, U3A in Jawor, U3A in Konin), about 200 people participated in the classes. Among them, 50% agreed to participate in the identification study. The applied statistical methods include basic indicators of mass phenomena: standard deviation, arithmetic mean and weighted average.

The study was limited to female respondents due to the demographic structure. Women dominate among the listeners of U3As, comprising approximately 90% of all students. Men were omitted from the study for the gender not to make the obtained results muddy. The reason for the overwhelming number of female listeners at U3As could be the survivability of women. Loss of a husband means the loss of social role held thus far, and often, the threat of loneliness within the context of age, which is conducive to deciding to participate in the classes (Kourkouta, Iliadis, Monios 2015). The U3As’ offer partially compensates the loss and enables one to assume a new role.

**Results**

Health-related behaviours include healthy eating habits, prophylactic behaviours, positive mental attitude and health behaviours (Kurpas, Kusz, Jedynak 2012). Results allow to indicate that in each of the 3 U3As considered, a similar state of health behaviours is maintained (Table 1). The mean score in all research groups is interpreted as average.

The subject of the study was also to diagnose the sense of coherence, referred to as the “key to health” (Antonovsky 1995). On the basis of the presented data (Table 2), it can easily be noted that in all U3As, the respondents obtained the highest scores in the comprehensibility component. Second place was sense of man-ageability, while the weakest scores among U3As students were obtained for the meaningfulness component. The average SoC score in each study group determines the average sense of coherence among the elderly population. Since the research has been conducted at 3 different institutions, and the results show the same relationship, it is worth noting that this trend may be common among people in late adulthood.

To determine the limits regarding levels of sense of coherence, attention should be paid to 2 indicators: weighted average and standard deviation. The result of the sense of coherence reduced by the numerical value of the standard deviation establishes the limit below which each obtained result is interpreted as a low level of sense of coherence. On the other hand, the average result of the sense of coherence increased by the numerical value of the standard deviation indicates that each result above the obtained number is interpreted as a high level of sense of coherence. According to the chosen calculation principle, values between the numerical limit of low and high sense of coherence or equal to these values, numerically indicate the average level of sense of coherence. Data on the number of elderly people with different levels of the sense of coherence are documented in the first column of the table (Table 3). In the second column, data present the averaged research group result from each level of the sense of coherence. Research allows to indicate normal distribution of health behaviours despite the division of people according to the represented level of sense of coherence. The values of positive mental attitude do not show an upward trend due to the increasing level of sense of coherence, although Antonovsky’s theory assumes such a correlation. The large dispersion of results observed around the average enforces scrupulous analysis of the tests performed at individual centres.

Studies conducted at U3As in Wrocław and Jawor also show a normal distribution of health behaviours for respondents (Tables 4, 5), despite the division of elderly people into groups with low, medium and high sense of coherence. Positive mental attitude corresponds in no way with the achieved results regarding the level of sense of coherence. Only the research carried out at U3A in Jawor is an exception, confirming the theory of salutogenesis.

**Table 1. Status of health behaviours in the group of studied women**

<table>
<thead>
<tr>
<th>IZZ scale</th>
<th>U3A in Wrocław (n = 49)</th>
<th>U3A in Jawor (n = 21)</th>
<th>U3A in Konin (n = 34)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper eating habits</td>
<td>22.29 ± 4.11</td>
<td>22.19 ± 3.06</td>
<td>22.3 ± 5.03</td>
</tr>
<tr>
<td>Preventive behaviours</td>
<td>22.57 ± 3.77</td>
<td>21.86 ± 4.16</td>
<td>21.74 ± 5.56</td>
</tr>
<tr>
<td>Positive mental attitude</td>
<td>22 ± 2.92</td>
<td>22.19 ± 3.59</td>
<td>21.78 ± 5.23</td>
</tr>
<tr>
<td>Health habits</td>
<td>21.49 ± 3.22</td>
<td>22.43 ± 3.06</td>
<td>20.98 ± 5.07</td>
</tr>
<tr>
<td>IZZ</td>
<td>88.35 ± 10.26</td>
<td>88.24 ± 10.15</td>
<td>86.8 ± 17.29</td>
</tr>
</tbody>
</table>

x – arithmetic mean  SD – standard deviation
Table 2. Sense of coherence in the group of studied women

<table>
<thead>
<tr>
<th>Sense of coherence</th>
<th>U3A in Wrocław (n = 49)</th>
<th>U3A in Jawor (n = 21)</th>
<th>U3A in Konin (n = 34)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sense of comprehensibility</td>
<td>45.45 ± 5.58</td>
<td>45.29 ± 6.08</td>
<td>43.4 ± 4.73</td>
</tr>
<tr>
<td>Sense of manageability</td>
<td>38 ± 6.44</td>
<td>35.76 ± 6.38</td>
<td>38.7 ± 5.97</td>
</tr>
<tr>
<td>Sense of meaningfulness</td>
<td>33.45 ± 4.25</td>
<td>31.43 ± 5.05</td>
<td>33.1 ± 4.32</td>
</tr>
<tr>
<td>SoC</td>
<td>115.12 ± 14.19</td>
<td>112.15 ± 12.5</td>
<td>115.17 ± 9.11</td>
</tr>
</tbody>
</table>

\( \bar{x} \) – arithmetic mean  
SD – standard deviation

Table 3. Sense of coherence and status of health behaviours among female students

<table>
<thead>
<tr>
<th>Level of the sense of coherence</th>
<th>Sense of coherence</th>
<th>Status of health behaviours</th>
<th>Proper eating habits</th>
<th>Preventive behaviours</th>
<th>Positive mental attitude</th>
<th>Health habits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WACC ± SD</td>
<td>WACC ± SD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low ( n = 24 )</td>
<td>99.29 ± 6.73</td>
<td>89.21 ± 9.09</td>
<td>22.75 ± 3.76</td>
<td>23.42 ± 3.27</td>
<td>21.71 ± 2.63</td>
<td>21.33 ± 2.58</td>
</tr>
<tr>
<td>Average ( n = 48 )</td>
<td>113.29 ± 3.88</td>
<td>84.94 ± 14.19</td>
<td>21.65 ± 4.31</td>
<td>20.65 ± 5.14</td>
<td>21.88 ± 4.00</td>
<td>20.77 ± 4.96</td>
</tr>
<tr>
<td>High ( n = 32 )</td>
<td>128.31 ± 9.39</td>
<td>90.50 ± 13.16</td>
<td>23.25 ± 4.16</td>
<td>22.97 ± 4.34</td>
<td>22.06 ± 4.27</td>
<td>22.50 ± 3.54</td>
</tr>
</tbody>
</table>

WACC – weighted average; SD – standard deviation

Table 4. Sense of coherence and status of health behaviours among female students of U3A in Wrocław

<table>
<thead>
<tr>
<th>Level of the sense of coherence</th>
<th>Sense of coherence</th>
<th>Status of health behaviours</th>
<th>Proper eating habits</th>
<th>Preventive behaviours</th>
<th>Positive mental attitude</th>
<th>Health habits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WACC ± SD</td>
<td>WACC ± SD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low ( n = 14 )</td>
<td>99.00 ± 6.89</td>
<td>88.79 ± 17.77</td>
<td>22.86 ± 3.92</td>
<td>22.43 ± 5.54</td>
<td>21.36 ± 3.54</td>
<td>22.14 ± 7.95</td>
</tr>
<tr>
<td>Average ( n = 23 )</td>
<td>114.09 ± 4.08</td>
<td>83.27 ± 12.37</td>
<td>20.77 ± 4.55</td>
<td>21.18 ± 4.83</td>
<td>21.27 ± 3.59</td>
<td>20.05 ± 3.55</td>
</tr>
<tr>
<td>High ( n = 12 )</td>
<td>133.25 ± 12.77</td>
<td>92.50 ± 7.76</td>
<td>23.58 ± 3.00</td>
<td>23.42 ± 3.32</td>
<td>22.83 ± 3.41</td>
<td>22.67 ± 3.06</td>
</tr>
</tbody>
</table>

Table 5. Sense of coherence and status of health behaviours among female students of U3A in Jawor

<table>
<thead>
<tr>
<th>Level of the sense of coherence</th>
<th>Sense of coherence</th>
<th>Status of health behaviours</th>
<th>Proper eating habits</th>
<th>Preventive behaviours</th>
<th>Positive mental attitude</th>
<th>Health habits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WACC ± SD</td>
<td>WACC ± SD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low ( n = 6 )</td>
<td>95.7 ± 8.55</td>
<td>89 ± 7.4</td>
<td>23.2 ± 2.04</td>
<td>23.5 ± 3.45</td>
<td>22 ± 2.68</td>
<td>20.3 ± 2.16</td>
</tr>
<tr>
<td>Average ( n = 7 )</td>
<td>114 ± 3.59</td>
<td>89.9 ± 10.9</td>
<td>21.6 ± 2.3</td>
<td>21.1 ± 3.98</td>
<td>23.09 ± 2.61</td>
<td>23.3 ± 3.99</td>
</tr>
<tr>
<td>High ( n = 8 )</td>
<td>124 ± 2.2</td>
<td>86.3 ± 12.1</td>
<td>22 ± 4.24</td>
<td>21.3 ± 4.92</td>
<td>20.9 ± 4.58</td>
<td>23.3 ± 2.12</td>
</tr>
</tbody>
</table>

WACC – weighted average; SD – standard deviation
The data (Table 6) show that the average health behaviour increases directly in proportion to the increasing sense of coherence. In this group, the same high self-esteem has been achieved, and respondents with an average sense of coherence achieved better health status than those whose coherence was low.

Among the respondents of U3A in Konin, the positive mental attitude indicator corresponds with the represented level of the sense of coherence.

The documented relationship between the state of health behaviours and the level of the sense of coherence provides information for family medicine physicians that care for the high level of coherence among elderly people belongs to preventive actions promoted by the managing authorities of U3As. Support for doctors in adapting the educational offer to the needs of potential patients has a chance to improve their health behaviour, and this should directly affect the quality and life expectancy of elderly people.

**Discussion**

The belief that old age is related to poor health is a stereotype, and according to Streib (1967), only 14% of older people living outside of care institutions can be classified as ill (Suszulowska 1989). This concept agrees with Antonovsky’s theory of salutogenesis – none of us are in the healthy or the sick category, because each of us occupies a position between the imaginary extremes of the continuum: absolute health and total illness (Antonovsky 1997). The position of the unit between the 2 opposite poles is determined by the 2 factors analysed in the described research. It is precisely these health behaviours that are one of the most important determinants of human health (Wojnarowska 2008), and the sense of coherence is considered an important predictor of health and quality of life (Giancari, Piotrowicz 2011).

The state of health behaviours among female students of U3As was interpreted as average. The result may be a consequence of low expectations of one’s own effectiveness. This relationship has been documented in studies conducted by Taylor, Bandura, Ewart, Miller and Debuska in 1985. For example, the restoration of cardiovascular function in coronary artery disease proceeds better if patients perceive that they are able to cope with the disease (Schwarzer 1997). Other determinants of health are education and gender (social determinants), family influence (situational determinants), and perception of symptoms. However, the practice of positive health behaviour collides with psychological determinants. When asked about the probability of having a specific disease, the statistical mean of the respondents declares that they are significantly less likely to be affected by the disease compared to others. This demonstrates the existence of a significant psychological barrier to changing health habits (Bishop 2000), and causes the results of the research using the IZZ Questionnaire to be treated with some caution, as they relate to the declared state of health behaviour, i.e. subjective assessment of the respondents.

The authors of developmental concepts point to the specific task that a human faces in late adulthood: a retrospective summary of one’s own existence (Adler 1986). This is related to the purpose of life, which is different from the sense of meaning proposed in Antonovsky’s model. In the research carried out by Zając, it is shown that the level of feeling purpose in life is differentiated by education of the subjects (Zając 2002). It has been proved that women with higher education more frequently undertake behaviours that benefit their health, which can probably be explained by more knowledge about the methods of protecting one’s health (Jaćennik 2008). This discovery brings new opportunities for improving the sense of meaning that was the lowest among the seniors who attended the Universities of the Third Age. Although the sense of meaning and purpose of life are not identical, they depend on each other, as Obuchowski explains. The apparent co-existence of sense of coherence and purpose of life can also be attributed to the fact that these qualities belong to the personality characteristics of a human, since personality always functions, changes and develops as a whole (Obuchowski 1985). That coincides with research on women during menopause – a woman who sees a sense in her life will take the effort to fight the symptoms of men-
opopause and is additionally convinced that she will conquer all adversities (Kurowska, Kierzenkowska 2014).

The stress-coping style is a personal, relatively stable predisposition, inclination or tendency towards the conscious triggering of specific strategies in response to a difficult situation (Bergier, Rutkowska, Witkowski 2014). The sense of coherence treated as a resource for coping with stress (Terezak 2001) may change under the influence of socialisation. This is further proof that the involvement of students in U3As classes may help shape positive health patterns. Sources say that the support of institutional forms with various types of informal initiatives, flowing outside the closed environment of “Social Welfare Facilities”, significantly alleviates the stress of solitude (Wade 1987). Over the past decade, the concept of “age-friendly communities” has emerged. According to the WHO, “in an age-friendly community, policies, services and structures related to the physical as well as social environment are designed to support and enable older people to ‘age actively’, that is, to live in security, enjoy good health and continue to participate fully in society” (Mittelmark 2017). The presented theories and research indicate that the activities of U3As perform the function of educating and integrating elderly people are undoubtedly needed in the context of an individual’s health.

Conclusions

1) The state of health behaviours among female students of U3As, interpreted as average, reflects the need for intervention by social support institutions in the process of shaping positive health patterns among elderly people.
2) Research showed that respondents exhibit an average state of coherence. The activities of U3As should be distinctively aimed at raising the level of sense of sensibility among seniors.
3) Medical indications to participate in activities offered by U3As may become a factor increasing patient care for their own health.

The authors do not declare any conflict of interest.

References: