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The results of a pilot study of life quality of the Republic Sakha (Yakutia) population

Abstract. In the pilot study 684 rural respondents were included. The results of studies allowed obtaining preliminary data on the parameters of quality of life (QOL) of the Republic Sakha (Yakutia) population in the Russian version of the eight scales of the general health questionnaire SF-36 in six age groups, male and female groups. In addition, these studies allowed taking into account a measure of variability of calculated QoL and to determine the sample size of the population of the Republic Sakha (Yakutia), to assess the psychometric properties of the SF-36 questionnaire, testing socio - demographic map.
Keywords: quality of life, population-based study, a pilot study, the sample size, the psychometric properties of the questionnaire, the socio - demographic map.

Introduction

A pilot study allows to determine the extent of feature variability in the groups by age and sex, and then calculate the required number of observations for each group. Therefore, a pilot study conducted to determine the minimum size of the sample and to ensure a representative sample. The minimum sample size implies the existence of such a large number of respondents, which, on the one hand, will be sufficient to clearly answer the questions posed in the study, and on the other hand, small enough to avoid unnecessary costs on the study.
Sampling during the study population should be representative, at least in two ways, by sex and age. Depending on the method of determining the minimum sample size required a number of other benchmarks: the standard deviation in groups, the standard deviation of the difference between the two groups or the proportion examined variable for each group.
Due to the fact that standardized general quality of life questionnaires used in population-based studies have been set up in the English language, cultural and linguistic adaptations, testing their psychometric properties are always confronting researchers in Russia [2].
In addition, as part of a pilot study testing assesses the socio-demographic module, which characterizes the features of the region, where we study

Materials and methods

In the pilot study included 684 rural residents of the Republic of Sakha (Yakutia). The average age of the sample was 43 years (SD 16.9). The range of ages - from 15 - to 88 years. Distribution by sex - men / women - 220/464. The share of missing answers to all profiles - 0%. The percentage of respondents who answered at least 50% of the questions each scale to 100%.
When checking the distribution of the mean values of the scales of the SF-36 questionnaire by the Kolmogorov-Smirnov test were found deviations from normal. In this connection, to calculate the average values of QL to each of the 8 scales were used nonparametric tests (Mann-Whitney, the Kruskal-Wallis test, Dunn post hoc test). Were also calculated the standard deviation (SD) for each average, 25% and 75% quantile, median.

Results and Discussion

Determination of the variability in quality of life parameters, depending on the age and sex of respondents

Descriptive statistics are presented in Table. 1:
Table. 1 shows that the comparison of quality of life in men and women were obtained statistically significant differences between them in all SF-36 scales. Thus, the QOL of men was much higher than women on all scales of the questionnaire SF-36 ($p < 0.001$), which is consistent with previous studies [3, 4]. Moreover, we obtain the standard deviation (SD) for each average, 25% and 75% quantile, median.
For statistical analysis in different age groups, all respondents were divided into six age groups from 10-year-old step:

- Group 1: 15-24, n = 116
- Group 2: 25-34 years, n = 87
- Group 3: 35-44, n = 149
- Group 4: 45-54, n = 149
- Group 5: 55-64 years, n = 88
- Group 6: ≥ 65 years, n = 95

The tables above show that in carrying out multiple comparisons of quality of life parameters in groups according to age obtained statistically significant differences on all the scales of the questionnaire SF-36 (p <0,0001) with the exception of the scale of "mental health". In further paired comparisons across groups using a posteriori statistical criterion (Dunn's Multiple Comparison Test) obtained statistically significant differences between individual pairs of groups at different scales questionnaire, except for the following groups 1 and 2, 2 and 3, 3 and 4, 4 and 5. Table 2 shows the differences between the groups of respondents depending on age value indicating p according Dunn's Multiple Comparison Test. The maximum number of differences (for seven scales) is obtained between groups 1 and 4, 1 and 6, 2 and 6, and 3 and 6. In Figures 1-4 shows the evolution of the quality of life in different age groups: 1-4 of the drawings shows that with age there is a decrease in quality of life on all scales of the questionnaire SF-36, except for the scale of psychological health. The most significant declines with age physical and emotional functioning. Our results are consistent with the results obtained in other studies (1, 3, 4, 5, 6, 7).

Rationale for the calculation of sample size:

1. Calculation of the sample size conducted in the light of recommendations of the International Project population-based studies of quality of life "International Quality of Life Assessment" Project (IQOLA);
2. To calculate the sample size used in statistical data collection of the Sakha Republic (2007);
3. To justify the size of the sample used the results of a pilot study of the quality of life of residents of the two regions of the Republic of Sakha, industry and agriculture;
4. The sample was measured at a predetermined power level of 80% and statistical significance of p <0.05;

The total sample size for a population-based study in the Republic of Sakha (Yakutia) should reach 1042 people. The sample is representative by gender, age, place of residence (according to the medical and economic zoning of the Republic). Qualitative representative sample population ensure that its composition of the population by sex, age and place of residence according to the Statistical Abstract of the Republic of Sakha; Quantitative representative sample set is justified by calculating the required number of observations for each of the age groups.

Evaluation of psychometric properties of the SF-36 questionnaire

Reliability analysis of the scales of the questionnaire SF-36 was carried out by assessing the internal consistency by calculating Cronbach's coefficient. High values were obtained α-Cronbach 6 of 8 scales questionnaire from 0.7 to 0.9 (excluding scale social functioning and general health). In assessing the validity of the method of "known groups" showed a significant difference in quality of life according to sex and age (p <0.001 and p <0.0001, respectively). With the help of factor analysis was tested suggested structure of the questionnaire. Russian version of the SF-36 questionnaire

can be used for population studies, the quality of life of the population of the Republic of Sakha (Yakutia), allowing for the evaluation of quality of life in the Yakut population.

Confirmed satisfactory psychometric properties of the questionnaire, the peculiarities of the different components of evaluation of quality of life among the Yakuts. SF-36 questionnaire can be used to study the population quality of life of the population of the Republic of Sakha (Yakutia), allowing for the evaluation of quality of life in the Yakut population.

Testing of socio - demographic map

For the characteristics of the study population Yakuts in the social, economic and demographic terms the basic structure of the sample is distributed by gender, age, education, employment, marital status, material and housing conditions.

In the employment sector, the highest number in percentage of the working age population were full-time. The smallest number of respondents were persons employed in the industry, as well as the unemployed.

Among the respondents in the education sector, the largest share as a percentage of the population made up of an average, middle-and higher education. The least amount as a percentage of the respondents identified the respondents with incomplete secondary or incomplete higher education.

Among the respondents in the sector of marital status, most in percentage terms were family group of people, as well as persons who have never been married or unmarried. The lowest share of respondents identified with either single-parent families or unmarried respondents.

To characterize the material situation of the respondents was calculated by the ratio of personal income of the respondent to the subsistence minimum (SM) at 1 m. 2010. Only 860 people gave answers about the amount of personal income from 1042 respondents. A low ratio of personal income to the subsistence level most often found among the rural population group (29.4%), followed by industry (26.3%) and Arctic (22.7%). More than half of respondents (52%) of the Arctic group noted that a

median income. The average income reported as more than 40% of rural respondents and more than 30% of the industrial groups. High personal income was seen in more than 40% of respondents from the industry group. The percentage of respondents with a higher income in rural and arctic groups was almost comparable and consistent with 25-27% of the population surveyed. Among the respondents in the main sample of the sector the main source of income as a percentage of the majority chose - wages, a small percentage of the respondents said another source of retirement income. Therefore, in accordance with the recommendations of the International Quality of Life Assessment Project has developed a special socio-demographic map that takes into account cultural and social characteristics of the population of the Republic of Sakha (Yakutia). Developed by socio-demographic map provides sufficient objective perspective of the standard of living of the population and can be used to develop a regional quality of life of the population.

CONCLUSION

These pilot studies allowed:

1. To have preliminary data on QOL parameters of the Republic of Sakha (Yakutia) in the eight scales of the Russian version of the general health questionnaire SF-36 in six age groups, groups of men and women;
2. Calculate the total sample population for the study. Based on the recommendations of the International Project population-based studies of quality of life "International Quality of Life Assessment" Project (IQOLA) the total sample size for a population-based study in the Republic of Sakha (Yakutia) should reach 1042 people;
3. Check the psychometric properties of the SF-36 questionnaire in the Yakut population;
4. Test the socio-demographic map of characterizing features of the socio-economic development of the country.

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