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INFLUENCE OF MARITAL STATUS ON LONGEVITY IN UKRAINE

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We observed 517 people aged 90+ living in Ivano-Frankivsk region during 2005–2015. Each respondent answered 49 questions concerning their socio-psychological state, lifestyle, and health status. Among 133 males and 335 females who got married for the first time, 105 (78.9 %) men and 303 (90.4 %) women felt happy. There was a significant difference ($p < 0.05$) between long-lived men and women who were unhappy in their first marriage – 28 (21.1 %) men and 32 (9.6 %) women. Among happy men, 31 (29.5 %) males were married twice and experienced happiness significantly more often than happy women (15.5 %) experience. No significant difference between happy and unhappy long-livers was found between both sexes in the third marriage. For the group “men”, there was a strong relationship between the years lived and their marital status; for the group “women”, it was strong; for the group “men and women”, the Pearson’s contingency coefficient showed a strong relationship, which indicated the influence of long-term marital status on the life expectancy of long-livers. One reason for the longevity of the XX century generation in Ukraine was a long-term marital status.

Key words: psychology, longevity, marital status, Ukraine

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ВПЛИВ АСПЕКТІВ СІМЕЙНОГО СТАНУ НА ДОВГОЛІТТЯ В УКРАЇНІ

Під нашим спостереженням перебувало 517 осіб віком 90+, які проживали в Івано-Франківській області протягом 2005–2015 років. Кожен респондент відповів на 49 питань щодо його соціально-психологічного стану, способу життя та стану здоров'я. Серед 133 чоловіків і 335 жінок, які одружилися вперше, щасливими відчували себе 105 (78,9 %) чоловіків і 303 (90,4 %) жінки. Серед довгожителів була суттєва різниця ($p < 0,05$) між чоловіками та жінками, які були нещасливими у першому шлюбі – 28 (21,1 %) чоловіків та 32 (9,6 %) жінки. Серед щасливих чоловіків 31 (29,5 %) чоловік був одружений двічі і відчував щастя значно частіше, ніж щасливі жінки (15,5 %). У третьому шлюбі не було виявлено суттєвої різниці між щасливими і нещасливими довгожителами обох статей. Для групи «чоловіки» існував сильний зв'язок між прожитими роками та їхнім сімейним станом; для групи «жінки» він був сильним; для групи «чоловіки та жінки» коефіцієнт спряженості Пірсона показав сильний зв'язок, що свідчить про вплив тривалого сімейного стану на тривалість життя довгожителів. Однією з причин довголіття представників ХХ століття в Україні було перебування в шлюбі.

Ключові слова: психологія, довголіття, вік, сімейний стан, Івано-Франківська область

The study is a part of the research project “Prevalence and spectrum of birth defects in families with different hereditary and multifactorial pathology” state registration No. 0119U003647.

There are many factors that affect longevity [6, 8, 13]. Thus, according to Berg et al., the genetic studies on longevity may incorporate the parental transmission pattern and genes influencing the entire life course of individuals [1]. The female advantage in longevity is believed to be the result of the hormonal effect on the inflammatory and immunological reactions or greater resistance to oxidative damage [2].

Larsson et al. have identified the factors associated with increased life expectancy [9]. Samton has analysed the results of various studies on the “green” old age and the increase in life expectancy and

concluded that a healthy diet, regular exercise, and an optimistic attitude to life have the strongest impact on longevity [12]. Christensen et al. focused on the genetic, environmental, and medical factors as the determinants of longevity in developed countries.

In recent decades, due to the high prevalence of divorces in many countries and their harmful consequences, it has become increasingly important to study the components of marital stability. In particular, this issue has been studied among long-lived people [3, 14]. Israel is known to have the lowest divorce rate in the West, and married life is highly valued among the Jews.

The study is relevant as the possible effect of marriage, as a psycho-emotional trigger of life expectancy, on longevity was analyzed for the first time ever.

The purpose of the study was to identify the key factors and their prioritization that have affected the life expectancy of long-lived people in Ukraine in the XX century.

Materials and methods. A study of 517 people, including 145 men and 372 women aged 90 to 102 years (at the time of the study) who lived in the Ivano-Frankivsk region (Ukraine) during 2005–2015, was performed. At the time of the study, all the patients were alive.

Information was gathered from the respondents, using questionnaires designed by the authors. They included 49 questions divided into the following blocks: the socio-psychological state, lifestyle, and health status. A block of questions concerning the socio-psychological state of long-lived people covered information on marriage. Information was collected over a 6-month period. The study groups were created based on information obtained from family physicians and geriatricians from different districts of the Ivano-Frankivsk region.

Inclusion criteria were the age of 90 years and over, no mental disorders, and a lengthy period of residence (over 50 years) in this area (>50 % of life).

Exclusion criteria were the age of 89 years and younger, the presence of mental disorders, and the residence time in this area (<49 % of life).

After being informed of the nature of the study and disclosure of their data, all the patients voluntarily gave written informed consent. The study was approved by the Ethics Committee of Ivano-Frankivsk National Medical University (Ukraine) on May 20, 2015. All personal data were anonymized prior to analysis.

However, answers to questions related to marital status and psychological features of married life were selected for this analysis. The age of each long-lived person was confirmed with their passport data.

The study confirmed the impact of those who raised long-lived people on the marital status of 3 groups of 90+ people (men – Group 1, women – Group 2, men and women – Group 3).

The group comprising both men and women provided for collecting general data and confirming or refuting gender-related components when analyzing the results.

The most common parametric criteria used to assess the similarity of two groups of subjects, in which certain data properties are measured, are: “*t*” – the Student’s probability criterion; “ χ^2 ” – the Pearson’s consistency criterion; the Pearson’s contingency coefficient. Statistically significant result is one where the observed *p*-value is less than (or equal to) 5 %.

Results of the study and their discussion. There were by 2.6 times more long-lived women than long-lived men. This gender feature correlates with the total number of long-lived people in the population of Ukraine.

For Group 1 and Group 2, there was conducted an analysis of the impact of their marital status on longevity. In the study groups, 12 (8.3 %) men and 37 (10.0 %) women were not married, while 133 (91.7 %) men and 335 (90.0 %) women were married, and no significant gender difference ($p>0.05$) was detected between long-lived people who were married and those who were not married.

Based on gender, there was a different structure of age of marriage (table 1).

Table 1

Distribution of first-married long livers by age

Marital Status	Men (Group 1)		Women (Group 2)		p
	n	%	n	%	
Under the age of 18 years	3	2.3	29	8.7	<0.05
At the age of 19 to 25 years	70	52.6	271	80.9	>0.05
At the age of 26 to 30 years	34	25.6	31	9.2	<0.05
At the age after 30 years	26	19.5	4	1.2	<0.01
Total	133	100	335	100	

Among 335 women, there were 29 (8.7 %) females married under the age of 18 that significantly differed ($p<0.05$) from this figure for men – 3 (2.3 %) out of 133 married long-lived men. Among married

women aged 19 to 25, 271 (80.9 %) females were married for the first time, although no significant difference ($p>0.05$) was found in the group “men” – 70 (52.6 %) males. At the age of 26 and older, men got married significantly more often ($p<0.05$) than women.

Among married long-lived men and women, there were the ones who were married 2 or 3 times. Men were significantly more likely to enter the second or the third marriage than women ($p<0.05$). Their distribution by gender was different and is introduced in fig. 1.

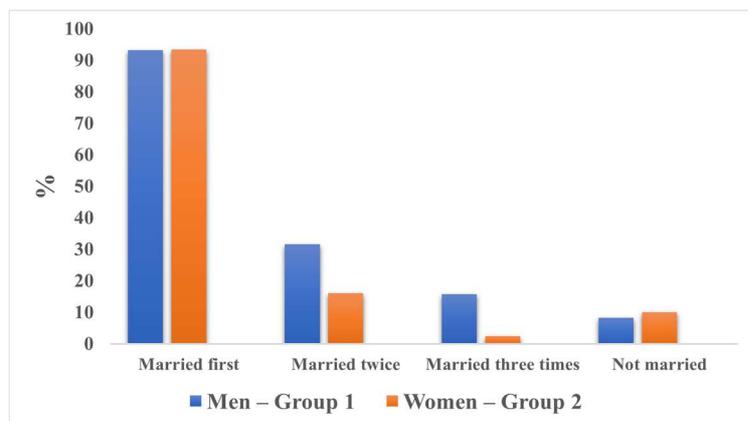


Fig. 1. Percentage distribution of long-lived people's marriages in Ivano-Frankivsk region (Ukraine) during 2005–2015.

For women of the same age, this figure age amounted to 20 (37.0 %) individuals, which had no significant difference ($p>0.05$). A sufficient variation ($p<0.05$) between long-lived men and women who got married for the second time was recorded at the age of 19–25 years – 3 (7.1 %) men and 12 (22.2 %) women, respectively. In other age groups, no significant difference was found ($p>0.05$), especially regarding second marriages under the age of 18 and over the age of 40 years.

As for the relationship between the fact of longevity and marital status, a selective distribution has been constructed between the resulting feature “age” and 6-factor features (“not married”, “married up to 10 years”, “married for 10–20 years”, “married for 20–30 years”, “married for 30–40 years”, “married for more than 40 years”).

The calculations conducted showed the following: for the group of “men – Group 1”: there was a strong close relationship between the years lived and the marital status. The calculated Pearson's contingency coefficient amounted to 0.51; for the group “women – Group 2”: the closeness of the relationship was strong as well and amounted to 0.44; for the group “men and women – Group 3”: the calculated Pearson's contingency coefficient also showed a strong closeness of the relationship ($P=0.362$).

The statistics on marital happiness demonstrated a distribution structure different for the “men – Group 1” and “women – Group 2” groups for those who were married once, twice, and three times. This distribution is grouped and presented in Fig. 2 and Fig. 3.

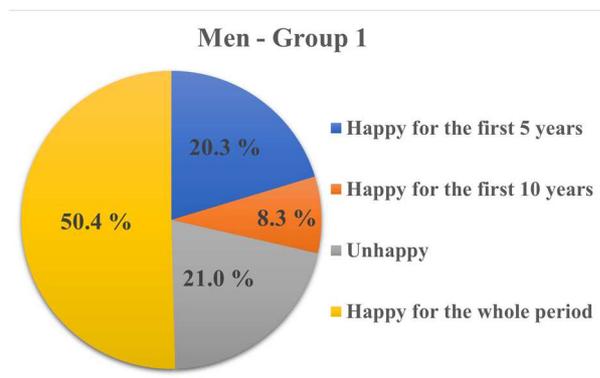


Fig. 2. Percentage distribution of long-lived men who lived in the Ivano-Frankivsk region (Ukraine) during 2005–2015 according to the feeling of happiness in the first marriage.

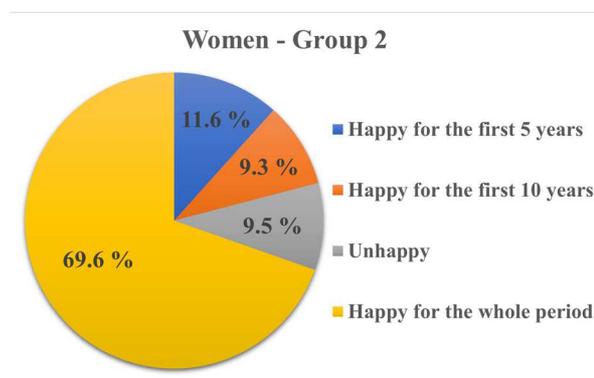


Fig. 3. Percentage distribution of long-lived women who lived in Ivano-Frankivsk region (Ukraine) during 2005–2015 according to the feeling of happiness in the first marriage.

It can be seen in fig. 2 that 105 (78.9 %) out of 133 married men who got married for the first time felt happy.

As it can be seen in fig. 3, 303 (90.4 %) out of 335 married women, who got married for the first time, felt happy. Although the significant proportion of happy women in the first marriage exceeded the same rate of men, no significant difference was found ($p>0.05$).

There was a sufficient variation ($p < 0.05$) for long-lived men who were unhappy in their first marriage – 28 (21.1 %) men as compared to 32 (9.6 %) women.

Therefore, men and women who were most unhappy in first marriage tried to find their happiness in the following marriages. There was no significant difference ($p > 0.05$) between 42 men who created a family for the second time and were happy – 31 (73.8 %) men and 47 (87.0 %) women, respectively. At the same time, long-lived men were significantly unhappy ($p < 0.05$) – 11 (26.2 %) males in their second marriage as compared to 7 (13 %) women who created their family for the second time.

In third marriage, the number of happy men and women was almost the same ($p > 0.05$): 18 (85.7 %) males, 7 (87.5 %) females, respectively. There was no significant difference ($p > 0.05$) between the two sexes in third marriage – 3 (14.3 %) men and 1 (12.5 %) woman, respectively.

At the last stage of the study, the realization of combinational grouping was envisaged. The Pearson's contingency coefficient was the criterion to determine the sufficiency of one of the 6 factor features. When this indicator showed the lowest value in the calculations, it was the evidence of the significance of the feature, as the strength of the relationship decreased in the absence of this important factor feature.

Based on the calculations of such indicators, the following conclusions were made: for the "men – Group 1": the marriage factor "married for 20–30 years" was the most significant and the most important one, which affected their longevity, as $P = 0.47$ and became the smallest value; for the "women – Group 2": such factor was "married for 30–40 years" because when eliminating it, the Pearson's contingency coefficient significantly decreased to 0.253; for the "men and women – Group 3": as well as for the "women – Group 2", when rejecting the factor feature "married for 30–40 years", there was a significant decrease in the Pearson's contingency coefficient, which acquired the smallest value – 0.321.

The results showed a close relationship between the age and marital status. The analysis based on the Pearson's contingency coefficient allowed us to make a conclusion about the influence of multi-year marital status on life expectancy among the interviewed men and women aged 90+.

Thus, in our research, based on the multi-stage study, and the statistical criteria, the following key factors influencing longevity of the twentieth-century generation have been identified as well as being in a long-term marriage.

As it is believed that women predominate among long-lived people, our research involved by 2.6 times more women than men [11]. A characteristic feature of personality development in long-lived people is the formation of the world view, namely the system of views on healthy lifestyle. Upbringing and marital status play a significant role in this chain.

Long-lived people who overcame difficulties at a young age relied on their work and perseverance all their lives and were hardworking, truly valuing the warmth of a family. Our data support the opinion of Easterlin who has noted that marriage, divorce, and severe disability have a long-term impact on happiness.

A family as a small group has certain features, in particular strict regulations of the relations presupposed by clearly defined ideas of each culture [7]. The psychological climate of the family affects the interpersonal relationships of its members. Therefore, families can be happy, unhappy, or mixed, where one of the partners is happy [5]. An important condition for the formation of a psychologically healthy family and strengthening its stability is the formation of the person's readiness for marriage and family life [4].

The essence of marriage is determined by the established social relations [10]. The purposes of getting married are the formation of a family, the birth of children, cohabitation, and formation of concurrent estate. Boerner et al. provided individual assessments of the elderly regarding their marriage [3]. Some long-lived people who were single noted that they had lost a loved one for various reasons (war, illness, moving to another country, etc.), and they could not find an ideal partner for the second time.

The significant proportion of married long-lived people was over 90 %, which might indicate the importance of marital relations as a factor in life expectancy. Our research coincided with the data provided by Li et al. who indicated that most long-lived people were married and only in old age became alone due to the death of their partner [10]. Ukrainians have always paid great attention to marriage. Within the customary law (conventions governing life in the community and family) in Ukraine, a person was considered independent only after marriage: an unmarried man, regardless of age, was considered a young man. A married person always had greater authority in the community than a bachelor or an unmarried woman [15].

Parents played an important role in choosing a partner [4, 15]. People believed that it was impossible to create a happy family without a parental blessing. A girl or a boy is rarely forced into marriage. Ukrainian families, in all historical periods, mostly tried to respect the wishes or actions of all family members, regardless of age and gender (that's why we have such a high percentage of happy long-

lived women), but there were cases when parents and children misunderstood future marriage (e.g., men got married for the second or the third time).

Although divorce was very rare in the early XX century, men often married for the second or the third time, which indicated their impatience or wives' death. This is evidenced by a significant difference ($p < 0.05$) between long-lived men who were unhappy in their first marriage – 28 (21.1 %) men and 32 (9.6 %) women.

As for the “men and women – Group 3”, the value of the Pearson's contingency coefficient has shown a strength of the relationship ($P = 0.362$), this indicates the impact of long-term marital status on life expectancy among the surveyed men and women aged 90+, which confirms the data provided by Karimi et al [7].

Although there has been found no significant difference ($p > 0.05$) between happy women and men in the first marriage, happy long-lived women prevailed in our study which coincided with the data provided by Glass et al [5].

Conclusions

1. Among 133 married men and 335 women who married for the first time, 105 (78.9 %) males and 303 (90.4 %) females felt happy. Although the significant proportion of happy women in the first marriage prevailed over the same rate of men, no significant difference was found ($p > 0.05$). There was a significant difference ($p < 0.05$) between long-lived men who were unhappy in their first marriage – 28 (21.1 %) men and 32 (9.6 %) women.

2. Among all happily married men, 31 (29.5 %) males were married twice and experienced happiness significantly more often ($p < 0.05$) than happy women (15.5 %). No significant difference ($p > 0.05$) between happy and unhappy long-lived people was found between the two sexes in a third marriage.

3. For the group “men”, there was a strong relationship between the years lived and their marital status ($P = 0.51$); for the group “women”, the relationship was strong ($P = 0.44$); for the group “men and women”, the Pearson's contingency coefficient also showed a strong relationship ($P = 0.362$), which indicated the influence of long-term marital status on life expectancy among men and women aged 90+.

4. Thus, one reason for the longevity of the representatives of the XX century generation in Ukraine was being in a long-term marital status.

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