HRM: STATISTICAL RESEARCH OF THE BASIC VALUES OF EMPLOYEES OF POLISH HEALTH SECTOR

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Abstract: The purpose of this paper is a qualitative statistical research of the basic values of employees of the Polish health sector. The study was carried out in Poland since December 2016 till April 2018. The main research methods were literature review, planning of experiments, questionnaire survey, statistical processing of questionnaires, ranking, verification of two pairs of statistical hypotheses. It was used the standard questionnaire containing 16 basic values. It was seven groups of respondents of the Polish health sector with different professional and educational backgrounds. The research participants 124 respondents. The result of the study has a great scientific importance: It is the first time, the comparison of basic values for seven populations of employees of the Polish health sector is carried out. Planning the experiment and statistics helped to bring together the results of the seven groups of respondents into a coherent overall picture. It has been shown that non-material values of respondents are stronger than material values and the most important basic value is «Physical health». So, employees of the Polish health sector work in harmony with their main basic value.

The results are highly statistically significant (99,0). This indicates that the decision will be correct in about 99,0% of cases and wrong only in 1,0% of cases. It means we have a decision-making process with accurate, controlled probability. So the results of the study have a practical importance: the results allow to influence to the HRM-strategy of the Polish health sector at regional level.

Key words: basic values, material values, non-material values, health sector employees, HRM, Polish health sector.

Introduction

Existing literature on HRM-practices and firm performance suggests that there is a positive association between the two variables (Saridakis et al., 2017). Motivated employees are one of the main components of success for any business. That's why, Rico R. and coauthors (2017) propose a predictive model to improve understanding of the nature of motivational processes leading to performance in interdependent systems of teams. A review of knowledge, skills, abilities, and other characteristics for virtual collaboration (Schulze and Krumm, 2017) also related to motivation of employees.

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The aim of the article (Ahammad et al., 2015) is to examine the impact of motivation to the productivity, motivation, and performance of commercial bank employees. The theoretical model presented in this article shows how ex-ante incentives (incentives based on past performance) and ex-post incentives (incentives based on future performance) affect productivity, motivation, and performance of employees. The main results show that workers with relatively high abilities might take advantage of both ex-ante and ex-post incentives. In contrast, workers with relatively low ability are unable to take advantage of both incentive schemes.

The results of the study (Shantz and Latham, 2011) demonstrate that subconscious motivation is a concept worthy of exploration for both human resource scholars and practitioners. Early it was shown that consciously set goals can increase an employee's performance. Thus, HR professionals have had little, if any, reason to be interested in subconscious processes. In the past decade, however, laboratory experiments by social psychologists have shown that goals can be primed. That is, people's behavior is affected by goals of which they are unaware. In other words, competently set goals can be a source of extrinsic and intrinsic motivation of employees.

The study of Hayenga and Corpus (2010) was designed to identify and evaluate naturally-occurring combinations of intrinsic and extrinsic motivations of middle-school students. An examination of shifts in motivational profiles over the course of a school year revealed a very important role of intrinsic motivation. Weel (2008) investigated the impact of self-esteem, external locus of control, the importance of money/work and the importance of people/family on wages and on the gender wage gap among young workers.

It is motivation and confident of employee in his Manager will bring the greatest benefit to any company (VK-community service). Famous Indian billionaire Savji Dholakia understands this, perhaps, as no one in the world (Hare Krishna). And, he has invested a serious part of his fortune in motivating the most productive employees. One way to motivate employees is a motivation through the basic values of employees. The main purpose of the study was to analyze the basic values of employees and students of the Polish health sector.

Literature Review

We have found more than 100 sources that study basic values of employees. Most of them have been published in journals indexed in databases Scopus and WOS (for example: Goossen et al., 2016; Struch et al., 2002; Leach, 1996; Sidanius, 1990; etc.). Some publications are related to the theory of the basic values. Another part is aimed at different methods of their determination. And the third part of works describes the results of the assessment of basic values of employees in business and public sector. Finally, we have used publications on the application of basic values to manage in various areas of the economy. An interest to the basic values in the health sector was expressed in countries with different cultures, such

as Greece, Iraq, Iran, Norway, Poland, Spain, Sweden, Switzerland, Taiwan, Turkey, UK, USA, etc. (for example: Kesselring, 2017; Kapetaneas et al., 2015). Many studies have been associated with the study of the basic values of nurses (Shahriari et al., 2012; Duffy et al., 2009; Shih et al., 2009; Dobrowolska et al., 2007; Wrońska and Mariański 2002; etc.). A total of 299 nurses and 341 nursing students participated in surveys in 2016 (Bijani et al., 2017). There were significant differences across the groups' perception in all of the dimensions of professional values ($p < 0.001$). In the study (Lyons, 2007) an unexpectedly large difference was observed between Millennials and Generation Xers with respect to Openness to Change and Self-enhancement. According to the results of Kaya et al., (2017) social values have statistical differences in 4-year nursing education.

Earlier, thematic content analysis helped explore the perception of Iranian nurses on ethical values in patient care (Shahriari et al., 2012). Seven major themes emerged. Before that (Shih et al., 2009), a purposive sample of 300 registered nurses in Taiwan, consisting of 270 nursing clinicians and 30 faculty members, participated in 22 focus-group interviews. Data were analysed using a systematic process of content analysis. Six prominent values related to professional nursing were identified. One of the ways to diagnose the basic values is described in the works (Textbook, 2011; Cieciuch et al., 2014). This is a standard questionnaire with 16 basic values ranked by each Respondent (Textbook, 2011). It was showed an instrument to measure 19 more narrowly defined values (Cieciuch et al., 2014). Similar method has been used by Ristic et al. (2017).

Interesting examples of the use of basic values in different sectors of the economy are described in the papers (Davis and West, 2009; Nimwegen et al., 2004; Kabanoff and Daly, 2002; Halstead, 1995). In our study it was used the questionnaire containing 16 basic values, look through table 1. This is the classic form, borrowed from a source (Textbook, 2011). We used this questionnaire because it has been used widely in the USA (Textbook, 2011), in Russia (Okulich--Kozarin et al., 2010), in Poland (Brzęczek and Sobota, 2017), in Belarus (Sushkov, 2017).

Table 1. A list of basic values (n = 16)

N	Basic values
1	Success (career)
2	Freedom (independence)
3	Physical health
4	Pleasures (satisfaction of bodily and sexual desires)
5	Real estate (house, expensive car, clothes and a lot of material values)
6	Recognition (respect and honor)
7	Sense of dignity (positive self-image)
8	Self-realization (leave a mark of yourself)
9	Love and friendship
10	Strong family ties (be with your loved ones and take care of them)
11	Cooperation

12	Remuneration (Money and salary)
13	Beauty (nature and art)
14	Peace on earth (absence of wars)
15	Oneness with God (to be moral)
16	Equality (equal opportunities for all, all people are equal)

Some basic values (table 1) coincide with the motivators given in the study (Ristic et al., 2017). There are: High salary, Opportunity for hierarchical advancement, Opportunities for personal development, Cooperative work environment and Full appreciation of work done (Unfair performance appraisal demotivates me).

At the same time, several of motivators (Ristic et al., 2017) don't coincide with ours. These are the traditional motivators of the post-socialist past: Opportunity to get an apartment, Perks such as a company car. In the early study (Okulich-Kazarina and Kukowska, 2017) it was shown that migration of medical personnel is a negative phenomenon in the Polish health care system. Economic preconditions are the main, but not the only motive for migration. People who decide to go to work abroad, tell that their motives not only low wages in the country and the need to work in several occupations, but also difficult working conditions, restrictions and barriers in the career path, not observing the permissible working time, obstacles in the adoption of specialization, problems associated with continuing education, as well as the General crisis in the Polish health care system. This article did not answer the question: what internal values of health sector employees forced them to migrate from the country: the material or the non-material? So, the main purpose of the study was to analyze the basic values of employees and students of the Polish health sector. We looked for answer to the research question: Which of the basic values of health sector employees are stronger: the material values or the non-material values? The answer to the research question can be found by verification of statistical hypotheses about randomness of change of a rating of basic values of non-material and material nature in two connected samples.

Null hypothesis H_0: probability that $X<Y$ is equal to probability that $Y<X$.

Null hypothesis: A difference between the rating of basic values of non-material and material nature is not statistically significant.

Alternative hypothesis H_1: probability that $X<Y$ is not equal to probability that $Y<X$.

Alternative hypothesis argues that the difference between the rating of basic values of non-material and material nature is statistically significant.

Research Methodology

The main research methods were literature review, planning of experiments, questionnaire survey, statistical processing of questionnaires, ranking, verification of statistical hypotheses. We did not use the methods of sociological research, we used the methods of statistical calculations (the expected value, $\dot{X}$; the standard

deviation for the population, δ_{x-1}) and verification of statistical hypotheses. The study was carried out in Poland since January 2017 till April 2018. We used well-documented and powerful methods of analysis. All of our methods were economically justified. First, we defined of a question – what exactly we were trying to find out. In this paper, we looked for answer to the research question - which of the basic values of health sector employees are stronger: the material values or the non-material values? Our next step was planning of experiments. When planning the experiment, we relied on the results of previous studies (Bijani et al., 2017; Kaya et al., 2017; Lyons et al., 2007; Ristic et al., 2017; Wrońska and Mariański, 2002). A plan for a complete one-factor experiment included an assessment of basic values in different populations of respondents. It was a statistical study. It was a qualitative study, not a quantitative study. So, there was no need to spend resources on the formation of a representative sample from all over the country. For qualitative comparison at local level, it was enough to survey one group in each population of respondents. Qualitative research had a regional scope, limited to the Shlensky Province. The study of this region should be the starting point in the management of the health system in Poland. This refers to the management of processes aimed at reducing the migration of health sector employees from Poland. It was used seven groups of respondents of the Polish health sector with different professional and educational backgrounds:

− hospital doctors,
− doctors of clinics,
− hospital nurses,
− hospital rescuers,
− medical staff of sanatorium,
− students the specialty "Public Health" - bachelor's courses,
− students the specialty "Public Health" - master's courses.

This set of groups allowed a qualitative comparison of basic values in seven professional and educational populations.

Further we used a standard questionnaire, the most convenient for the study (table 1). The study included 124 respondents (table 2).

Table 2. General characteristics of respondents (n = 124)

N of the group	Name of group	Number of respondents	Description of the group	Study period
1	hospital doctors	22	Regional Specialized Hospital, Czestochowa	08.12.2017-13.12.2017
2	hospital nurses	22	Regional Specialized Hospital, Czestochowa	07.12.2017
3	hospital rescuers	13	Regional Specialized Hospital, Czestochowa	01.12.2017-04.12.2017
4	doctors of clinics	12	NZOZ Medical clinic «Spółdzielczość» Czestochowa	07.07.2017-13.07.2017

5	medical staff of sanatorium	14	Sanatorium «Orlik», Ustroń	13.02.2017-17.02.2017
6	Students, the specialty "Public Health", bachelor's courses	17	Czestochowa University of Technology, Faculty of Management	01.02.2018
7	Students, the specialty "Public Health", master's courses	24	Czestochowa University of Technology, Faculty of Management	12.12.2016

Thus, the study involved medical staff of hospitals, clinics and sanatorium. For comparison, the study involved 2 groups of students who are preparing to work in the health sector. Statistics affords you to use the results for the whole General population of health sector employees. The next stage was the statistical processing of questionnaires. For each basic value values were defined:
− the expected value, $\dot{X}$;
− the standard deviation for the population, δ_{x-1}.
At this stage we have made a ranking of basic values for each group of respondents. A value of $\dot{X}$ was the basis for the rating. We also made a General rating of basic values for the General population of Polish health sector employees.
Then we verified two pairs of alternative hypotheses the General population of Polish health sector employees.
The first pair was:
− a rating of the basic value "Love and friendship" in the General population is 1,0;
− the rating of the basic value "Love and friendship" in the General population is not 1,0.
The secind pair was:
− a difference between the rating of basic values of non-material and material nature is not statistically significant;
− the difference between the rating of basic values of non-material and material nature is statistically significant.
Finally the data was interpreted and from this, we were able to draw conclusions.

Results

1. <u>Searching of the main basic values for different professional groups of the health sector</u>
The data provided in Table 3, Table 4, Table 5 shows rank of basic values for different professional and educational populations of health sector employees.

Table 3. Basic values of doctors (n = 36)

Basic values (N according to table 1)	Hospital doctors			Doctors of clinics		
	$\dot{X}$	δ_{x-1}	Rank	$\dot{X}$	δ_{x-1}	Rank
1	6,4	4,6	4	12,41	2,64	15
2	8,1	3,3	9	6,66	5,56	5
3	2,4	2,6	1	3,83	3,22	2
4	7,6	3,9	8	10,83	4,64	13
5	8,9	4,4	10	12,66	3,22	16
6	6,6	3,3	5	8,33	3,33	7
7	6,9	3,4	6	5,91	3,05	3
8	9,9	2,7	11	8,66	4,16	9
9	5,7	3,3	3	6,58	4,60	4
10	5,2	4,4	2	3,50	3,31	1
11	11,4	3,8	13	9,91	3,65	12
12	7,5	3,1	7	8,50	3,98	8
13	13,4	2,7	16	9,83	3,48	11
14	12,8	3,2	15	7,25	5,02	6
15	10,8	4,7	12	9,25	4,11	10
16	12,6	3,2	14	11,58	3,57	14

Table 3 shows that the main basic values of hospital doctors are:
  I.   Physical health,
 II.   Strong family ties,
III.   Love and friendship.
At the same time, table 3 shows that the main basic values of doctors of clinics are:
  I.   Strong family ties,
 II.   Physical health,
III.   Sense of dignity (positive self-image).

Table 4. The basic values of the medical personnel of other categories (n = 49)

N of Basic values	Hospital nurses			Hospital rescuers			Medical staff of sanatorium		
	$\dot{X}$	δ_{x-1}	Rank	$\dot{X}$	δ_{x-1}	Rank	$\dot{X}$	δ_{x-1}	Rank
1	13,5	3,4	16	7,8	4,4	7	13,2	3,6	16
2	4,7	2,3	4	9,0	3,2	10	6,1	3,5	5
3	2,0	2,2	1	3,2	3,5	1	4,6	3,4	3
4	10,0	3,1	9	6,7	3,3	4	10,8	4,1	12
5	8,7	2,9	6	8,7	3,3	9	12,2	3,2	15
6	10,6	3,4	11	7,9	3,8	8	8,0	3,3	6
7	5,9	3,1	5	7,3	2,3	5	5,8	3,6	4
8	10,8	4,3	13-14	9,4	3,5	11	9,6	2,9	10
9	2,9	2,1	2	3,9	2,5	2	3,1	0,9	2
10	4,0	2,8	3	5,4	4,2	3	2,4	1,5	1
11	9,4	3,0	8	10,8	3,2	13	9,0	3,6	8

12	9,2	3,9	7	7,6	4,5	6	12,1	1,7	14
13	10,3	3,3	10	12,0	3,8	14	11,3	3,2	13
14	10,8	4,8	13-14	10,6	5,3	12	10,0	4,8	11
15	10,7	3,6	12	12,2	4,9	15	9,3	5.6	9
16	12,6	2,6	15	13,5	3,5	16	8,5	4.3	7

Table 4 shows the that main basic values of hospital nurses are:
  I. Physical health,
 II. Love and friendship,
III. Strong family ties.
At the same time, table 4 shows the that main basic values of hospital rescuers are:
  I. Physical health,
 II. Love and friendship,
III. Strong family ties.
And table 4 shows the that main basic values of medical staff of sanatorium are:
  I. Strong family ties,
 II. Love and friendship,
III. Physical health.

Table 5. Basic values of future employees of health sector - students of the specialty "Public Health" (n = 41)

Basic values (N according to table 1)	Students, bachelor's courses			Students, master's courses		
	$\dot{X}$	δ_{x-1}	Rank	$\dot{X}$	δ_{x-1}	Rank
1	7,2	4,1	6	8,7	4,2	6
2	6,2	3,3	4	6,4	3,1	5
3	4,3	4,0	2	3,0	2,7	1
4	7,9	4,3	7-8	9,0	3,8	7
5	12,0	3,8	16	10,5	4,1	12
6	7,9	4,5	7-8	9,2	3,6	8
7	6,2	3,6	3	5,9	2,9	4
8	9,3	4,5	10	9,7	3,8	10-11
9	3,3	3,2	1	3,4	3,4	2
10	6,7	4,7	5	3,9	3,9	3
11	10,2	3,4	11	11,5	2,7	15
12	10,6	2,9	12	9,7	3,5	10-11
13	10,5	4,5	13	13,3	2,8	16
14	9,2	3,7	9	10,7	4,2	13
15	11,3	3,9	14	11,0	4,4	14
16	11,6	4,1	15	9,4	4,3	9

Table 5 shows the that main basic values of students, bachelor's courses are:
  I. Love and friendship,
 II. Physical health.
3. Sense of dignity (positive self-image).

At the same time, table 5 shows that the main basic values of students, master's courses are:
  I. Physical health,
 II. Love and friendship,
III. Strong family ties.

In table 6 it is shown the main basic values of employees and students of the Polish health sector. This is a summary of the data from tables 3-5.

Table 6. Main basic values for different professional groups of the health sector

N	Name of the group	3 position	2 position	1 position
1	hospital doctors	Love and friendship	Strong family ties	Physical health
2	hospital nurses	Strong family ties	Love and friendship	Physical health
3	hospital rescuers	Strong family ties	Love and friendship	Physical health
4	doctors of clinics	Sense of dignity	Physical health	Strong family ties
5	medical staff of sanatorium	Physical health	Love and friendship	Strong family ties
6	Students, the specialty "Public Health" (SUM), bachelor's courses	Sense of dignity	Physical health	Love and friendship
7	Students, the specialty "Public Health" (SUM), master's courses	Strong family ties	Love and friendship	Physical health

This is the average in the ranking of the most important basic values of employees and students of the Polish health sector:
− Physical health – 1,57;
− Love and friendship – 2,29;
− Strong family ties (be with your loved ones and take care of them) – 2,86.
The basic value «Physical health» is on the first position. This means that the basic value «Physical health» is the main one for employees and students of the Polish health sector. This means that employees of the health sector work by vocation. Their main source of motivation is the joy in the soul. This is because they do the work that is their value.

2. <u>Verification of statistical hypotheses about randomness of change of a rating of basic values of non-material and material nature in two connected samples</u>
For further analysis, we used two basic values of material nature from Table 1 (denote them X): «Remuneration» and «Real estate». We used two basic values of non-material nature (denote them Y): «Physical health» and «Love and

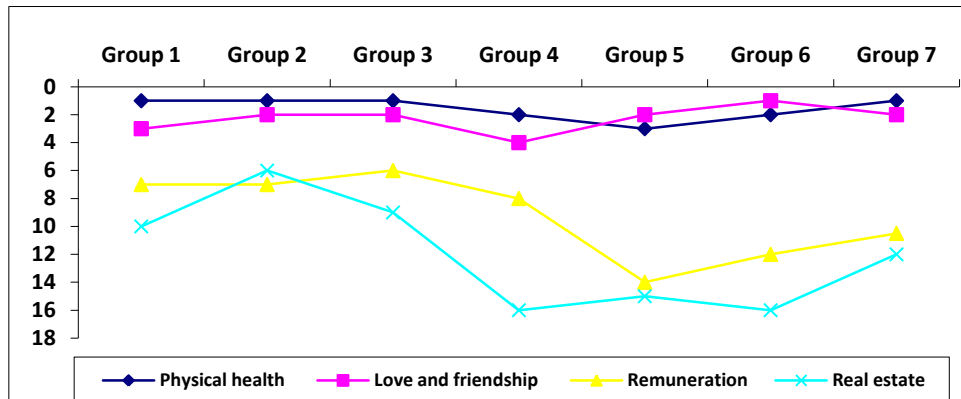friendship». These four basic values are at the Figure 1.

Figure 1. Basic non-material and material values for employees and students of the Polish health sector

Figure 1 shows that, what the basic values of non-material nature have a high value rating. And the basic values of a material nature have medium and low rating. Our data does not correspond to motivators given in the study (Ristic et al., 2017). Therefore, the further purpose of our study was to verify the statistical hypotheses about the randomness of changing the rating of basic values of non-material and material nature. The verification was performed for 7 groups of respondents (Table 2). It was the verification of hypotheses in two pairs of coupled samples by nonparametric methods: the technique of the criterion of signs for the difference was used. We have combined in pairs the rating for the basic values of non-material and material nature (Textbook, 2009). It is $M = 14$ (the size of a modified sample).

Null hypothesis H_0: probability that $X<Y$ is equal to probability that $Y<X$.

Null hypothesis: A difference between the rating of basic values of non-material and material nature is not statistically significant.

Alternative hypothesis H_1: probability that $X<Y$ is not equal to probability that $Y<X$.

Alternative hypothesis argues that the difference between the rating of basic values of non-material and material nature is statistically significant.

Data for statistical analysis are summarized in Table 7.

The procedure for verifying hypotheses:

1) Create a new dataset by building a row $X - Y$ (Table 7).

Table 7. Comparison of ratings of non-material and material basic values

M	1	2	3	4	5	6	7	8	9	10	11	12	13	14
X	7	7	6	8	14	12	10	10	6	9	16	15	16	12
Y	1	1	1	2	3	2	1	3	2	2	4	2	1	2
X-Y	6	6	5	6	11	10	9	7	4	7	12	13	15	10

2) It is "0" (zero) units where X-Y < 0.
3) The interval for the "criterion of signs for the difference" is 2-12 for M = 14 and the level of significance 1,0%, see table 16.1.1 (Textbook, 2009, p. 27).
4) Because the number "0" (zero) obtained in step 2 is out of interval in step 3 (interval is 2-12), the two samples X and Y diverge significantly. Therefore, we accept an alternative hypothesis, considering that differences in the rating of basic values of non-material and material nature are not accidental at the level of significance 1,0%.

The result is highly statistically significant. This suggests that, the decision will be correct in approximately 99% of the cases and incorrect in 1% of cases only. In this sense, we have the decision-making process with accurate, controlled probability (Textbook, 2010). At the 1% level of hypothesis testing, we accept the following result: the rating of basic values of non-material nature is not equal to the rating of basic values of material nature.

We verified the statistical hypotheses and found the answer to the research question: Which of the basic values of health sector employees are stronger: the material values or the non-material values?

3. Verification of statistical hypotheses about on the equality of the average of the general population of employees and students of the Polish health sector to μ = 1,0 for the basic value «Love and friendship»

The verification was performed for 7 groups of respondents (based on tables 3-5). Table 8 summarizes the rating of the basic value "Love and friendship" for each of the Respondent groups.

Table 8. The rating of the basic value «Love and friendship» of employees and students of the Polish health sector

Number of the group (Table 2)	1	2	3	4	5	6	7
Rank	3	2	2	4	2	1	2

The data in table 8 was used as the new sample of the General population of employees of the Polish health sector.

Null hypothesis H_0: μ = 1,0.

The null hypothesis argues that the unknown average of the General population of employees of the Polish health sector μ = 1,0. The null hypothesis sounds: the rating of the basic value "Love and friendship" in the General population is 1,0, if you do not take into account random deviations.

Alternative hypothesis H_1: μ ≠ 1,0.

The alternative hypothesis argues that the unknown average of the General population of employees of the Polish health sector μ ≠ 1,0. The alternative hypothesis sounds: the rating of the basic value "Love and friendship" in the General population is not 1,0. Table 9 shows data for the verification of statistical hypotheses for μ=1,0. It was performed for the level of significance 1,0%.

Table 9. Data to verification of statistical hypotheses

№	Indicator	Value
1	the size of a sample, n	7
2	the expected value, $\dot{X}$	2,29
3	the standard deviation for the sample, δ_x	0,88
4	average error, $\dot{S}_X = \delta_x / \sqrt{n}$	0,332
5	quantitative variable t_{stat} for $\mu_0=1,0$, $(\dot{X} - \mu_0) / \dot{S}_X$	3,885
6	the value t_{tabl} from the t-table 9.1.1 (Textbook, 2010, p. 42)	3,707

The size $t_{stat} = 3,885$ (table 9) more than value t_{tabl} for the level of significance 1,0% (3,707, table 9). Therefore, we accept an alternative hypothesis: the unknown average of the General population $\mu \neq 1,0$. This means, the rating of the basic value "Love and friendship" is not in the first place of the ranking of basic values of the General population of employees and students of the Polish health sector. It is in the second place. The result is highly statistically significant. This suggests that, the decision will be correct in approximately 99% of the cases and incorrect in 1% of cases only. In this sense, we have the decision-making process with accurate, controlled probability (Textbook, 2010). For the level of significance 1%, we accept the following result: the basic value «Physical health» is in the first place of the ranking of basic values. It was proved that the basic value «Physical health» is in the first place of the ranking. The basic value «Love and friendship» is in the second place. They are in a top priority for employees and students of the Polish health sector. It is evident that the rating of basic values of material nature for employees of the health sector is less important.

Discussion

Can we trust the results of our research? This is a lot or a little, to poll 124 respondents? For example, in the paper of (Guluţă and Rusu, 2016), 50 managers were interviewed only. It was enough to show correlations for the whole of Romania. And in the paper (Kayalar and Kayalar, 2017) the research was carried out with the participation of 15 university students only. In the research (Shahriari et al., 2012) 28 nurses were purposely selected and interviewed. At the stage of verification of statistical hypotheses, the results are highly statistically significant (99,0%). The result indicates that the decision will be correct in about 99,0% of cases and wrong only in 1,0% of cases. In this sense, we have a decision-making process with accurate, controlled probability. Therefore, we are sure that 124 respondents are enough to get a reliable result in the study. The theory of statistics gives no reason to doubt the correctness of our results. The theory of statistics frees the authors from the need to prove the correctness of the results. Anyone who disagrees with our results can only refute the results. S/he should organize a new study (Textbook, 2010) and must use a large sample or higher statistical significance.

It is very interesting to compare our results with the results of other researchers. For example, our results differ from those described in (Bijani et al., 2017; Kaya et al., 2017; Lyons et al., 2007). In this paper, we do not try to explain the reasons for the discrepancy with the results of another culture. Even more so, the authors (Lyons et al., 2007) admitted that their results were "unexpected". From the other hand, the majority of respondents placed "better health insurance" to the third position among 15 motivators (Ristic et al., 2017). And it was shown by Wrońska and Mariański (2002) life and health is cherished with affection by the great majority of nurses as positive factors of human existence. This confirms our results in the direction of the basic value of "health" for one part of the Polish health sector. In the study it is proved that the basic values of a non-material nature are stronger motivators than the basic values of a material nature. This means that the employer must increase the weight of non-material basic values in the HRM-strategy. For example, the real recommendations have been given for the Top-management of the sanatorium "Orlik" (Okulich-Kazarina, 2017):

− It is necessary to create a pleasant, "family" atmosphere in the team. It affords employees feel "at home";
− It is necessary to take care of the health of employees. It will increase loyalty and reduce staff turnover.

Thus, the analysis of basic values has allowed to influence to the motivation system as a part of the HRM-strategy of the Polish health sector. The second useful recommendation is for the Ministry of Higher Education and Science of Poland. Today it is not necessary to change the system of formation of basic values in the learning process for students of the Polish health sector.

Conclusions

This study showed new scientific information important for the management of the health care system in Poland. This refers to the management of processes aimed at reducing the migration of health sector employees from Poland. The study in Shlensky Province should be the starting point for further investigation of the basic values of the Polish health sector employees. This information is also important for human resource management in other sectors of the economy. At the regional level, the results of the study are useful for managing of many companies in the sector of health in Shlensky Province. The paper presents results of a qualitative statistical research of the basic values of employees and students of the Polish health sector. Described research were carried out in order to find the answer to the research question: Which of the basic values of health sector employees are stronger: the material values or the non-material values?

1) The result is a real scientific fact.

Independent basic values of employees and students were transformed into real scientific knowledge by modern research methods. Planning the experiment and statistics helped to bring together the results of the seven groups of respondents into a coherent overall picture.

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2) The result of the study has a great scientific importance.

It is the first time that the comparison of basic values for seven populations of employees of the Polish health sector was carried out in Poland. It has been shown:

− that non-material values of respondents are stronger than material values;

− that the most important basic value is «Physical health». So, employees of the Polish health sector work in harmony with their main basic value.

The results are highly statistically significant (99,0). This indicates that the decision will be correct in about 99,0% of cases and wrong only in 1,0% of cases. It means we have a decision-making process with accurate, controlled probability.

3) The results of the study have a practical importance at regional level:

− It is not necessary to change the system of formation of basic values in the learning process for health sector students of the Faculty of Management PCz.

− It is necessary to create a pleasant, "family" atmosphere in the team of the sanatorium "Orlik". This recommendation has been given for the Top-management of the sanatorium "Orlik". It affords employees feel "at home". Also, it is necessary to take care of the health of employees. It will increase loyalty and reduce staff turnover. As a result of the implementation of these management decisions, the economic performance of the sanatorium "Orlik" will be improved.

4) The next task is to study basic values of employees of the health sector in other Polish regions.

Acknowledgement

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ZZL: BADANIA STATYSTYCZNE PODSTAWOWYCH WARTOŚCI PRACOWNIKÓW POLSKIEGO SEKTORA ZDROWIA

Streszczenie: Celem niniejszego artykułu jest jakościowe badanie statystyczne podstawowych wartości pracowników polskiego sektora zdrowia. Badanie przeprowadzono w Polsce od grudnia 2016 r. do kwietnia 2018 r. Głównymi metodami badawczymi były przegląd literatury, planowanie eksperymentów, ankieta, statystyczne przetwarzanie kwestionariuszy, ranking, weryfikacja dwóch par hipotez statystycznych. Zastosowano standardowy kwestionariusz zawierający 16 podstawowych wartości. Było to siedem grup respondentów polskiego sektora opieki zdrowotnej o różnym zawodzie i wykształceniu. W badaniu uczestniczyło 124 respondentów. Wynik badania ma duże znaczenie naukowe: po raz pierwszy dokonuje się porównania podstawowych wartości dla siedmiu populacji pracowników polskiego sektora zdrowia. Planowanie eksperymentu i statystyk pomogło połączyć wyniki siedmiu grup respondentów w spójny ogólny obraz. Wykazano:
- że wartości niematerialne respondentów są silniejsze niż wartości materialne,
- najważniejszą wartością podstawową jest "Zdrowie fizyczne". Tak więc pracownicy polskiego sektora zdrowia pracują w harmonii ze swoją podstawową wartością.

Wyniki są wysoce statystycznie istotne (99,0). Wskazuje to, że decyzja będzie prawidłowa w około 99,0% przypadków, a zła tylko w 1,0% przypadków. Oznacza to, że mamy proces decyzyjny z dokładnym, kontrolowanym prawdopodobieństwem. Wyniki badania mają więc praktyczne znaczenie: wyniki pozwalają wpłynąć na strategię ZZL w polskiej służbie zdrowia na poziomie regionalnym.

Słowa kluczowe: wartości podstawowe, wartości materialne, wartości niematerialne, pracownicy sektora zdrowia, ZZL, polski sektor zdrowia.

人力资源管理：波兰卫生部门员工基本价值观的统计研究

摘要：本文的目的是对波兰卫生部门员工基本价值进行定性统计研究。该研究于2016年12月至2018年4月在波兰进行。主要研究方法为文献综述，实验规划，问卷调查，问卷统计处理，排序，两对统计假设的验证。使用包含16个基本值的标准问卷。波兰卫生部门的七组受访者具有不同的专业和教育背景。研究参与者124位受访者。研究结果具有重要的科学意义：首次对波兰卫生部门7个员工群体的基本价值进行了比较。规划实验和统计数据有助于将七组受访者的结果汇总成一个连贯的整体情况。它已被证明：受访者的非物质价值强于物质价值，最重要的基本价值是"身体健康"。因此，波兰卫生部门的员工与他们的主要基本价值相协调。结果具有高度统计学意义(99,0)。这表明该决定在大约99,0%的案例中是正确的，而在仅有1.0%的案例中是错误的。这意味着我们的决策过程具有准确，可控的概率。因此，研究结果具有实际意义：结果可以影响波兰卫生部门在区域一级的人力资源管理战略。

关键词：基本价值观，物质价值观，非物质价值观，卫生部门员工，人力资源管理，波兰卫生部门。