Life expectancy and age structure of the male population in Noricum. Comparative approach[*]

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Abstract. *This study deals with the statistic results acquired for life expectancy of the male population in Noricum. They were compared with the data from other Danubian provinces (Pannonia Superior, Pannonia Inferior, Dacia, Moesia Superior, Moesia Inferior) and from Roman Egypt. We stopped on the age-rounding process, analysing the rapport between rounded ages and unrounded ages at the level of the entire male sample. For an insight of the male population we compared the age structure values from all the Danubian province on three age categories, in terms of numbers and percentage.*

Rezumat. *Acest studiu tratează rezultatele statistice ale speranței de viață obținute pentru populația masculină din Noricum. Acestea au fost comparate cu datele din celelalte provincii dunărene (Pannonia Superior, Pannonia Inferior, Dacia, Moesia Superior, Moesia Inferior) și din Egiptul roman. Ne-am oprit asupra procesului de rotunjire al vârstelor, analizând raportul dintre vârstele rotunjite și vârstele exacte la nivelul întregului eșantion masculin. Pentru o imagine de ansamblu a populației masculine, am comparat valorile structurii de vârstă din toate provinciile dunărene pe trei categorii de vârstă, atât din punct de vedere numeric, cât și procentual.*

Keywords: life expectancy, age structure, male population, Noricum, rounded ages, unrounded ages.

Analysis of life expectancy and age structure of the population in Noricum was performed on a sample consisting of 934 individuals: 555 males, 351 females and 28 persons whose gender could not be determined, from funerary stones dating since the first three centuries of our era. Demographic variables were calculated separately by gender, using for this the Coale-Demeny model life tables[2]. This model life tables rely upon a large number of unrounded life tables from many historical populations, though the bulk of the evidence comes from Europe. The authors created four geographic sets (West, North, East and South); of these, Model West is the most generalized and has the broadest statistical foundation and also produces the most reliable results for populations with very high levels of mortality[3]. Since Roman

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[2] COALE, DEMENY 1983, 20, 22–24.
[3] COALE, DEMENY 1983, 25, 33.

Noricum was such a population, we used Model West exclusively in this study (Model West, Level 4, Male).

Demographic variables and their abbreviations have been used previously by R.S. Bagnall and B.W. Frier in their work on the demography of Roman Egypt[4] and by L. Mihailescu-Bîrliba in his study on Roman Dacia[5]: $l(x)$ gives the number of survivors to exact age x from a theoretical cohort of 100 000 newborns; $L(x)$ is the total number of years lived during the next n years by those who have attained age x and it is the sum of $l(x)$ and $l(x+n)$, multiplied by a coefficient ranging between 1.5 and 2.5. For variable $L(x)$ we used: coefficient 1 for ages between 95 and 115; 1.5 for ages 85 and 90; 2 for ages 75 and 80 and the coefficient 2.5 for the remaining ages. The quantity $T(x)$ is the total number of years remaining to the cohort, when it reaches age x, until the last member dies; it is the sum between $L(x)$ and $T(x+n)$. Dividing by $l(x)$ gives the average share in this total per person reaching age x. In terms of probabilities $e(x)$ is the mean of distribution of years to death for persons of age x and is called life expectancy. $q(x)$ is the probability that an individual of exact age x will die before age $x+n$, obtained by the operation $l(x) – l(x+n)/ l(x)$. The last variable $m(x)$ is the number of deaths per person-years lived and is given by $l(x) – l(x+n)/ L(x)$. The results are found in Table 1.

Table 1.

Age	l(x)	L(x)	T(x)	e(x)	q(x)	m(x)
0	100000	78388	3646982	36.469	0.00721	0.00919
1	99279	487385	3568594	35.945	0.03630	0.00739
5	95675	457205	3081209	32.204	0.08850	0.01852
10	87207	423872	2624004	30.089	0.05578	0.01147
15	82342	380627	2200132	26.719	0.15099	0.03266
20	69909	324772	1819505	26.026	0.14174	0.03051
25	60000	272972	1494733	24.912	0.18018	0.03960
30	49189	234682	1221761	24.838	0.09158	0.01919
35	44684	208555	987079	22.090	0.13306	0.02851
40	38738	188285	778524	20.097	0.05581	0.01148
45	36576	160357	590239	16.137	0.24630	0.05618
50	27567	131077	429882	15.594	0.09805	0.02062
55	24864	99997	298805	12.017	0.39128	0.09729
60	15135	71620	198808	13.135	0.10716	0.02264
65	13513	50897	127188	9.412	0.49337	0.13099
70	6846	30177	76291	11.143	0.23678	0.05371
75	5225	16936	46114	8.825	0.37933	0.11702
80	3243	12250	29178	8.997	0.11131	0.02946
85	2882	7294	16928	5.873	0.31263	0.12352
90	1981	5673	9634	4.863	0.09086	0.03172
95	1801	2161	3961	2.199	0.80011	0.66682

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[4] BAGNALL, FRIER 1994, 77, 100.

[5] MIHAILESCU-BÎRLIBA 2004, 25.

100	360	720	1800	5.000	-	-
105	360	540	1080	3.000	0.50000	0.33333
110	180	360	540	3.000	-	-
115	180	180	180	1.000	1.00000	1.00000

If we add the 28 individuals whose gender could not be determined, we have the following situation illustrated in the Table 2.

Table 2.

Age	l(x)	L(x)	T(x)	e(x)	q(x)	m(x)
0	100000	78388	3625674	36.256	0.00687	0.00876
1	99313	487132	3547286	35.718	0.03799	0.00774
5	95540	456687	3060154	32.030	0.08797	0.01840
10	87135	422810	2603467	29.878	0.05905	0.01217
15	81989	379070	2180657	26.596	0.15062	0.03257
20	69639	323325	1801587	25.870	0.14285	0.03076
25	59691	271867	1478262	24.765	0.17816	0.03911
30	49056	234130	1206395	24.592	0.09091	0.01904
35	44596	205827	972265	21.801	0.15384	0.03333
40	37735	183530	766438	20.311	0.05453	0.01121
45	35677	157372	582908	16.338	0.23558	0.05340
50	27272	129070	425536	15.603	0.10692	0.02259
55	24356	97767	296466	12.172	0.39435	0.09824
60	14751	69895	198699	13.470	0.10467	0.02209
65	13207	50170	128804	9.752	0.48050	0.12648
70	6861	30445	78634	11.461	0.22504	0.05071
75	5317	17152	48189	9.063	0.38706	0.11998
80	3259	12348	31037	9.523	0.10555	0.02785
85	2915	7459	18689	6.411	0.29399	0.11489
90	2058	5916	11230	5.456	0.08357	0.02907
95	1886	2400	5314	2.817	0.72746	0.57166
100	514	1028	2914	5.669	-	-
105	514	857	1886	3.669	0.33268	0.19953
110	343	686	1029	3.000	-	-
115	343	343	343	1.000	1.00000	1.00000

Like the female population of Noricum, life expectancy values decrease gradually, but not essentially, due to a better representation of younger ages. Underrepresentation of young and very young ages occurs also for the male population of Noricum. Life expectancy is, for example, 35.945 at age 1 and 26.719 for age 15. This considerable difference can be explained by the number of deceased recorded by the epigraphic sources (4 from 0 to 1 year and 94 — 16.93% of total — from 2 to 15 years). The percentages of the male children sample are: 0–10 years old – 12.79%, 11–20 years old – 17.29%, 21–25 years old – 9.9%; in other words, between

0 and 25 years old about 40% of the male population sample died. There are only four cases of deaths recorded before the age of 1 (a boy, whose name was not preserved, died at 8 months[6]; Q. Curiatus Festus[7], another anonymous[8] and Mocius[9] dead at the age of 1 year old), meaning 0.72% of total, which raises many questions because the number of the deceased is very low for a population with a high mortality at birth and in the first year of life. On the other hand, life expectancy disposal on age categories seems more balanced than the female population of Noricum. For age groups 11–15 years old, 16–20 years old, 21–25 years old and 26–30 years old, life expectancy values are very close. The only disparities were recorded at ages 60, 70, 80 and 100, since the number of deaths from age groups 56–60, 66–70, 76–80 and 96–100 years old are overrepresented compared to the number of deaths in the age groups 51–55, 61–65, 71–75 and 91–95 years. We find it surprising that the life expectancy value at age 80 — 8.997 (about 9 years) is slightly higher than at 75 years old. Also, life expectancy at 100 years old is 5.000 (5 years), much higher than that of the 95 years old.

A part of our sample is represented by a segment of unstable population — soldiers (72 of 555, meaning 13%). If we add the 20 veterans mentioned in the inscriptions of Noricum, the percentage of individuals coming from the military increases — 16.57%. The highest mortality was recorded between ages 16–40 years old (242 men of 555 — that is 43.6%). This can be explained by the considerable number of soldiers whose age of death ranges between 16 and 40 years. Life expectancy at birth is 36.469, comparable to that of women population — 33.590. Based on the underrepresentation of young and very young ages and the overrepresentation of advanced ages, but also on the presence of eight centenarians and two individuals aged 110 and 120 years old, life expectancy at birth is likely to be lower, its value ranging between 30 and 35 years. After completion of the male sample by adding the individuals whose gender could not be determined on the basis of preserved texts and after maximum adjustment of the fragmentary ages, life expectancy at birth has a lower value than the original sample (36.256). This value can be explained by the fact that a number of 21 individuals out of 28 anonymous were under 35 years old, below the life expectancy value of the entire male sample.

To discuss the data obtained for the male population of Noricum, a comparison with the same demographic variables in other provinces may be suggestive (Table 3). The terms of comparison will be the values of life expectancy calculated by Bagnall and Frier for Roman Egypt[10], by L. Mihailescu-Bîrliba for Roman Dacia[11], Pannonia Superior and Pannonia Inferior[12] and those calculated by V. Piftor for Moesia Superior and Moesia Inferior[13].

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[6] ILLPRON 21.

[7] ILLPRON 1190.

[8] ILLPRON 1354.

[9] AIJ 41.

[10] BAGNALL, FRIER 1994, 100.

[11] MIHAILESCU-BÎRLIBA 2004, 34.

[12] MIHAILESCU-BÎRLIBA, PIFTOR, COZMA 2007, 22–23, 53–54.

[13] PIFTOR 2012, 34, 91.

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Table 3.

Age category	Province						
	Noricum	Moesia Superior	Moesia Inferior	Dacia	Pannonia Superior	Pannonia Inferior	Egypt
0	36.469	41.491	41.390	37.828	37.263	39.579	25.260
1	35.945	41.034	41.063	37.651	36.665	38.930	36.131
5	32.204	38.491	37.856	35.519	33.715	34.187	40.568
10	30.089	35.174	34.472	32.114	30.340	31.205	37.568
15	26.719	30.772	30.278	28.497	26.341	29.568	33.990
20	26.026	28.747	28.833	26.053	24.157	26.252	30.648
25	24.912	26.271	25.993	23.620	22.630	24.907	27.795
30	24.838	23.259	22.562	21.985	21.391	22.326	24.971
35	22.090	21.224	20.858	19.129	19.514	20.762	22.231
40	20.097	18.933	18.850	17.999	18.811	18.097	19.585
45	16.137	15.645	15.894	15.270	15.955	17.069	17.087
50	15.594	14.879	14.970	15.136	16.960	15.050	14.495
55	12.017	11.410	10.844	12.663	13.122	13.277	12.295
60	13.135	12.663	11.044	12.637	13.577	9.867	10.034
65	9.412	10.094	8.800	9.717	10.111	10.717	8.079
70	11.143	10.439	9.524	9.228	9.868	6.513	6.314
75	8.825	8.356	6.778	5.574	7.027	6.749	4.574
80	8.997	9.653	6.601	6.283	6.941	3.066	3.459
85	5.873	7.196	5.788	4.810	6.401	4.373	2.508
90	4.863	12.954	6.004	3.620	5.337	4.246	1.772
95	2.199	9.898	3.004	2.748	2.004	4.000	1.236
100	5.000	19.498	1.511	1.000	2.000	1.000	-
105	3.000	16.489	1.000	-	-	-	-
110	3.000	13.209	-	-	-	-	-
115	1.000	10.489	-	-	-	-	-

Life expectancy at birth of the male sample in Noricum has the lowest value of all the Danubian provinces, but nevertheless remains considerably higher than in Roman Egypt. Significant differences between life expectancy values in Egypt and the values obtained for Danubian provinces are determined by overrepresentation of age groups (especially for advanced ages) and by a very high mortality in Egypt, recorded mainly among children and young people, due to the origin of epigraphic sources. It should be kept in mind that the sample used by Bagnall and Frier comes largely from the Fayoum region, where infectious diseases (affecting mostly newborns) were more common than in other regions[14]. Malaria and high temperatures favored an increase in infant mortality, a higher mortality than in the Danubian provinces, with a generally colder and probably healthier climate. Except closer values (at ages 1, 30, 35, 40, 45, 50 and 55 years old) and the figures obtained for younger ages

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[14] MIHAILESCU-BÎRLIBA 2004, 27.

(between 5 and 25 years, where the difference is very high), life expectancy of the male population in Noricum and that of Egypt differ by about 2–4 years. In Roman Egypt, life expectancy of the male population follows the same pattern seen in the case of female population: it has a very small value at birth — 25.260 due to the very high infant mortality common in this province; its value increases significantly to the age of 5 — 40.568 and then to decrease gradually and steadily to the age of 95 years (the last age category depicted in our table). The highest values of life expectancy at birth are encountered in both provinces of the lower basin of the Danube River: about 41 years and 5 months in Moesia Superior and 41 years and 4 months in Moesia Inferior. Starting with 80 years old, life expectancy values in Moesia Superior are the highest of all the Danubian provinces. It is hard to believe, for instance, that an individual who survived until the age of 90 years could expect to live an additional 13 years (12.954) or that a 100 years man has a life expectancy of 19.498 (approximately 19 years and 5 months). Adulthood and old ages are overrepresented in all six provinces. 56–60 years age category is overrepresented in Pannonia Superior, Noricum, Moesia Superior and Moesia Inferior; 66–70 years age category is overrepresented in Noricum (the higher life expectancy value), Moesia Superior and Moesia Inferior and in Dacia, Noricum and Moesia Superior 76–80 years age category is overrepresented. It is interesting to note that in most cases the life expectancy of persons with the age ending in the digit 5 has lower values than individuals with age ending in the digit 0.

As regards the coefficient $q(x)$ (the probability that an individual of exact age x will die before age $x+n$), the data in Table 4 reflects the situation in the analyzed provinces:

Table 4.

Age category	q(x) Noricum	q(x) Moesia Superior	q(x) Moesia Inferior	q(x) Dacia	q(x) Pannonia Superior	q(x) Pannonia Inferior	q(x) Egypt
0	0.00721	0.00962	0.01112	0.01613	0.00581	0.00348	0.32257
1	0.03630	0.05825	0.04493	0.01541	0.05641	0.00699	0.19523
5	0.08850	0.04467	0.04313	0.04609	0.04948	0.05986	0.05141
10	0.05578	0.01797	0.02458	0.04461	0.03470	0.10486	0.03967
15	0.15099	0.09524	0.11344	0.08950	0.10561	0.05857	0.05107
20	0.14174	0.08856	0.07583	0.09828	0.13818	0.13333	0.07110
25	0.18018	0.07607	0.06257	0.13744	0.15743	0.09743	0.07951
30	0.09158	0.12499	0.14113	0.09889	0.14186	0.14772	0.09175
35	0.13306	0.12637	0.14012	0.17033	0.20163	0.11334	0.10709
40	0.05581	0.09434	0.11112	0.12782	0.11614	0.20299	0.12838
45	0.24630	0.24306	0.23332	0.27587	0.30857	0.16981	0.14754
50	0.09805	0.11009	0.06524	0.16666	0.07438	0.20455	0.18383
55	0.39128	0.41236	0,38415	0.32856	0.33928	0.12857	0.22059
60	0.10716	0.21271	0.24392	0.17023	0.12163	0.44259	0.29059
65	0.49337	0.41307	0.47597	0.38465	0.38466	0.08829	0.37125
70	0.23678	0.18513	0.14825	0.16664	0.17502	0.48384	0.48085

75	0.37933	0.45454	0.44449	0.64997	0.48480	0.06260	0.62398
80	0.11131	0.25013	0.30002	0.42869	0.41480	0.73325	0.74498
85	0.31263	0.44452	0.42862	0.50000	0.40020	0.50000	0.86294
90	0.09086	-	-	0.50017	0.16637	0.50071	0.95201
95	0.80011	0.59987	0.50033	1.50000	0.99896	-	1.00000
100	-	-	0.99864	1.00000	1.00000	1.00000	-
105	0.50000	-	1.00000	-	-	-	-
110	-	-	-	-	-	-	-
115	1.00000	0.50078	-	-	-	-	-

According to the data from Egypt, at age 0 *q(x)* value is very high (0.32257), then decreases to age 10 (0.03967), starting with this age can be seen a steady increase of *q(x)*. For Danubian provinces, *q(x)* values are low at young ages (0–10 years), while for the middle and advanced age groups the values are slightly higher, but they do not follow a similar pattern with Egypt. Noricum, Moesia Superior, Moesia Inferior and Pannonia Inferior are provinces with unrepresented age groups in the male samples. When the values of variable *q(x)*, which designates the probability that an individual of exact age *x* will die before age *x+n*, are closed to 0.5 this means that in the next age category the number of people surviving until the following age is reduced to half[15]. For instance, in Noricum and Moesia Inferior half of the sample, who survives to age 65, dies by the age of 70 years; in Pannonia Inferior half of the male population sample which reaches to 75 years old, dies by the age of 80 years. The values of *q(x)* in Noricum and in the other Danubian provinces are growing after the age of 45–50 years, but with some oscillations: age groups with age ending in the digit 5 have substantially increased values, while age groups with age ending in the digit 0 have lower values.

The age structure of the male population in Noricum is shown below in Table 5 and Figure 1.

Table 5.

Age category (years)	Number of survivors (percentage)
0–1	99.27
2–5	95.67
6–10	87.20
11–15	82.34
16–20	69.90
21–25	60
26–30	49.18
31–35	44.68
36–40	38.73
41–45	36.57
46–50	27.56

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[15] PIFTOR 2012, 22.

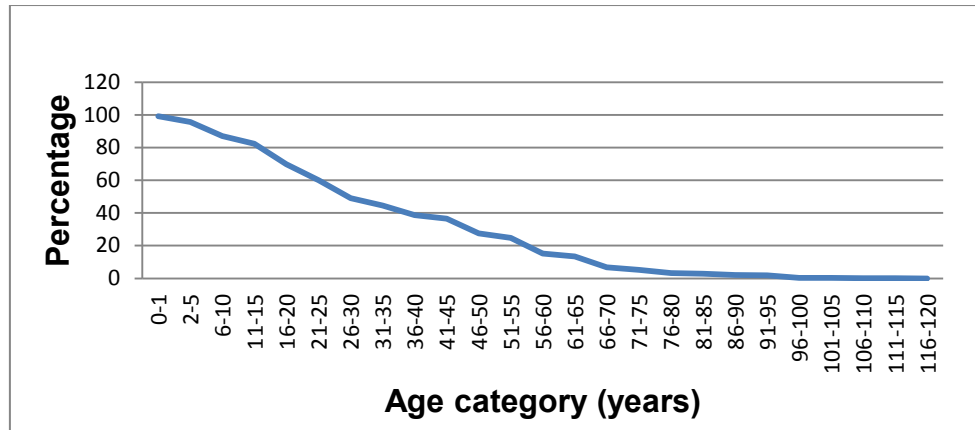|	
51–55	24.86
56–60	15.13
61–65	13.51
66–70	6.84
71–75	5.22
76–80	3.24
81–85	2.88
86–90	1.98
91–95	1.80
96–100	0.36
101–105	0.36
106–110	0.18
111–115	0.18
116–120	0.001

Figure 1.

Both table and chart gives an even clearer picture of the age structure of the male population in Noricum. We can distinguish some variables disproportions on certain age categories, determined largely by the nature of the used sources. Age categories 6–10 years, 16–20 years, 26–30 years, 46–50 years, 56–60 years and 66–70 years old are overrepresented. There are also certain underrepresented age groups as follows: 31–35 years (25 deceased), 41–45 years (12 deceased), 51–55 years (15 deceased), 61–65 and 71–75 years (9 deceased for each age category), 81–85 years (2 deceased), 91–95, 106–110, 116–120 years (one deceased), 101–105 and 111–115 (no deceased). As in the case of Dacia and Pannonia Superior, a large number of the male population died before the age of 35 years (307 — meaning 55.31%), which once again confirms the existence of a high mortality among the young (209 men died between 16–35 years).

The rapport between rounded ages and unrounded ages for the entire male sample of Noricum is illustrated in the Figure 2.

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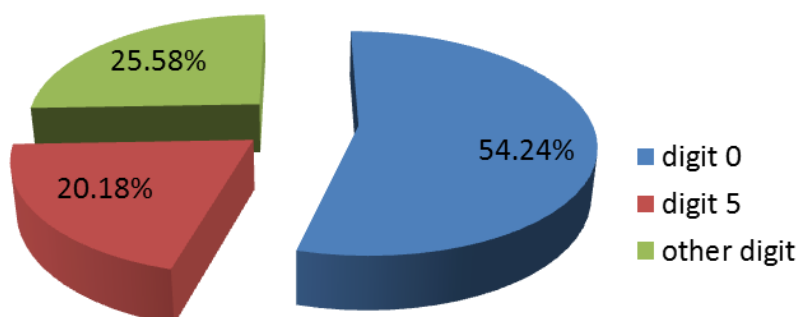

Figure 2.

In Noricum there are 301 persons (54.24%) with the age ending in the digit 0; 142 (25.58%) have the age ending in another digit, and only 112 (20.18%) have the age ending in the digit 5. The percentage of male with unrounded ages in Noricum (25.58%) is the lowest compared to the other Danubian provinces: Pannonia Inferior – 44%[16], Dacia – 42%[17], Moesia Inferior – 39.03%[18], Pannonia Superior – 33.5%[19] and Moesia Superior – 32.14%[20]. In the case of ages ending in the digit 0, Noricum has the highest percentage among all the Danubian provinces – 54.24%, unlike the other provinces: Pannonia Superior – 45.4%, Moesia Inferior – 44.61%, Moesia Superior – 44.16%, Dacia – 42% and Pannonia Inferior – 41%. In regard to the ages with digits ending in 5, the percentage in Noricum (20.18%) is lower than that of Pannonia Superior – 21.1% and Moesia Superior – 23.7%, but higher than that of Moesia Inferior – 16.36%, Dacia – 16% or Pannonia Inferior – 15%. Regarding the male population of Noricum, ages which appear rounded are not always rounded. This is the case of roman soldiers. The length of military service is indicated unroundedly. However, there are situations where the dedicators have forgotten the age of death of the soldiers, but also circumstances in which the dedicators know both the range of military service and the age of the deceased. For instance, Publius Aelius Marcianus lived 20 years and has conducted three years of military service[21], Marcus Aurelius Ursicianus reached the same age, after three years of military service[22]. Iulius Apricius died at the age of 25, after 6 years in the army[23], Caius Kanulanius Nepos dies, too, after 6 years in the army at the age of 25 years old[24]. Aurelius Iustinus reaches the age of 30 years and dies after 10 years of service in the Roman army[25], Veponius Quartinus

[16] MIHAILESCU-BÎRLIBA, PIFTOR, COZMA 2007, 57.

[17] MIHAILESCU-BÎRLIBA 2004, 38–39.

[18] PIFTOR 2012, 99.

[19] MIHAILESCU-BÎRLIBA, PIFTOR, COZMA 2007, 27.

[20] PIFTOR 2012, 43.

[21] AE 2003, 1320.

[22] ILLPRON 1415.

[23] ILLPRON 984.

[24] ILLPRON 1276.

[25] AE 2004, 1089.

fulfilled only four years of military service and died at 35 years[26]. Quintus Vettius Pollia[27] (*eques*), Florentinius Florus[28] (eques) and Septimius Secundinus[29] (*miles*) reached the age of 40 years old and commited 20 years of military service (the first two) and 15 years (the last one). Troucleimarus spent 26 years in the army and died at the age of 45[30], Tiberius Claudius Attucius dies at the age of 50, after 28 years of military service[31], and Tiberius Iulius Fronto dies at the age of 50, after probably 25 years in the military[32]. Another soldier, whose name is illegible due to fragmentation of the inscription, has completed a vast military service of 45 years and died at age 65[33].

Table 6 captures the distribution of unrounded ages by age categories, as indicated in funerary inscriptions.

Table 6.

Age category (years)	Number of unrounded ages
0–1	4
1–4	14
6–9	32
11–14	13
16–19	21
21–24	16
26–29	8
31–34	6
36–39	2
41–44	2
46–49	6
51–54	5
56–59	5
61–64	4
66–69	1
71–74	2
76–79	0
81–84	1
86–89	0
91–94	0
96–99	0
101–104	0

[26] ILLPRON 528.

[27] ILLPRON 245.

[28] ILLPRON 1414.

[29] AIJ 13.

[30] ILLPRON 896.

[31] AE 1974, 475.

[32] ILLPRON 237.

[33] ILLPRON 1793.

106–109	0
111–114	0
116–119	0

The unrounded ages of death are crowded in the first part of the male sample, which includes the categories of children and young people. Thereby, 100 ages of 142 (70.42%) are listed by the age of 25 years, 118 of 142 by the age of 45 years (83.09%) and 138 of 142 by the age of 65 years old (97.18%). After this age, only 4 mentions of unrounded ages were recorded, so over the years the age of death is likely to be forgotten and rounded by the dedicators. Therefore, the dedicators had better memory concerning the ages of death belonging to those individuals who died during childhood and adolescence. The agglomeration of exact ages up to less than 35 years old could also be due to the higher life expectancy at birth for males than for females. The male sample includes a number of military and veterans, whose age of death is often indicated with precision (for example, 25 soldiers from a total of 72 and one veteran of 20 registered have ages ending in other digits, besides 0 and 5).

As in the case of the female population in Noricum, there are precisely indicated ages (the exact number of months and days lived by the deceased). Babies (an anonymous dead at the age of 8 months[34]), toddlers (like Primus — lived 2 years, - months and 16 days[35] and [---]us Valens — 2/3 years, 2 months and 2 days[36]) and children (such as [---]ius – 7 years, 3 months and 16 days[37]) are those whose age of death is precisely indicated and, moreover, in all four cases the dedicators are the parents, meaning the persons who know better the ages of their children. As regards the legal status, both the deceased and the dedicators are citizens. A percentage analogy of the unrounded age distribution with the others Danubian provinces is significant (see Table 7).

Table 7.

Age category	Percentage of unrounded ages by province					
	Noricum	Moesia Superior	Moesia Inferior	Dacia	Pannonia Superior	Pannonia Inferior
0–1	100	100	100	100	100	100
2–5	70	50	75	71.4	86	64.7
6–10	68.1	92.3	72.7	86.9	83.3	75
11–15	48.1	80	66.6	83.3	75	73.3
16–20	30.4	62.5	55.5	47.3	46.8	63.3
21–25	29.1	33.3	50	56.2	30.9	55
26–30	13.3	58.8	45.4	36.3	29.6	23
31–35	24	40	46.6	44.4	34.1	62.5

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[34] ILLPRON 21.

[35] ILLPRON 169.

[36] ILLPRON 1356.

[37] ILLPRON 1356.

36–40	6	21.7	18.1	27.5	24	29.6
41–45	16.6	20	26.6	43.7	39.1	29.4
46–50	12	17.1	16.6	28.9	11.1	22.2
51–55	33.3	33.3	33.3	37.5	22.2	55.5
56–60	9.25	5	21.2	13.3	5.2	14.8
61–65	44.4	36.3	69.2	40	33.3	33.3
66–70	2.7	5.2	15.7	27.7	4	6.6
71–75	22.2	20	33.3	40	14.2	0
76–80	0	10	37.5	8.3	12.5	18.1
81–85	50	0	33.3	50	14.2	100
86–90	0	50	33.3	100	0	0
91–95	0	0	-	100	0	0
96–100	0	0	0	50	0	0
101–105	0	0	100	-	-	-
106–110	0	0	-	-	-	-
111–115	0	0	-	-	-	-
116–120	0	0	-	-	-	-

Age category from 0 to 1 year old holds a percentage of 100% for all provinces, which means that the deceased have only unrounded ages. The following categories, 2–5 years, 6–10 years and 11–15 years have high percentage values (the number of rounded ages is lower for this age groups), with two exceptions: in Moesia Superior 2–5 years age category has a value of 50% and 11–15 years age category from Noricum has the lowest percentage of the surveyed provinces — 48.1%. Age group 26–30 years in Moesia Superior presents a rather high value — 58.8%, the other provinces have values below 46%. The lowest percentage of unrounded ages of all six provinces, for 41–45 years age category, can be seen in Noricum — 16.6%. As regards the ages of mature adulthood (ages 50–80), after 70 years we find age groups represented only by rounded ages, such as: age groups 71–75 years in Pannonia Inferior, 76–80 years in Noricum, 81–85 years in Moesia Superior, 86–90 years in Noricum, Pannonia Superior and Pannonia Inferior, 91–95 and 96–100 years in Moesia Superior, Noricum and the two Pannonians, respectively Noricum, the two Moesias and the two Pannonias.

The rounded age distribution by age categories is shown in Table 8.

Table 8.

Age (years)	Number of rounded ages
5	6
10	15
15	14
20	48
25	39
30	52
35	19

40	31
45	10
50	44
55	10
60	49
65	5
70	36
75	7
80	11
85	1
90	5
95	1
100	8
105	0
110	1
115	0
120	1

The age of death ending in digit 5, unlike the ones ending in digit 0, are recorded in a relatively low number (112 of 413 — meaning 27.11%). Like the female population, rounded ages are centered round large age categories. Most of the rounded ages are recorded for ages starting from 30 years old — 296 persons of 413, meaning 71.67%. We notice that most rounded ages are recorded at 30 years old (52 persons), 60 years old (49 persons), 20 years old (48 persons), 50 years old (44 persons), 25 years old (39 persons), 70 years old (36 persons), 40 years old (31 persons), 35 years old (19 persons), 10 years old (15 persons), 15 years old (14 persons), 45 and 55 years old (10 persons for each age) and 100 years old (8 persons). Without doubt, for the vast majority of old ages (70, 75, 80, 90 and 100 years old), the figures are rounded. For a population with high infant and young people mortality, it is rather difficult to believe that some individuals have reached their old ages.

The male sample of Noricum includes eight ages of 100 years old, one of 110 and another one of 120 years old. The first man who died at the age of 100 years is Noibio[38]. He is commemorated with his wife, Courtula, who died at the age of 70 years old, by their son. Vibius Secundus, veteran, died at 100 years old[39]. The inscription was erected by the deceased, when he was still alive. The third centenary of the sample is Atiogus[40] commemorated together with his wife, Boniata, dead at the age of 60 years by his fellow freedman. Excingomarus appears in an inscription with his wife and sons, being commemorated by a nephew[41]. Celatus dies at 100 years, raising his own inscription[42]. Ateloudus[43], with his wife, is

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[38] AE 1978, 604.

[39] AIJ 21.

[40] AIJ 51.

[41] AIJ 89.

[42] RIS 397.

mentioned in an epitaph probably built by his son. Tertius and Tertia, his wife dead also at the age of 100 years, are commemorated by Latinus, their son[44]. The last centenarian, Diastumarus, is mentioned in an inscription with his wife, Coma, who died at the age of 75, and two sons, Viator and Crispus, dead at the age of 50 and 45 years old[45]. The dedicator is unknown. Tertius, who died at the age of 110 years old, and his wife Respecta, dead at 90 years old, appear in an epitaph erected by Tertinius, their son[46]. The oldest man in the sample, Mulio[47], dies at age 120 years old, being commemorated by Bonia, his wife. Among the elderly formerly mentioned, eight hold the legal status of *peregrinus*, one is a freedman and one obtained the Roman citizenship after the retirement from the army. If we analyze the dedicators of these inscriptions, we notice that, in six cases the inscriptions are raised by family members (wife, sons, grandson), in two situations the epitaphs are erected by the deceased during their lifetime, in one case the inscription is made by the fallow freedman of the deceased and in another case the dedicator is unknown. If in the case of unrounded ages the dedicators are most often the parents or rarely the wives or the brothers of the deceased, in the present situation appear as dedicated sons, wife and grandson (as the case may be), individuals who have less knowledge concerning the age of the deceased and thus tend to approximate it.

From the legal perspective, as regards the male sample in Noricum, the situation is found in Figure 3.
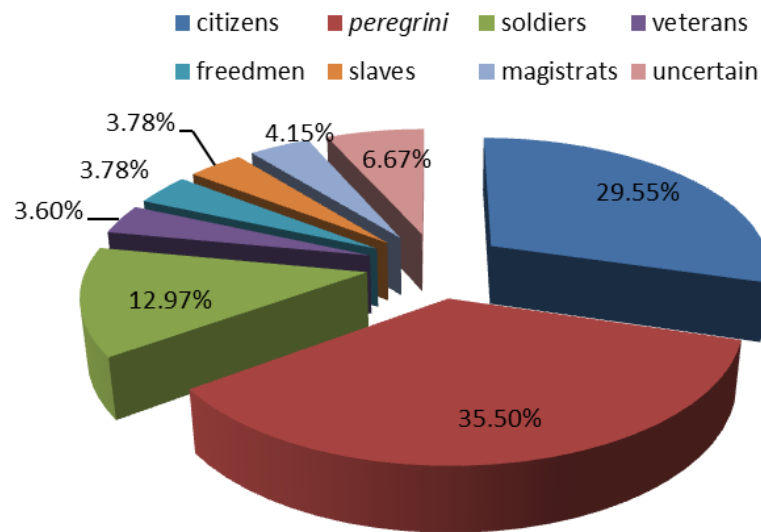

Figure 3.

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[43] ILLPRON 1774.

[44] ILLPRON 1855.

[45] ILLPRON 1943.

[46] ILLPRON 922.

[47] AE 1990, 780.

From the 555 individuals composing the male sample in Noricum, 164 have the legal status of *cives* — 29.55%, 197 are *peregrini* — 35.50% (a high percentage compared to the other Danubian provinces, as in the case of female population), 21 are freedmen — 3.78%, 21 are slaves — about 3.78% and 37 persons have an uncertain legal status — 6.67%. Besides the legal status already mentioned, we have added three other categories: magistrates (23 persons — 4.15%), soldiers (72 persons — 12.97%), and veterans (20 persons — 3.60%). The magistrates would represent the wealthiest and most educated among the citizens and the *peregrini* and the soldiers and veterans are categories that do not come only from thar province and that present high mobility. If we cumulate the percentages of soldiers, veterans and magistrates with the one of citizens of our sample, we notice that the citizens would represent the highest percentage in the male sample of Noricum (about 50%).

In the end, for an insight of the male population in Noricum, we will compare the age structure as shown in the epigraphic sources, based on three age categories: children and adolescents (0–20 years), young and adults (21–59 years) and elderly (60 years and over). The obtained values will ve compared with those from the other Danubian provinces: Moesia Inferior, Moesia Superior, Dacia, Pannonia Inferior and Pannonia Superior.
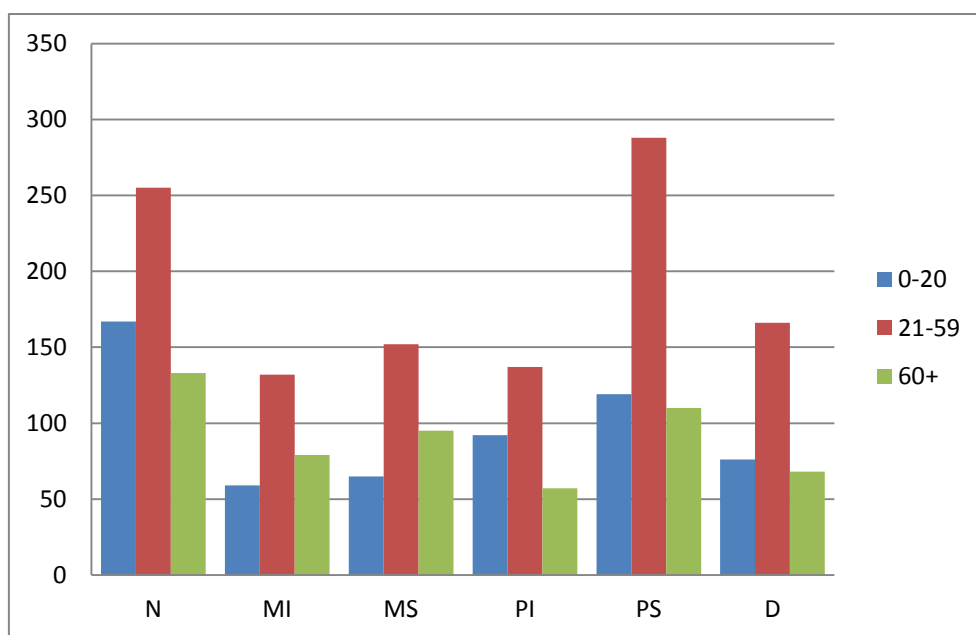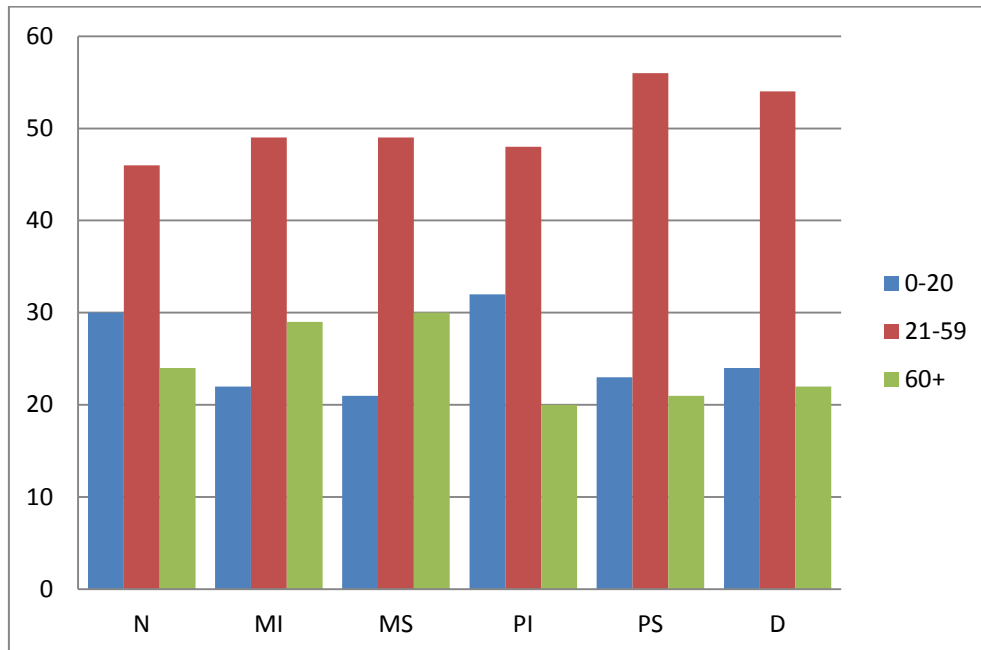

Figure 4. Number of deceased.

Figure 5. Percentage of deceased.

In terms of age structure, Noricum, which has the largest male sample of all the Danubian provinces, holds the highest numerical values for age groups 0–20 years and 60+, but stands in the second position, after Pannonia Superior, regarding 21–59 age category. In terms of precentage, the situation changes somehow. Thus, for children and adolescents, the first two ranks are holded by Pannonia Inferior (32%) and Noricum (30%), while the lowest percentage appears in Moesia Superior (21%). For the second category, the lowest percentage value appears in Noricum (46%), in the other extremity is Pannonia Superior, with the highest value (56%). As regards the third category, the elderly, the highest percentage appears in Moesia Superior (30%) and the lowest value in Pannonia Inferior (20%), Noricum holding in this case the third position with 24%. According to the data previously expressed, we notice that the male sample of Moesia Superior holds, in terms of numerical values, the third place in 60+ age category, but nevertheless has the highest percentage of old ages of death.

Life expectancy at birth for the male population in Noricum, according to epigraphic sources, is 36.469 (about 36 years and 5 months), comparable to that of women population — 33.590. Based on the underrepresentation of young and very young ages and the overrepresentation of advanced ages, but also on the presence of eight centenarians and two individuals aged 110 and 120 years old, life expectancy at birth is likely to be lower, its value ranging between 30 and 35 years.

Like the female population, rounded ages are centered round large age categories. Most of the rounded ages are recorded at the age of maturity (30 years old — 52 persons). The percentage of ages ending in the digit 0 in Noricum is the highest compared to the other Danubian provinces — 54.24%.

The principal sources for the study of life expectancy and age structure of the population in Noricum come from the epigraphic records. It is therefore particularly important to keep in mind the methodological obstacles, determined by the application of modern demographic models (such as the model life tables) on the information provided by the epigraphic documentation, which make the results of our analysis to be relative. They are as follows: social representativeness of the sample, age distribution of the population, *sex ratio*, origin place of the epitaphs, age rounding phenomenon.

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