Challenges of the current medicine

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I believe that the greatest gift you can give your family and the world is a healthy you.
Joyce Meyer

Dear Colleagues

The monograph periodical "*Challenges of the Current Medicine - 7 Edition"* is a collection of works written by authors from many different medical centers.

Buddha said: "*Health is the greatest gift, contentment the greatest wealth, faithfulness the best relationship*"

The leading theme of the monograph applies patient, mainly the dying patient.

Nowadays very important is also our mental condition. We should remember words of Vikram Patel who said that:- *'There is no health without mental health; mental health is too important to be left to the professionals alone, and mental health is everyone's business.*

In the particular chapters are discussed various therapeutic care problems occurring in modern medicine, selected sociological threads of the dying person, approach to transplantation, euthanasia, genetic diagnostics of cancer and the role of support groups in the process of grieving child. We discussed the role of the therapeutic team in improving the quality of life of patients and problems associated with miscarriage and morbidity.

We hope that the monograph subjects allow demonstrate respect for the patient's dignity.

As the authors we believe in the truth from words of Anne Wilson Schaef '*Good health is not something we can buy. However, it can be an extremely valuable savings account.*.

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Comparison Validation Polish, Greece, Belarus Version of the Trust in Physician Scale

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Introduction

The scientific literature [1-4] describes that in the United States and in Europe, the bad habits of the staff have been eliminated, the ineffective ways of treatment and care. The quality of care has been systematically assessed and the recommendations and procedures for treatment and care of patients have been developed. This phenomenon appeared in Poland in the context of changes in the health care system [1-4].

In the survey performed between 2011 and 2013 within the International Social Survey Program (ISSP), conducted in 29 countries by national research and research institutes. Two parameters were evaluated: the trust of the physician as a professional and the individual satisfaction of the treatment during the last visit to the doctor. It was found that

physicians trusted citizens in countries such as Switzerland, Netherlands, United Kingdom, Finland, France and Turkey (confidence level from 83% to 75%). The ratings are closed by Croatia, United States, Bulgaria, Russia, and Poland with 58-43% confidence. Trusted doctors were less than half of respondents from Bulgaria, Russia and Poland, which is the country closing the ranking with the trust of doctors at the level of 43%.

Institutional trust refers to trust in the rules, roles, and norms independent of those who hold these roles [6-8]. This is a general attitude that results from personal experiences, previous experiences and contacts with representatives of a particular institution created by the media, and on the other hand the effect of applicable social norms [6-8]. Trust in the macro scale - is trust in social institutions or systems, expecting the person to be properly treated by the system, e.g. health care if needed [7,9]. There is also a high level of knowledge-based trust - coming from a firm belief in future direction of the partner's behavior based on past experience, calculus-based trust - down to accept assumptions about the predictability of partner behavior. Institutional trust - which grows with the degree of professionalism of the organization, which in the context of health care is important, and the trust of the identification-based trust - which has a bearing on the alternative path. its sources in the internalisation of needs and intentions of transaction partners [7,10,11].

All of the aforementioned types of trust exist in relationships between healthcare providers, with two of them: knowledge-based trust and identification can relate to interpersonal relationships (for example, physician-patient), while the other two relate to a greater degree of organizational level [7] .

Cook et al. have shown that trust in a provider and the satisfaction of his services are related [12].

The aim of the study was to compare validated of the patient's trust scales between Polish, Greek, Belarus versions.

Material and methods

The consent of the Bioethics Committee of the Medical University of Bialystok R-I-002/52/2011 was obtained.

The study used the Anderson and Dedrick Trust in Physician Scale (TIPS), covering 11 issues [13]:

1. I doubt that my doctor really cares about me as a person.
2. My doctor is usually considerate of my needs and puts them first.

3. I trust my doctor so much I always try to follow his/her advice.
4. If my doctor tells me something is so. then it must be true.
5. I sometimes distrust my doctor's opinion and would like a second one.
6. I trust my doctor's judgments about my medical care.
7. I feel my doctor does not do everything he/she should for my medical care
8. I trust my doctor to put my medical needs above all other considerations when treating my medical problems.
9. My doctor is a real expert in taking care of medical problems like mine.
10. I trust my doctor to tell me if a mistake was made about my treatment.
11. I sometimes worry that my doctor may not keep the information we discuss totally private.

Reliability and repeatability of the scale were confirmed by independent studies in which Cronbach alpha coefficient ranged from 0.85 to 0.90.

The respondents reported with a five-point scale [13]:1 – Strongly Disagree, 2 – Disagree, 3 – The authors of the questionnaire have developed a method for calculating the degree of trust of patients towards doctors (the scores for each question are calculated and the mean is calculated) [13]. According to this method, the highest score for each question was 5 points. Exceptions were questions 1, 5, 7, 11, as they had a maximum rating of 1 point. As a result, these questions were reversed in turn and then added to the answers to the remaining questions [13].

The adaptation of the scale to the Polish conditions was carried out with the permission of the author of the Robert F. Dedrick scale, Department of Educational and Psychological Studies, EDU 105, University of South Florida, Tampa.

The study group included 849 patients from Poland (57.1% men and 42.9% women), 251 patients from Greece (59.7% of women and 40.3% of men) and 251 patients from Belarus (56.3% men and 43.7% women). Patients were asked to participate in the study during the staying in the hospital. Patients who agreed to participate completed a consent form and the Trust in Physician Scale.

Stages of the adaptation process

The validation process consisted of two parts: translation and evaluation of the psychometric properties of the newly translated instrument, and its purpose was to compare the obtained results on the intercultural (international) level and to apply the given test in Poland, Greece, and Belarus [14].

An important factor of validation is cultural adaptation for intercultural comparison (the ability to compare the results of the questionnaire at an intercultural level) and practical use of the questionnaire in Poland, Greece and Belarus [15].

Equivalence of adopted tools with the original version is measured in five categories of equivalence [14]: facade (e.g., test graphic, instruction), psychometric (e.g., correlation between versions), functional (relevance to the same purpose), translations, degree of difficulty of words) and reconstruction (e.g., methods of checking reliability and relevancy, types of norms).

The validation process consisted of the following steps: obtaining permission to use the scale (contact with the authors of the questionnaire), preparing the Polish language version of the scale, applying the Polish language version of the scale, assessing the psychometric properties of the scale. During cultural adaptation, all the principles of equivalence of scale to original version were tried.

In the first stage of validation ("forward translations"), efforts were made to preserve, through transcription and translation, the fidelity of the translation of the questionnaire into Polish, Greece and Belarus [16]. The original version of the research tool was translated by two independent translators of English, whose mother tongue was Polish, were graduates of English philology, and were daily involved in the translation and teaching of English in higher education.

In the next stage a preliminary version of the Polish, Greece and Belarus -language questionnaire was created based on two translations. The scale was retransmitted, ie the newly acquired scale was re-translated into the original language by an interpreter whose native language was English, but has lived in Poland, Greece and Belarus for many years and is fluent in that language [15,17]. The next stage of the scale validation process According to the literature recommendation [15], the principle of equivalence of the façade questionnaire consisted in graphical compliance, quantity and method of question formulation, as well as the form of answers to the questions asked, the instructions on how to conduct the research and the selection of the research group. Thanks to such precise rules, it was possible to achieve a high degree of facade equivalence with the original scale version. During the preparation of the Polish version of the scale, an identical graphical form of scale was used, as prepared by the authors of the original version.

The next step of validation, according to literature recommendations [14,15], was to preserve the faithfulness of the reconstruction, which relates to the different stages of scale construction, the ways of assessing its relevance and reliability, the similarity of groups and

the type of standards used. Because the Polish, Greece and Belarus version of the scale was created on the basis of the scale already existing, some elements of this principle were omitted, and the focus was on the execution of studies similar to those used by the authors of the original version.

Statistical methods such as Cronbach's alpha coefficient, correlations between accumulated data on individual questions and the whole scale were used to determine the relevance and reliability of the scale.

The performance evaluations were made in accordance with the manual developed by the authors of the questionnaire, by calculating the interest values and the mean scores obtained from the response to the individual scale questions.

The last element of validation was the evaluation of the psychometric equivalence of both questionnaires. According to the literature requirements [17], the research process analyzed elements similar to those in the original version. Internal cohesion was assessed using the Cronbach alpha coefficient tests and the discriminatory power of the items.

Statistical software Statistica version 10 (Statsoft) was used for statistical analysis. Cronbach's alpha coefficient correlations between the accumulated data on individual questions and the whole scale were used to determine the relevance and reliability of the scale. Kruskal-Wallis test was used to compare results between three countries. A level of statistical significance of $p < 0.05$ was used.

Results

In Poland, the highest mean score were items "I trust my doctor very well, therefore I always adhere to his advice" - 3.86 ± 0.83 and "I trust my doctor as to how to treat my condition" - 3.8 ± 0.89, And the smallest item "Sometimes I'm afraid my doctor does not keep a secret" - 2.36 ± 1.26. "If my doctor says something must always be true," 14.85% of the respondents strongly agreed, and strongly disagreed - 2.2% of the respondents. Definitely not trusted his doctor at all, 4.7% of the respondents and vice versa declared 12% of them. 18% of the respondents believed strongly in the decisions and opinions of their physician and did not trust - 2.6%. About 20% of the respondents were convinced that their doctor was a real expert in the treatment of diseases. The remaining results are shown in Table I.

In Greece - the highest mean scores were for items „ I trust my doctor so much I always try to follow his/her advice" 3.63±0.91; „If my doctor tells me something is so. Then it must be true" 3.55±0.89; „I trust my doctor's judgments about my medical care"

3.44±0.86 and „ My doctor is usually considerate of my needs and puts them first" 3.41±0.88.

Table I. Respondents' responses to scale issues

Issue number / issue		Average points ± SD			P value
		Poland N=849	Greece N=251	Belarus N=251	
1.	I doubt that my doctor really cares about me as a person	2.51±1.09	2.65±0.97	2.51±0.95	NS
2.	My doctor is usually considerate of my needs and puts them first	3.49±0.94	3.41±0.88	3.33±0.98	NS
3.	I trust my doctor so much I always try to follow his/her advice	3.86±0.83	3.63±0.91	3.64±0.99	NS
4.	If my doctor tells me something is so. then it must be true	3.65±0.91	3.55±0.89	2.52±0.85	<0.001
5.	I sometimes distrust my doctor's opinion and would like a second one	2.58±1.03	3.29±0.92	2.63±0.86	<0.001
6.	I trust my doctor's judgments about my medical care	3.67±0.97	3.44±0.86	3.66±0.88	NS
7.	I feel my doctor does not do everything he/she should for my medical care	2.698±1.1	3.04±0.99	2.92±1.24	<0.001
8.	I trust my doctor to put my medical needs above all other considerations when treating my medical problems	3.8±0.89	3.37±0.87	3.83±0.80	NS
9.	My doctor is a real expert in taking care of medical problems like mine	3.76±0.9	3.39±0.84	3.95±0.77	NS
10.	I trust my doctor to tell me if a mistake was made about my treatment	3.46±0.96	3.35±0.98	3.5±0.83	NS
11.	I sometimes worry that my doctor may not keep the information we discuss totally private	2.36±1.26	3.08±0.97	2.52±113	<0.001
Total		**3.26±1.14**	**3.29±0.96**	**3.18 ±1.09**	**NS**

Tab. II. Comprehensive statistics summary scale the trust in physician scale and scale reliability

Issue number / issue		Item-scale correlation			Cronbach's alpha measured without the question			P value
		Poland	Greece	Belarus	Poland	Greece	Belarus	
1.	I doubt that my doctor really cares about me as a person	-0.891	0.911	0.946	-0.981	0.983	0.983	NS
2.	My doctor is usually conside-rate of my needs and puts them first	0.909	0.950	0.927	0.980	0.982	0.984	NS
3.	I trust my doctor so much I always try to follow his/her advice	0.899	0.938	0.951	0.981	0.982	0.983	NS
4.	If my doctor tells me something is so. then it must be true	0.950	0.944	0.943	0.979	0.982	0.984	NS
5.	I sometimes distrust my doctor's opinion and would like a second one	-0.904	0.942	0.946	-0.980	0.982	0.984	NS
6.	I trust my doctor's judgments about my medical care	0.941	0.939	0.958	0.979	0.982	0.983	NS
7.	I feel my doctor does not do everything he/she should for my medical care	-0.887	0.931	0.943	-0.981	0.982	0.985	NS
8.	I trust my doctor to put my medical needs above all other considerations when treating my medical problems	0.930	0.948	0.897	0.980	0.982	0.985	NS
9.	My doctor is a real expert in taking care of medical problems like mine	0.945	0.799	0.898	0.979	0.985	0.985	NS
10.	I trust my doctor to tell me if a mistake was made about my treatment	0.915	0.866	0.939	0.980	0.984	0.984	NS
11.	I sometimes worry that my doctor may not keep the information we discuss totally private	-0.875	0.927	0.921	-0.982	0.982	0.985	NS
	Total	0.891	0.918	0.933	0.893	0.918	0.984	NS

Discussion

Our findings indicate that patient trust with physician satisfaction in the validated scales differed between countries in some questions.

We found significant differences in the following questions: If my doctor tells me something is so. then it must be true; I sometimes distrust my doctor's opinion and would like the second one; I feel my doctor does not do everything he/she should for my medical care; I sometimes worry that my doctor may not keep the information we discuss totally private. Furthermore, we did not find the significant difference between countries in regard scale reliability.

We should remember that the patient-doctor relationship is variable and depends on many independent factors, so it should be based on the professional competence of the staff, mutual trust, kindness and respect for the dignity, and intimacy of the patient [18].

The above relationship is affected by the level of knowledge and skills of the staff, the ethical attitude as well as the patient's attitude to his illness.

Miller et al. [19] analyzing the beliefs of 191 patients waiting for a visit general practitioners in primary care showed that the majority of expectant patients rated the quality of benefits they received. Only one aspect of primary care patients rated negatively - less than 50% stated that the general practitioner had taken into account their material situation [19].

Hean [20] in a study of 1,200 students in the first year of ten medical studies showed that doctors were viewed by the students as decision makers, having a leader in the medical team.

Many authors [1,21-24] have attempted to create the most accurate definition of the relationship between the physician and the patient, and to define their rights and obligations towards one another, and to design an ethical framework for behavior.

Hollender and Szasz [25], have created a model of three basic types of relationship between physician and patient, which takes into account their clinical applications: activity - passivity (e.g., in coma); targeting - cooperation (in infectious diseases) and participation (most chronic diseases).

Other models in the bioethical literature [1,20,24] also include: legalistic (in which one side is a physician; the other is the client); consumers (where the doctor is dealing with the consumer and as a health care professional performs the role of a seller of medical products, subject to the same free market rules as other services.)

It has the task of providing the patient with professional information covering both benefits and risks, a particular treatment method, listen to the patient's needs and needs, present methods that would meet his or her expectations [1,20,24,25].

Negotiation (where the relationship between doctor and patient is limited to negotiation), discussion (not only about health but also moral values), contractual (where the contract is concluded) [1,20,24,25].

Patient negotiates with his or her physician specialists in the presence of lawyers, while some watch over the cost-effectiveness of the system for the patient and others for the doctor [1,20,24,25].

Emanuel and Emanuel [20] proposed paternalistic model - the doctor decides about the patient's health; informative - the doctor is a professional and provides the patient with relevant information. The doctor provides the necessary information. including the risks and benefits of the treatment. the patient makes a competent decision; joint dialogue - a friendly atmosphere in which to choose the best treatment.

The results of Reader's Digest survey have shown that Poles have less confidence in the health care professions, including doctors. The doctors trusted 64% surveyed in Poland, whereas the European average was 81% [26].

Even less trust doctors were noted in Russia (51%). The best doctors trusted the Belgians, Finns and Swedes (91%) and Austrians (90%). Dutch and Swiss (89% each) [26].

Benker et al. [27] demonstrated that trust building involves listening, informing, sometimes spending time together, and the ability to participate in decision-making [27]. Trust can be studied at several different levels that interpenetrate [28].

Baidya et al. [29] explored the concept of patient-physician trust among adults of rural Tamil Nadu to assess the factors affecting patient-physician trust relationship and patient satisfaction. Men and women aged above 40 years who have visited a health care service at least once during the last 5 years were included in the study. Trust influenced patient's self-reported satisfaction and remained independent of all the other factors assessed in the study such as, age, gender, education, self-reported health status, time spent with the physician, physician's gender, and physician's age [29].

Freburger et al. [30] assessed the psychometric properties of the Trust in Physician Scale and identified variables associated with patients' trust in their rheumatologist. Decreased trust was associated with older age. minority status. higher education, diagnosis of fibromyalgia or osteoarthritis, and poorer health [30].

Conclusion

Anderson and Dedrick in the Polish, Greek and Bealurs version of the patient's confidence scale fulfill all the criteria of psychometric, faceted and functional psychometric equivalence, with the original version of The Trust In Physician Scale of 0.981. We found significant differences in some questions between compared countries. Furthermore, we did not find significant differences between countries in regard scale reliability. These validated scales can be valuable sources of information on the quality of health care in the studied countries.

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English version of the scale

Instructions:
Each item below is a statement with which you may agree or disagree. Beside each statement is a scale that ranges from strongly agree to strongly disagree. For each item please circle the number that represents the extent to which you agree or disagree with the tatement. Please make sure that you answer every item and that you circle only one number per item. It is important that you answer according to what you actually believe and not according to how you feel you should believe or how you think we may want you to respond.

1 = Strongly Disagree
2 = Disagree
3 = Neutral (neither disagree or agree)
4 = Agree
5 = Strongly Agree

1.	I doubt that my doctor really cares about me as a person. *	1	2	3	4	5
2.	My doctor is usually considerate of my needs and puts them first.	1	2	3	4	5
3.	I trust my doctor so much I always try to follow his/her advice.	1	2	3	4	5
4.	If my doctor tells me something is so. then it must be true.	1	2	3	4	5
5.	I sometimes distrust my doctor's opinion and would like a second one.*	1	2	3	4	5
6.	I trust my doctor's judgments about my medical care.	1	2	3	4	5
7.	I feel my doctor does <u>not</u> do everything he/she should for my medical care.*	1	2	3	4	5
8.	I trust my doctor to put my medical needs above all other considerations when treating my medical problems.	1	2	3	4	5
9.	My doctor is a real expert in taking care of medical problems like mine.	1	2	3	4	5
10.	I trust my doctor to tell me if a mistake was made about my treatment.	1	2	3	4	5
11.	I sometimes worry that my doctor may not keep the information we discuss totally private.*	1	2	3	4	5

* NOTE. The TPS is scored by reverse scoring items 1. 5. 7. and 11 and summing all items for the total score. Higher scores reflect more of the construct (trust).

Polish version of the scale

Polska wersja skali

Instrukcja:

Poniżej znajdują się stwierdzenia. z którymi możesz się zgodzać lub nie zgadzać. Obok każdej wypowiedzi jest skala. która waha się od zdecydowanie zgadzam się do zdecydowanie nie zgadzam się. Dla każdego elementu skali proszę zaznaczyć liczbę reprezentującą stopień. w jakim się zgadzasz lub nie zgadzasz z danym stwierdzeniem. Upewnij się. że odpowiadasz na każdy element i zaznaczasz tylko jeden numer przy danym problemie skali. Ważne jest. aby odpowiadać tak. jak w rzeczywistości uważasz. a nie w zależności od tego. jak sądzisz. że powinieneś uważać lub jak myśleć. że można zareagować.

1 = Zdecydowanie nie zgadzam się
2 = Nie zgadzam się
3 = Ani tak ani nie
4 = Zgadzam się
5 = Zdecydowanie zgadzam się

1.	Wątpię. że mój lekarz naprawdę opiekuje się mną jako osobą. *	1	2	3	4	5
2.	Mój lekarz zwykle rozpatruje moje potrzeby i stawia je na pierwszym miejscu.	1	2	3	4	5
3.	Ufam bardzo mojemu lekarzowi dlatego zawsze stosuję się do jego rad.	1	2	3	4	5
4.	Jeżeli mój lekarz coś zawsze musi być to prawda.	1	2	3	4	5
5.	Czasami nie ufam mojemu lekarzowi.*	1	2	3	4	5
6.	Ufam orzeczeniom i opiniom mojego lekarza.	1	2	3	4	5
7.	Czuję .że mój lekarz nie wszystko robi dla mojej opieki medycznej.*	1	2	3	4	5
8.	Ufam mojemu lekarzowi co do sposobu leczenia moich schorzeń.	1	2	3	4	5
9.	Mój lekarz jest prawdziwym ekspertem w leczeniu chorób.	1	2	3	4	5
10.	Mogę powiedzieć mojemu lekarzowi jeżeli popełni błąd.	1	2	3	4	5
11.	Czasami obawiam się. że mój lekarz nie dochowa tajemnicy.*	1	2	3	4	5

*NOTE. W skali pozycje 1. 5. 7 i 11 są rejestrowane odwrotnie. a łączny wynik jest sumą wszystkich punktów. Wyższe punkty odzwierciedlają większą konstruktywność (zaufanie).

Greek version of the scale

Η κλίμακα της εμπιστοσύνης ως βάση της σχέσεις ασθενή- γιατρού του Aderson και Dedrick (1990)

Παρακαλώ απαντήστε στις ερωτήσεις που περιλαμβάνονται στο ερωτηματολόγιο με ένα "X" στα τετραγωνάκια ¨□ ¨που βρίσκεται σε κάθε μία από τις πιθανές απαντήσεις, ή πληκτρολογήστε τη σωστή απάντηση στο διάστικτο χώρο

Τα συνεχόμενα ψηφία σημαίνουν :
1 = διαφωνώ απόλυτα
2 = δεν συμφωνώ
3 = ούτε ναι ούτε όχι
4 = συμφωνώ
5 = συμφωνώ απόλυτα

1.	Αμφιβάλλω αν ο γιατρός μου ,πραγματικά με φροντίζει ως άτομο *	1	2	3	4	5
2.	Ο γιατρός μου , συνήθως εξετάζει τις ανάγκες μου και τα τοποθετεί στην πρώτη θέση.	1	2	3	4	5
3.	Έχω μεγάλη εμπιστοσύνη στο γιατρό μου και πάντα προσαρμόζομαι στις συμβουλές του.	1	2	3	4	5
4.	Αν ο γιατρός μου λέει πάντα κάτι θα πρέπει να είναι αλήθεια.	1	2	3	4	5
5.	Μερικές φορές δεν εμπιστεύομαι το γιατρό μου*	1	2	3	4	5
6.	Έχω εμπιστοσύνη, στην δήλωση και την άποψη του γιατρού μου	1	2	3	4	5
7.	Αισθάνομαι ότι ο γιατρός μου δεν κάνει ότι πρέπει για μένα από την άποψη της ιατρικής περίθαλψης*	1	2	3	4	5
8.	Εμπιστεύομαι το γιατρό μου για τη θεραπεία της ασθένειας μου	1	2	3	4	5
9.	Ο γιατρός μου είναι ένας πραγματικός εμπειρογνώμονας για τις θεραπείες των ασθενειών	1	2	3	4	5
10.	Αν ο γιατρός μου θα κάνει ένα λάθος, μπορεί να του το πω ότι το έκανε	1	2	3	4	5
11.	Μερικές φορές φοβάμαι ότι ο γιατρός μου δε θα κρατήσει το απόρρητο μου*	1	2	3	4	5

*Σημείωση. Στην κλίμακα ,οι θέσεις 1.5.7 και 11 είναι καταγραμμένες ανάποδα ,μα το τελικό αποτέλεσμα είναι το άθροισμα όλων των σημείων . Τα υψηλότερα σημεία αντικατοπτρίζουν την μεγαλύτερη εμπιστοσύνη

Russian version of the scale

Шкала доверия «пациент – врач» Аддерсона и Дедрика (1990)

1 = Я категорически не согласен
2 = Я не согласен
3 = ни «за», ни «против»
4 = Согласен
5 = Я полностью согласен

1.	Я сомневаюсь, что мой врач действительно заботится обо мне как о человеке и личности *	1	2	3	4	5
2.	Мой врач обычно относится к моим потребностям понимающе и ставит их первое место.	1	2	3	4	5
3.	Я очень доверяю своему врачу, поэтому всегда придерживаюсь его советов.	1	2	3	4	5
4.	Если мой врач что-то говорит, то это всегда правда.	1	2	3	4	5
5.	Иногда я не доверяю своему доктору.*	1	2	3	4	5
6.	Доверяю суждениям и мнению моего врача.	1	2	3	4	5
7.	Я чувствую, что мой врач делает не все необходимое для оказания мне медицинской помощи.*	1	2	3	4	5
8.	Я полностью доверяю своему врачу, что касается методики лечения меня.	1	2	3	4	5
9.	Мой врач - настоящий специалист в лечении заболеваний.	1	2	3	4	5
10.	Я могу подсказать моему врачу, если он допустит ошибку.	1	2	3	4	5
11.	Иногда мне кажется, что мой врач что-то от меня скрывает.*	1	2	3	4	5

* Примечание. В шкале пункты 1, 5, 7 и 11 записаны в обратном порядке, а общий балл - это сумма всех пунктов. Более высокие результаты отражают большую конструктивность (доверие).

Burnout syndrome and job satisfaction among the female staff of Regional Hospital in Łomża

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INTRODUCTION

Burnout syndrome occurs, above all, among professionals in areas that involve strong engagement and commitment, the ones that are therefore connected with enormous responsibility, arising from the necessity of taking care of others and having to deal with complicated people's problems [1]. It is a result of a long-term and/or repeated strain, which is a result of intensive work for other people, connected with constant direct contact with people and expectation of the high level of empathy and sacrifice for others [2]. Such professionals include doctors, nurses, social workers, therapists, psychologists, teachers, priests, sports coaches and prison staff [1, 2]. .

Freudenbergerg [cited after 1] believes burnout syndrome to be „exhaustion syndrome", that is a „*slowly appearing or suddenly revealed state of physical, spiritual or emotional exhaustion, that occurs in the workplace, in the time off work, in the circle of friends, in relationship and family life, often linked to aggression and thoughts about an escape*".

According to Shirom [3] burnout syndrome is *„physical exhaustion, emotional fatigue and cognitive weariness".*

Chermiss [4] however claims it to be a *„three-step process of negative changes of attitudes and behaviours, which appear as an answer to an effort, connected with work".*

According to Pines [cited after 5] burnout syndrome is a *„state of physical, emotional and mental exhaustion appearing by means of chronic fatigue, which is*

accompanied by a negative attitude towards work, people and life, a sense of helplessness and hopelessness of a situation as well as low self-esteem that manifests itself in a feeling of personal inadequacy, incompetence and discouragement".

Professional burnout syndrome, according to Tucholska [cited after 6], *„develops as a result of an interaction between the work environment (high demands, little influence, minor support) and individual personality traits (biological susceptibility to stress combined with building social relations skills and creation of a supportive environment with tolerance to frustration and cognitive abilities".*

Maslach [7,8] reduces the symptoms of professional burnout to three key categories: *emotional exhaustion* (helplessness, lack of energy, weakening, tiredness, irritation, conflictuality), *depersonalization* (objectification of other people, cynicism, indifference, routine, treating the patient as a yet another case, change of care to supervision, avoiding contact) and *lowered professional satisfaction*, leading to perceiving oneself as an ineffective, incompetent person, feeling lack of achievements and successes, the loss of sense of one's work.

The Aim of the research - assessment of life satisfaction and burnout syndrome occurrence in the group of female staff of Regional Hospital in Łomża.

MATERIAL AND METHODOLOGY

The research was conducted upon receiving the permission of the Bioethics Committee of the Medical University of Białystok (Resolution No R-I-002/473/2012) and the Management of the Regional Hospital after Cardinal Stefan Wyszyński in Łomża.

The research concerned five deliberately chosen groups examined: I group – nurses – 350 people, II groups – midwives – 30 people, III group – other workers of medical segment – 80 people (a medical analyst, a pharmacist, a physiotherapy technician, a laboratory assistant, a laboratory technician, a pharmacy technician, a masseur, an occupational therapy trainer, a dietician, a speech therapist, an electro radiology technician, a dental hygienist, a psychologist) and group IV – administration/physical workers - 150 people (a medical statistician, a medical registrant, medical secretary, a messenger, a social worker, a ward nurse, a dispenser, a sterilizer, an accountant, inspectors, referees, managers of a technical and economic segment units, a warehouse operative, a health and safety specialist, an IT

specialist, a receptionist, a counter help and cashier, a cook, a laundress, a kitchen help, a maintenance worker, a tailor, a needlewoman, an associate director).

The numerical amount in the respective groups depended on the amount of female hospital employees at the moment of the research.

The same number of questionnaires was handed out and handed in for evaluation. The number of the questionnaires corresponded to the numerical amount of the examined group. Before the research itself, a pilot study was conducted in the group of 50 people, which allowed to verify the clarity of statements in the proprietary questionnaire and its final formulation.

The diagnostic survey method has been used, involving Standardized life satisfaction scale (SWLS from Dinner) and Standardized Maslach Burnout Inventory, in the Polish adaptation by Pasikowski.

SWLS scale includes five statements, which were evaluated by the person being tested on a scale from 1-7, on how much it refers to his to date life, where 1 meant – *strongly disagree*, and 7 – *strongly agree* [9]. The obtained ratings were summed up and the overall result described the level of satisfaction with one's life. The scope of results could be within 5 to 35 points, meaning that the higher the point, the more satisfied with life the person being testes was: 5 – 9 points – the person definitely dissatisfied with their life, 10 – 14 points – the person very dissatisfied with their life, 15 – 19 points – the person rather dissatisfied with their life, 20 points – the person neither dissatisfied nor satisfied with their life, 21 – 25 points – the person rather satisfied with their life, 26 – 30 points – the person very satisfied with their life and 31 – 35 points – the person definitely satisfied with their life [9]. In the result interpretation sten scores were used too and the results in the range of 1 – 4 sten are considered low, whilst in the range of 7 – 10 sten as high, which corresponds to the area of about 33% lowest results and the same amount of highest ones on the scale. The results in the range of 5 and 6 sten are treated as average [9]. Reliability ratio (Cronbach's *alpha*) SWLS, determined in the study of 371 adult people amounts to 0, 81. Scale stability ratio, determined in the two-time study of a group of 30 people at an interval of six weeks amounted to 0, 86 [9].

MBI - *Maslach Burnout Inventory* Ch. Maslach [10] consists of 22 statements, which describe situations and the feelings that accompany them. Women, taking the test assessed, on a scale from 0 to 6, how often the situations, listed in a particular statement concerned them, where 0 meant *never* and 6 – *every day*. It allowed estimating the level of burnout in three dimensions: emotional exhaustion (EEX), depersonalization (DEP) and the feeling of lack of

personal achievements (PAR). The subscales were calculated separately, through summing up of the results, gained for the particular dimensions [10]:

- I *depersonalization* - categories: high (13 and more), moderate (7 – 12), low (0 – 6)
- II *emotional exhaustion* - categories: high (27 and more), moderate (17 - 26), low (0 – 17)
- III *the feeling of lack of personal achievements* - categories: high (0 - 31), moderate (32 – 38), low (39 and more).

On scales EEX, DEP the higher the results are, the more intense is the level of professional burnout, whilst in PAR the lower is the result, the higher is the index of a professional burnout. Reliability of subscales of polish version is 0,65–0,85 [10].

RESULTS

The survey was conducted in the group of 610 women, employees of Regional Hospital in Łomża. The group of employees was divided, in accordance with the guidelines of the study, into IV professional categories: nurses (350 people), midwives (30 people), other medical staff (80 people), and administration staff (150 people). On this basis the result analysis was carried out in 5 groups, social-demographic characteristics of which are represented in Table I.

About 50% of women in the group of nurses and midwives were in the age of 31-40 years old. Among the surveyed female administrative employees almost 70% were between 31 and 50 years old. In case of other medical staff representatives of particular age groups were divided evenly into four groups, aged from 20 to 50 years old (Table I).

In all of the groups analyzed, married women prevailed (from 60% among patients to 80% among nurses). More than 50% of the surveyed lived with their husband and children and about 15-25% with children only (Table I).

The highest evaluation of the financial situation (the answer „good" and „very good) – was given by midwives (86,7%), followed by nurses (77,4%), other medical personnel (75%), and administration workers – 66,7% (Table I).

Regarding the level of education nurses and other medical staff presented best. In these groups higher education was obtained by 60,9% and 51,3% women respectively (Table I).

Table I. Socio-demographic characteristics of the respondents

Variable	Nurses		*Midwives*		*Other medical staff*		*Administration*	
	N	%	N	%	N	%	N	%
TOTAL	**350**	**100**	**30**	**100**	**80**	**100**	**150**	**100**
Age								
≤20 year	9	2.6	-	-	21	26.25	9	6.00
20-30 year	82	23.4	6	20.00	18	22.50	29	19.33
31-40 year	161	46.00	16	53.33	23	28.75	53	35.33
41-50 year	94	26.9	8	26.67	18	22.50	52	34.67
51-60 year	4	1.2	-	-	-	-	7	4.67
61-70 year	-	-	-	-	-	-	-	-
>70 year	-	-	-	-	-	-	-	-
Marital status								
Single	22	6.3	6	20	23	28.8	23	15.3
Married	286	81.7	21	70	51	63.8	96	64
Widow	19	5.4	3	10	2	2.5	11	7.3
Divorced	20	5.7	-	-	4	5	19	12.7
Separated	3	0.9	-	-	-	-	1	0.7
Place of residence								
Country	56	16	4	13.3	9	11.3	23	15.3
City	294	84	26	86.7	71	88.8	127	84.7
Who lives with								
Alone	20	5.7	7	23.3	15	18.8	19	12.7
Husband only	57	15.3	6	20	10	12.5	22	14.7
Husband and children	224	64	15	50	40	50	76	50.7
Children only	39	11.1	2	6.7	4	5	26	17.3
Other	10	2.9	-	-	11	13.8	7	4.7
Financial status								
Very low	6	1.7	1	3.33	2	2.5	6	4
Low	12	3.4	-	-	3	3.8	10	6.7
Average	61	17.4	3	10	15	18.8	34	22.7
Good	198	56.6	24	80	40	50	65	43.3
Very good	73	20.9	2	6.7	20	25	35	23.3
Education								
Vocational	2	0.6	-	-	1	1.3	34	22, 7
Middle	135	38,6	20	66,7	38	47,5	83	55,3
bachelor degree	106	30,3	1	3,3	13	16,3	6	40
Higher	107	30,6	9	30	28	35	27	18,00

Professional experience of the staff surveyed was high – only one respondent in four has been working for less than 15 years. The biggest group constituted women with working experience of at least 20 years, including 21 – 30 years – 35,24% and more than 30 years – 24,59%, which in total made up 59,83% of the surveyed. In particular professional groups the longest work experience was stated among midwives and nurses, where more than 15-year work experience was observed in 90% and 81,43% respectively. In the surveyed group of female employees the shortest work experience was found among other medical staff, where 46,25% of the surveyed have been working in the given profession for not more than 15 years, whereas among administration workers it amounted to 32% (Table II).

Table II. Professional experience of the respondents

Training	*Total*		Nurses		*Midwives*		*Other medical staff*		*Administration*	
	N	%	N	%	N	%	N	%	N	%
1-5 *years*	42	6.9	14	4	0	0	17	21.3	11	7.3
6-10 *years*	47	7.7	19	5.4	1	3.3	12	15	15	10
11-15 *years*	64	10.5	32	9.1	2	6.7	8	10	22	14.7
16-20 *years*	92	15.1	59	16.9	10	33.3	6	7.5	17	11.3
21-30 *years*	215	35.3	137	39.1	13	43.3	28	35	37	24.7
> 30 *years*	150	24.6	89	25.4	4	13.3	9	11.3	48	32

Among the females surveyed, an analysis of life satisfaction level was conducted, using the standardized SWLS after Dinner scale. The average obtained allowed to classify respondents to category of people „rather satisfied with their lives" (level V). In case of females from the group „other medical staff", none of the surveyed obtained the maximum amount of points (Table III).

Table III. General results of SWLS scale

Group	Average (±SD)	Minimum	Lower quartile	Median	Upper quartile	Maximum
Nurses	22.1 (±5.3)	5	19	22	25	35
Midwives	22.9 (±6.7)	12	18	21	28	35
Other medical staff	22.1 (±5.8)	5	19	23	27	32
Administration	22.2 (±6.03)	5	19	23	27	35

Level V of SWLS scale „*people rather satisfied with their lives*" was obtained by about 40% of nurses, 30% of midwives, 18,8% of other medical staff and 28,7% of administration workers. The biggest number of women dissatisfied with their lives to a varying degree (level 1 to 3) was observed among midwives and other medical staff: 36,7% and 36,3% respectively. The neutral status – level 4 – "*the person neither satisfied nor dissatisfied with their life*" reached from 3,3% in midwives' group to 9,1% in the group of nurses. The positive attitude to their lives – level VI and VII concerned 37,5% of the group of other medical staff, 32% of the group of administration female employees, 30% midwives and 24% nurses. Figure 1 features the details.

It was stated, that the level of life satisfaction of females surveyed, statistically significantly depended on their affiliation to one of the analyzed groups - p=0,023; r(X, Y) - p=0,075; r^2 = 0,006; t=2,277.

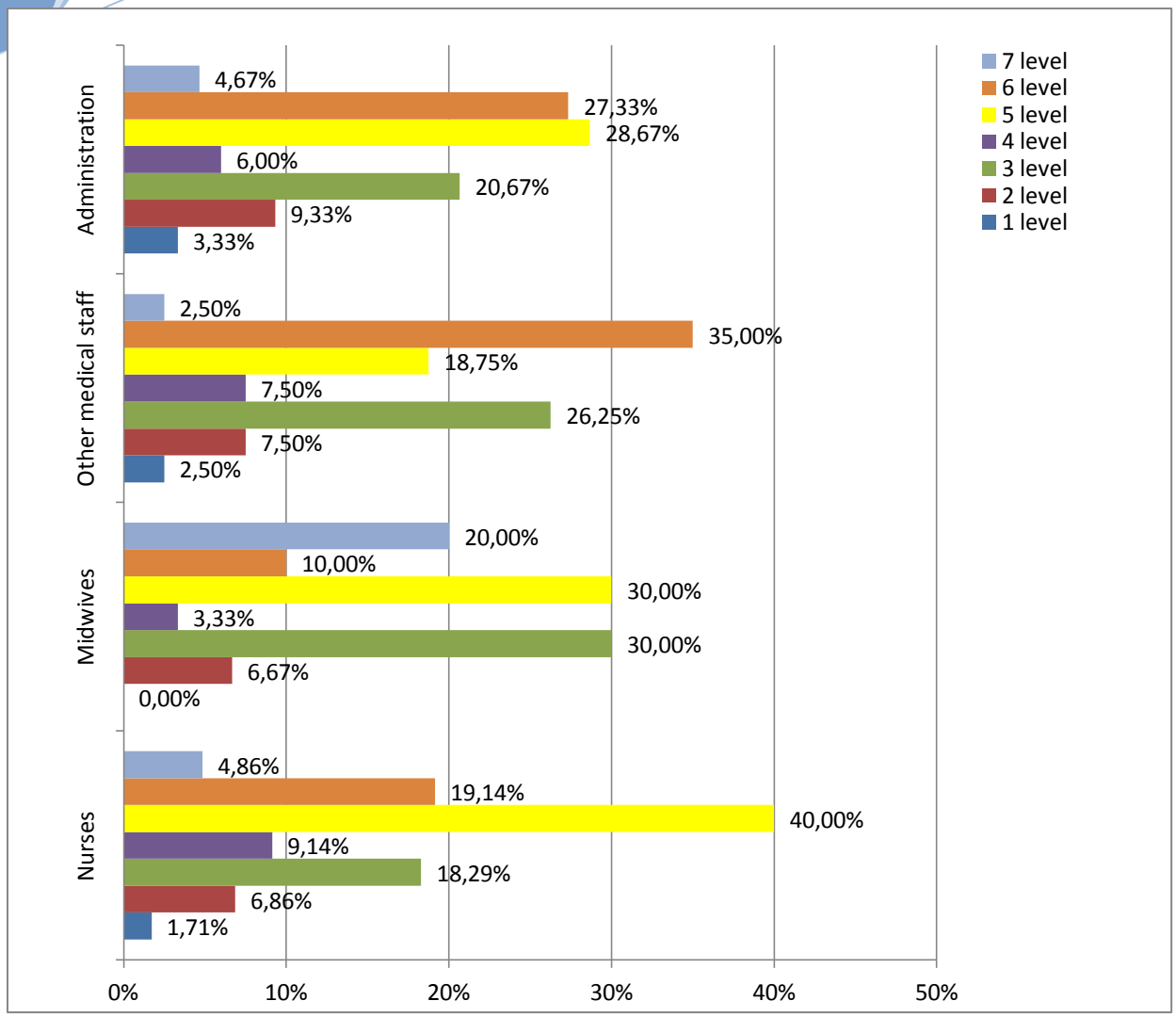

Figure 1. Levels of SWLS scale

An everyday mental tiredness was felt by 22,5% of other medical staff, 18% of female administration employees as well as 19,4% of nurses and 16,7% midwives. Sometimes it concerned 50% of other medical staff, 46,8% of midwives, 44% nurses and 43% of female administration employees. Couple times a month such feeling had 15,4% of nurses, 13,3% of midwives and female administration employees as well as 11,3% other medical staff. Once a week it concerned 10,7% administration employees, 10,6% of nurses, 10% of midwives and 5% of other medical staff. 24% of female administration employees, 13,3% midwives, 11,3% other medical staff and 10,6% nurses never felt mental tiredness.

Everyday stress was felt by 19,7% nurses, 18,8% other medical staff, 16,7% female administration workers and 10% of midwives. Sometimes stress concerned 56,3% other medical staff, 44% nurses, 40% midwives and 38% female administration employees. Couple times a month it was a problem for 14,3% nurses, 13,3% midwives, 10% female

administration personnel and 7,5% other medical staff, whereas once a week - 13,3% midwives, 8,3% nurses, 5,3% female administration staff and 2,5% of other medical staff. According to 30% of female administration employees, 23,3% midwives, 15% other medical staff and 13,7% nurses, they never felt stressed.

In the research MBI - *Maslach Burnout Inventory* by Maslach was used as well.

It was establishes that most often respondents obtained an average result of professional burnout from 41,14% in the group of nurses to 51,25% among other medical staff. The lowest percentage of level "high" and "very high" was noted in the group of midwives – 10%, and the highest – in the group of "other medical staff" – 21,25%. The highest percentage of level "very low" and "low" was noted in the group of nurses - 48%, and the lowest one in the group of "other medical staff" – 30,50% (Table IV).

Table IV. Levels of professional burnout syndrome in the study group

Result	*Number of points*	*Amount*	*Percentage*
NURSES			
Very low	0-25	14	4.00
Low	26-50	154	44.00
Average	51-75	144	41.14
High	76-100	33	9.43
Very high	101-132	5	1.43
MIDWIVES			
Very low	0-25	3	10.00
Low	26-50	9	30.00
Average	51-75	15	50.00
High	76-100	3	10.00
Very high	101-132	0	0.00
OTHER MEDICAL STAFF			
Very low	0-25	2	2.50
Low	26-50	20	25.00
Average	51-75	41	51.25
High	76-100	13	16.25
Very high	101-132	4	5.00
ADMINISTRATION			
Very low	0-25	9	6.00
Low	26-50	46	30.67
Average	51-75	72	48.00
High	76-100	19	12.67
Very high	101-132	4	2.66

It was stated that the level of professional burnout of the staff surveyed, statistically significantly depended on their affiliation to one of the analyzed groups - p=0,005; r(X, Y) - p=0,112; r^2 = 0,013; t=2,277.

Among the personnel surveyed a high level of emotional exhaustion was received for about 50% of nurses and midwives, where for the group of other medical staff it was twice lower – 26, 25% and among administration – 42% (Table V).

Table V. Emotional burnout among the staff

Result	Number of points	Amount	Percentage
NURSES			
High	27 i więcej	170	48.57
Moderate	17-26	93	26.57
Low	0-16	87	24.86
MIDWIVES			
Ligh	27 i więcej	15	50.00
Moderate	17-26	10	33.33
Low	0-16	5	16.67
OTHER MEDICAL STAFF			
Ligh	27 i więcej	21	26.25
Moderate	17-26	27	33.75
Low	0-16	32	40.00
ADMINISTRATION			
Ligh	27 i więcej	63	42.00
Moderate	17-26	37	24.67
Low	0-16	50	33.33

It was stated that the level of emotional exhaustion of the staff surveyed, statistically significantly depended on their affiliation to one of the analyzed groups - p=0,007; r(X, Y) - p=0,110; r^2 = 0,012; t=2,716.

Among the female employees surveyed a high level of depersonalization was stated in 70% of midwives; 63,71% nurses; 54% female administration workers and 43,75% for other medical staff. The highest percentage of low level was found among female administration employees– 20% and other medical personnel – 22,50% (Table VI).

It was stated that the level of depersonalization of the staff surveyed, statistically significantly depended on their affiliation to one of the analyzed groups - p=0,002; r(X,Y) - p=0,126; r^2 = 0,016; t=3,134.

In the case of 60-70% of the personnel surveyed, a low level of feeling of lack of personal achievement was obtained, where high level added up to 13-17% in each of the groups (Table VII).

No statistically significant relationship was stated between feeling of lack of personal achievement and affiliation to one of the analyzed groups - p=0,909; r(X, Y) - p=0,005; r^2 = 0,000; t=0,114.

Table VI. Depersonalization among the staff

Result	Number of points	Amount	Percentage
NURSES			
High	13 i więcej	233	63.71
Moderate	7-12	84	24.00
Low	0-6	43	12.29
MIDWIVES			
High	13 i więcej	21	70.00
Moderate	7-12	7	23.33
Low	0-6	2	6.67
OTHER MEDICAL STAFF			
High	13 i więcej	35	43.75
Moderate	7-12	27	33.75
Low	0-6	18	22.50
ADMINISTRATION			
High	13 i więcej	81	54.00
Moderate	7-12	39	26.00
Low	0-6	30	20.00

Table VII. Feeling of lack of personal achievements

Wynik/ Result	Zakres punktów/ Number of points	Liczność/ Amount	Procent/ Percentage
NURSES			
High	0-31	57	16.29
Moderate	32-38	56	16.00
Low	39 i więcej	237	67.71
MIDWIVES			
High	0-31	5	16.67
Moderate	32-38	8	26.67
Low	39 i więcej	17	56.66
OTHER MEDICAL STAFF			
High	0-31	13	16.25
Moderate	32-38	16	20.00
Low	39 i więcej	51	63.75
ADMINISTRATION			
High	0-31	20	13.33
Moderate	32-38	30	20.00
Low	39 i więcej	100	66.67

Correlations between the level of professional burnout and the level of life satisfaction were studied as well and no statistically significant relationships were stated ($p>0,05$) (Table VIII).

Table VIII. Analysis of a correlation between the level of professional burnout and the level of life satisfaction according to SWLS scale

Group	**r(X,Y)**	**r^2**	**t**	**p**
Nurses	0.015	0.000	0.276	0.783
Midwives	0.032	0.001	0.168	0.868
Other medical staff	-0.199	0.040	-1.79	0.077
Administration	-0.101	0.010	-1.23	0.220

Discussion

In the subject literature [11,12,13] the influence of stress on health is emphasized. It is often defined as strain or pressure, tension. It is a reaction to a stimulus, coming from the external environment [14]. Functioning of a person in conditions of big tension and stress exposes them to health loss and often entails unhealthy behaviour such as alcohol or sedatives abuse. A long-term influence of stress in the workplace can lead to employee's professional burnout [11].

Professional burnout in socio-cognitive approach cited after Sęk [15] *„is a set of symptoms, appearing among people, who carry out jobs, where close interpersonal contact, being committed and having traits of a professional are the key tools of work actions deciding about the level of job performance, successes and professional failures".*

Burisch, after Fengler [2], singles out several stages of professional burnout development, which do not necessarily happen one after another: warning symptoms of an initial phase (reduced engagement towards patients, their families, colleagues, greater claims), emotional reactions, feeling of guilt (depression, aggression), disintegration, marginalization, psychosomatic reactions and doubt. A return to an earlier phase from a later stage is also possible [2].

In a professional work of a nurse, professional burnout syndrome can be evident through: loss of feelings and interest in patients, indifference to their emotional states, neglecting work and even excessive reactions to weak stimuli [2].

Cronin-Stubbs et al. [cited after 2] were conducting research in the group of 296 nurses and proved that professional burnout syndrome was correlated with an increased incidence of taking sedative substances, striving to reduce the number of hours of direct contact with patients, feeling of lack of social support and adverse organization of the workplace.

In turn Constable et al. [cited after 2] analyzed the traits of professional burnout syndrome with 310 nurses and stated correlation with their low professional independence, time pressure and lack of support from supervisors.

Kurowska and Witkowska [16] in the group of 109 nurses, working in treatment, pediatric units and medical clinic Oncology Centre in Bydgoszcz stated moderate tendency to professional burnout, while escalation of this phenomenon was determined by the type of work performed as well. Clinic nurses, standing out in the highest average age, felt most professionally burnt out. The smallest number of burnout symptoms was shown by nurses in

pediatric units, whose average age is similar and employment history in the hospital shortest [16].

Ramuszewicz et al. [17] covered 80 assistant nurses and the same number of anaesthesiology nurses from Białystok hospitals and stated that in self-assessment the nurses of both groups claimed not to be „professionally burnt out", but objectively majority of them showed numerous physical and mental symptoms, characteristic for the syndrome. Work experience and family situation didn't have influence on their level of professional burnout, whereas work had a big impact on their private life [17].

In the literature treatment and pediatric as well as psychiatric and oncological nurses are the ones believed to be most exposed to professional burnout. [18,19,20].

Olley [21], in own studies on 104 nurses, 83 doctors, 21 pharmacists, 10 social workers and 42 nurse assistants, confirmed that burnout syndrome, compared to other professional spheres, appears among nurses on a largest scale.

Professional burnout is always a body's answer to a stressful situation. In research by Uchmanowicz et al. [22] 51 nurses, working in a clinical hospital were examined in order to define the existance of factors, having impact on professional burnout emergence. Among the examined ones 56% of nurses reported the excess of responsibilities and insufficient number of staff members, 64% complained about a too high work speed and 62% were dissatisfied with the flow of information. Such feelings among the staff indicate growing professional burnout. Stress felt in the workplace was confirmed by 64% of the surveyed. skarżyło się na zbyt duże tempo pracy, z przepływu informacji niezadowolonych było 62%. [22].

In the research by Święcka i Starun [23] nurses also complained about high emotional tension (78%), the need of taking quick decisions (73%), low salaries (38,88%), insufficient number of staff members (40,7%) and excess of responsibilities (18,20%) [23].

In the research by Lewnadowska and Litwin [24] 39% of the nurses surveyed saw themselves as professionally burnt out and 35% felt under the threat of that phenomenon. Among the nurses surveyed, the most frequent symptoms of a professional burnout were tiredness and exhaustion (79%), back pain (57%), headaches (32%) and persisting emotional tension (38%) [24].

In own study, evaluating professional burnout of the staff an average rate of such was obtained. High level of professional exhaustion was observed among nurses and midwives 50%. High level of depersonalization was noted when it comes to midwives 70%, nurses 63,71%. 60-70 % of staff has low level of feeling of lack of personal achievement.

However, in the study by Kurowska and Zaza-Witkowska [16], the nurses examined obtained a high level of feeling of lack of personal achievement (30,44) and as a whole group obtained a low level of depersonalization (6,25) and the moderate result of the emotional exhaustion feeling [16].

Satisfaction from the work performed and the possibility of helping other people has an impact on professional burnout development [25].

Rasińska and Nowakowska [26] assessing life satisfaction feeling among nurses with the help of SWLS scale stated, that they have a bit higher level of life satisfaction than the standardization polish group and lower than American one.

In the current study positive attitude towards own life concerned 37,5% from the group of other medical staff, 32% from the group of administration workers, 30% midwives and 24% nurses. The biggest number of women dissatisfied with their life could be found among midwives (36,7%) and other medical staff (36,3%).

Fengler [2] highlights that nurses, in connection with the type of work performed (extremely exhausting physically and mentally), as they are exposed to frequent contact with factors leading to syndrome of chronic fatigue. Moreover, conditions and demands of their work (high pressure, shift work, lack of job satisfaction, low salaries, and responsibility for life of a patient) contribute to nurses' "burnout". Every day a nurse gets to know intimate emotional, social and physical problems of those she has to give support to. Constant experience of illness and death, fast feeling of hope and then helplessness together with continuous care for others, is an extremely stressful experience. [2].

Abovementioned observations found proof in the current study. Everyday feeling of mental tiredness concerned 22,5% of other medical staff, 18% of administration workers and 19,4% nurses and 16,7% midwives. Every day stress was felt by 19,7% nurses, 18,8% of other medical staff, 16,7% female administration workers and 10% of midwives.

Lambert et al. [27], Gillespie and Kermonde [28] as well as Greenglass and Burke [29] pay attention to these factors.

Conclusions

1. The highest level of life satisfaction was experienced by nurses and the least one by midwives and other medical staff.
2. Among the staff an average rate of professional burnout was found, whereby emotional exhaustion was highest among nurses, midwives and administration.

3. The level of life satisfaction, professional burnout, emotional exhaustion, depersonalization of the staff surveyed significantly statistically depended on affiliation to one of the groups.
4. No statistically significant correlations were found between the feeling of lack of personal achievement and affiliation to one of the groups analyzed.

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Results of surgical treatment of aortic coarctation in children: comparison of different materials

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Central Message

Recurrent recoarctation most often occurs in children operated as an neonates. No connection was found between the formation of a recoarctation and the type of used surgical material.

Perspective Statement

Further analysis of biggest group of patients with coarctation of the aorta who was operated using different types of the material is needed.

Background

Coarctation of the aorta (CoA), also known as aortic isthmus narrowing, accounts for 5-7% of congenital heart defects [1]. CoA may be an isolated defect or it may coexist with other heart defects, i.e. bicuspid aortic valve, ventricular septal defect, patent ductus arteriosus, transposition of the great arteries, and hypoplastic left heart syndrome [2].

Currently, the method of choice in the treatment of CoA in neonates and infants is surgery.

Medical treatment with the use of intervention methods, i.e. balloon angioplasty and/or implantation of a stent into a narrowed aortic isthmus, can be performed on some of the older children and in cases of recoarctation (re-CoA). Surgical treatment is also used in patients with the coarctation syndrome and in cases where CoA is accompanied by comorbid defects requiring surgical treatment [3, 4].

The type of surgical method used to treat CoA depends on the type, location, and morphology of the defect. One of these methods is patch angioplasty [5]. Many paediatric

cardiac surgery centres prefer the technique of excision of the narrowed segment with performance of end-to-end anastomosis. However, this method is not always applicable [5].

Currently, many cardiac surgery procedures (such as reconstruction and angioplasty) may use different biomaterials, i.e. bovine pericardium patches or a new type of bioscaffold material [6]. There are few publications evaluating and comparing the effectiveness of cardiac surgery treatment depending on the used material.

Aim of the study

The aim of this study is to evaluate the results of surgical treatment of aortic coarctation in neonates and infants depending on the material used for surgical repair (a new type of bioscaffold, synthetic patch, or human homograft).

We propose the hypothesis that development of re-CoA in children does not depend on the type of material used for primary surgical repair of the defect.

Material and methods

This study evaluated retrospectively the treatment results of 28 children who were operated for CoA between September 2015 and January 2017. Three patients were eventually excluded from the study group (two patients did not report for follow-up evaluations and one child received hybrid treatment with stent implantation). The mean age of the children operated for CoA was 314 days (in the range from 4 days of life to 13 years of age), including 17 neonates. Additional heart defects were diagnosed in 12 (48%) of children. The patients (n=25) were divided into three subgroups according to the material used for surgical repair: a new type of bioscaffold – the newbio group (n=11–44%), a polytetrafluoroethylene (PTFE) patch – the PTFE group (n=7–28%), and an autologous pulmonary homograft – the homograft group (n=7–28%).

All patients underwent echocardiography to assess cardiac anatomy (exclusion/confirmation of additional defects) and morphology of the aortic arch and isthmus. All subject examined with Doppler echocardiography were evaluated with respect to the flow character and peak gradient in the aortic isthmus (the gradient was also assessed in relation to the arterial blood pressure of the patient from non-invasive measurement). In addition, assessment of the condition of the patient took into account the clinical status as well as

postoperative course and complications. During follow-up visits, the children were examined physically and echocardiographically. Subsequent visits took place at 1, 3, 6, 9, and 12 months after surgery. All tests were performed by the same echocardiographer using the same Philips EPIQ 7 ultrasound machine with an 8 MHz sector transducer.

Recoarctation (re-CoA) was diagnosed when Doppler ultrasound examination showed a peak gradient in the isthmus of over 60 mmHg; the clinical status of the patient was also assessed (breathing difficulties, increased fatigability, and feeding difficulties).

Results

In five children (20%), recoarctation developed within four to six months after surgery. All cases of re-CoA occurred in children undergoing surgery at neonatal age – the mean age at surgery was 8 days of life, with the mean body weight of 3,000 g (1,900–6,000 g). Three out of five children diagnosed with re-CoA underwent primary surgical repair with the use of a new type of bioscaffold, while the other two underwent CoA angioplasty with the use of a PTFE patch. Among five children with re-CoA, two had the comorbid bicuspid aortic valve, one had aortic stenosis, and one child was born prematurely at 34 weeks with the body weight of 1,900g. No correlation was found between the used surgical material and the re-CoA occurrence.

The testing results are presented for of the entire group of studied children (n=25). Follow-up outcome 25 of patients after CoA operation and for the group of children with re-CoA (n=5) Re-CoA patients' characterization.

Doppler echocardiography of patients with re-CoA showed a peak gradient of 60 mmHg (in the range 38–80 mmHg). Assessment of the gradient also included blood pressure measured non-invasively on the right arm of the patient. In the period of between 6 and 8 months after surgery, all patients with re-CoA underwent balloon angioplasty (in invasive measurements, peak gradient averaged 34 mmHg, range: 10–43 mmHg). Balloon angioplasty dilated coarctation with mean gradient reduction of 14 mmHg (range: 3–23 mmHg) in invasive measurements and up to 30 mmHg (range: 16–45 mmHg) in follow-up Doppler echocardiography. At six months after balloon angioplasty, there were no signs of recurrent isthmus stenosis.

In the study group (n=25), among 20 (80%) of the children followed-up for an average of 13 months there were no observed cases of recurrent coarctation of the aorta. In this group,

there were no neonates – the mean age at surgery was about five months; the first angioplasty was performed with the use of a new type of bioscaffold patch in eight (40%) children, a PTFE patch in five children (20%), and a homograft patch in seven children (28%).

There were no deaths in the entire study group (n=25); two patients (8%) suffered complications in the early postoperative period (i.e. increased postoperative bleeding, prolonged ventilation, hydrothorax with pleural cavity drainage, and wound infection). All complications concerned children who later in the follow-up period developed re-CoA. The mean hospital stay after CoA surgery was six to eight days. Regarding the type of material used for surgical angioplasty, only children operated with the use of a homograft patch did not show recurrence of aortic coarctation. This group consisted of older infants (operated at the mean age of 8 months, with mean body weight of 7.7 kg) without any comorbid defects.

Discussion

Depending on the age of the child and presence of comorbid defects, coarctation of the aorta can be treated surgically and interventionally. Development of material engineering provides new materials used in surgical procedures. [7]. Long-term follow-up of surgical and interventional treatments of CoA showed more frequent recurrence of aortic coarctation after interventional angioplasty procedures but more complications after surgeries [8,9]. In our study, there were no deaths or serious complications in the early period after surgical repair. There were three mild complications: prolonged bleeding, prolonged mechanical ventilation, and fluid in the pleural cavity requiring drainage. Recurrence of aortic coarctation was demonstrated in five children (i.e. 20% of the entire study group and 60% of the neonate group). No correlation was found between the type of material used for primary CoA surgery and the development of coarctation.

In echocardiographic examinations at 3, 6, 12, and 24 months after surgery, Wen et al. [10] showed no significant pressure gradient in any of the patients operated for CoA with the use of autologous material. Similarly, other researchers [11,12] point out that autologous material is an optimal material for reconstruction of the arch and isthmus of the aorta. Our observations showed no recurrence of aortic isthmus narrowing after CoA surgery in 20 patients (80%) during a mean postoperative follow-up period of 13 months. In the group of patients without re-CoA, the performed angioplasty surgeries used a new type of bioscaffold

in the case of 8 patients, a homograft in the case of 7 patients, and a synthetic PTEE patch in the case of 5 patients.

Regarding CoA surgeries using PTFE patches, recurrence of aortic coarctation was reported in 25.42% of cases [13]. At a follow up of 81.6 months, re-CoA was demonstrated in 12.9% of the cases operated with the patch-graft aortoplasty technique [14]. CardioCel bovine pericardial patch was described in aortoplasty for supravalvular aortic stenosis, reconstruction of the aortic arch, and angioplasty of pulmonary arteries. In the treated group, there were four infants with hypoplastic aortic arch (the study did not include neonates) [6]. Early follow-up results were good (median follow-up period of 58 days, range between 14 and 219 days).

Other sources [15,16] report good initial repair results with the use of new pericardial materials. These data concern small groups of patients and a short follow-up period. Researchers [15] report no calcification of the bovine pericardial patch used to repair various congenital heart diseases and no deaths associated with this material; however, in this groups there were only two patients with CoA and comorbid ventricular septal defect (VSD). A review of the literature [16] found three cases of angioplasty of a severe aortic valve defect, with good early results of surgery using a bovine pericardium patch.

Re-CoA developed in five children within 4 to 6 months (i.e. 20% of the entire study group and 30% of the neonate group). All cases of re-CoA were related to children operated at neonatal age; no correlation was found between the occurrence of a recoarctation and the material used in angioplasty. In the case of children older than one month who were operated for CoA, neither re-CoA nor significant complications were observed regardless of the material used in angioplasty.

The group of children examined in our study was relatively small; moreover, it was evaluated only retrospectively, without randomisation.

Further follow-up is required to analyse long-term results of aortic coarctation treatment with use of different materials.

Conclusion

In the study group of children with coarctation of the aorta who underwent surgical patch angioplasty, 20% experienced recoarctations. All recoarctations occurred in neonates. No correlation was found between the formation of a recoarctation and the used surgical material.

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Conflict of interest

None declared

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Futile therapy in infants - a problem yet to be solved

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Introduction

In this day and age, medicine is advancing more than ever. As a result of a today's unprecedented advancement, new challenges are emerging, ones that physicians have never seen before. One of the main challenges of the current medicine is to ascertain the cut-off point of a treatment in terminal patients. Since there is a little research being done on this subject, we need to be certain that over treating of terminally ill has no place in modern health service.

It is generally agreed today that futile medical care will not provide a cure for a terminal patient [1]. A long-lasting situation, where there is nothing but a great anguish, is condemning hundreds of patients to mental, physical and spiritual harm. It is important to be clear about the definition of futile therapy and to emphasize that this term refers to people that are terminally ill. The question, where is the sensible boundary between valid and futile medical care has been preoccupying experts for some time.

In public eye, physicians are the ones responsible for the abandonment of futile therapy in terminal patients. It is a good opportunity to do so when a controversial issue is being mulled in public. Physicians need to remain immune to public opinion and they need to be quick to react when it comes to making decisions and standing by them.

One of the most notorious examples touching upon the validity of futile care in paediatric patients is the case of Charlie Gard [2]. It was a long and moving story about devastated parents and their helplessness in a fight for their son’s life. Charlie was born with mitochondrial DNA depletion syndrome, genetic disorder that is invariably fatal. They could not cope with knowledge that their child is going to die and nothing could be done about it.

The long-lasting case found its resolve in the adjudication of the European Court of Human Rights. It was a milestone in understanding futile therapy as a concept in law.Nowadays, the most important goal for medical and ethical clarity is to establish a functional definition of futile therapy. Guidelines are required, now more than ever, in the face of modern society, worldwide media and constantly increasing expectations from the physicians.

The assumptions and the aims of study

The aim of this paper was to find out how do students view change on futile therapy in infants with passing years of medical school. It is assumed that there is a clear difference between students who were past anaesthesiology and intensive therapy courses and those who are yet to complete them. Such assumption stems naturally from a fact that subject of futile therapy is an integral part of these courses.

Material and methods

The poll has been completed by means of an anonymous survey. The tested group consists of 106 students of the medical faculty, the reach of survey covers all the semesters. The group was divided into two. The first group included students of up to third year, which is before anesthesiology and intensive therapy courses. The second group consisted of the student who has had these courses completed and was in possession of knowledge related to the subject of futile therapy. Additionally, results were analyzed with the view of gender, religion as well as the size of the city/town students came from.

Results

Following completion of anesthesiology course, more students are convinced about futile therapy is not successful. Every post-course student did not assess the success of the futile therapy as significant, in pre-course group however only 4.2% of students would disagree. Those students were less likely to pass decision with regards to continuing therapy on to parents of the patient, most of them considered the comfort of the patient at the end of their life rather than supporting it with futile therapy (Fig.1, Fig.2).

Number of persons who disagree with resuscitation of anencephalopathy child increases significantly. Number of persons who do not have opinion on this subject is decreasing (Fig.3, Fig.4).

During the course, understanding of continuing futile therapy until end of life clarifies and more future physicians believes it to be necessary (Fig.5, Fig.6)

Understanding of futile therapy varies based on where responded came from. In smaller towns, percentage of questioned students who knew correct definition of terminology is bigger than in the other group, also gamut of answers is clearly larger.

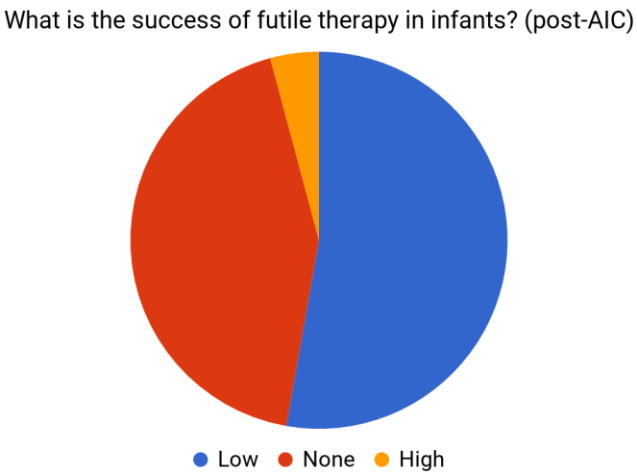


Fig. 1

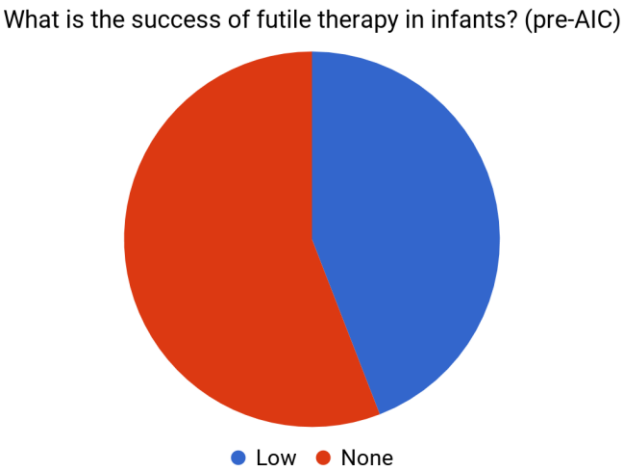
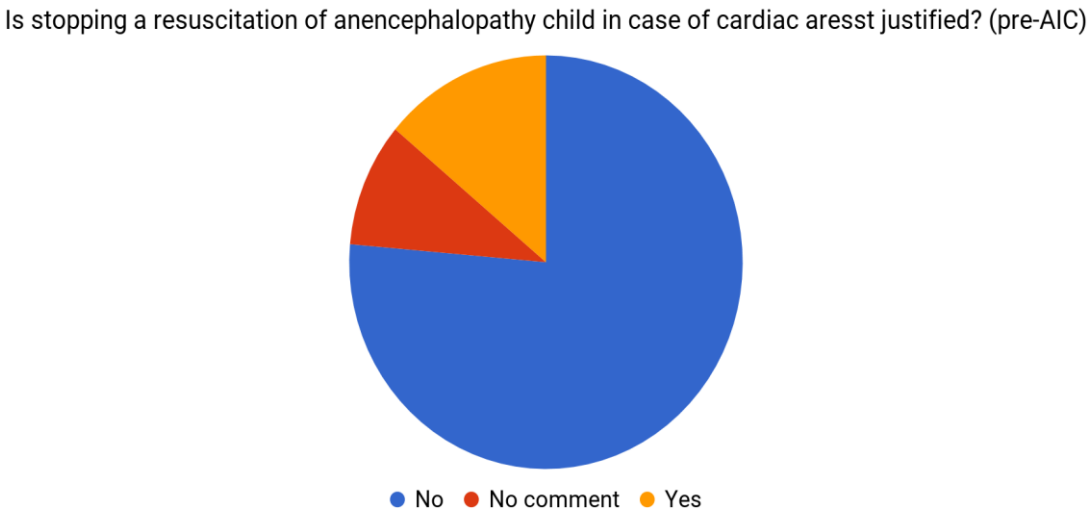


Fig. 2



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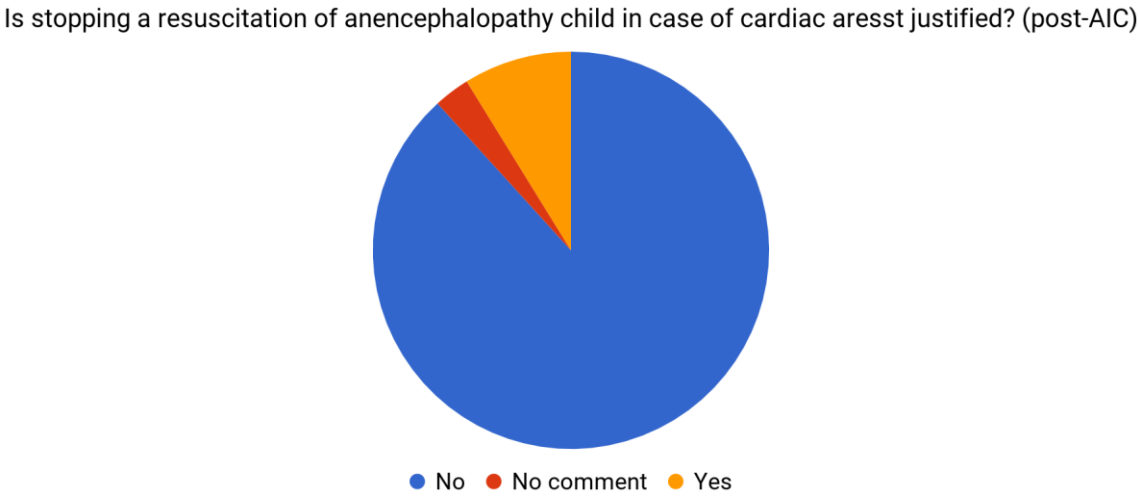


Fig. 4

We can therefore assume significant differentiation of knowledge of the subject in smaller towns. Ideas of students coming from small towns indicate they comfort during end of life is more important than futile therapy, which is opposite to results obtained from students who grew up in cities.

There, more students would continue futile therapy, which means their views are not in line with commonly accepted directives.

In both groups, similar number of students wants to be able to decide as to course of action (Fig.7, Fig.8, Fig.9, Fig.10).

Looking through the prism of religion, all the atheists and agnostics believe it is wrong to introduce new procedures where it would not change the outcome of therapy.

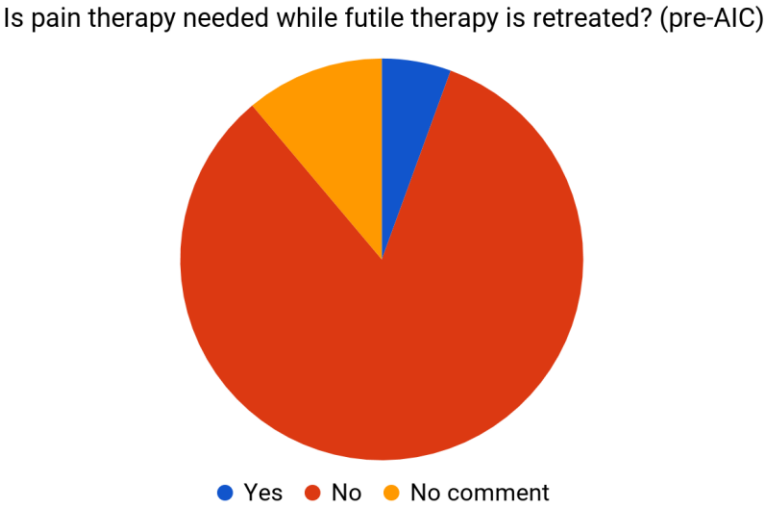
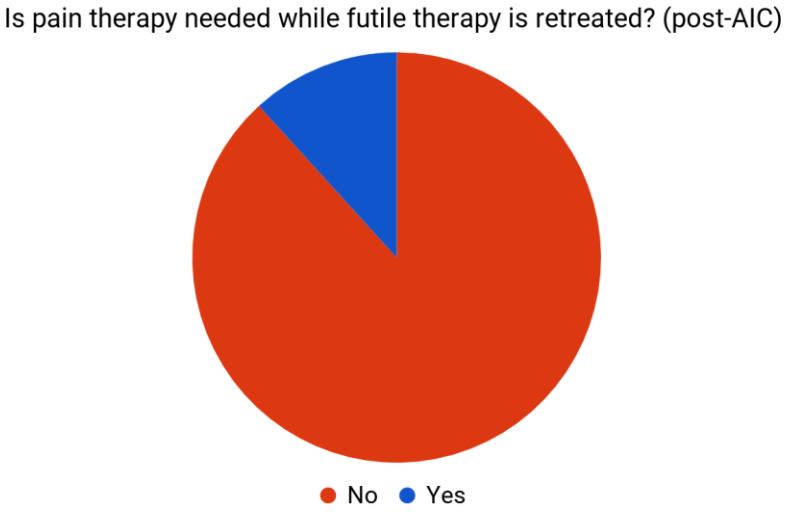


Fig. 5



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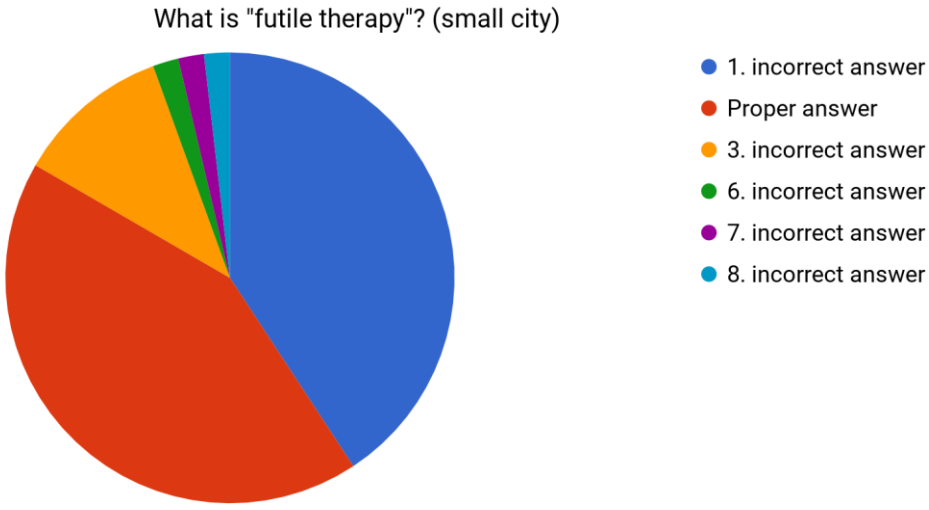

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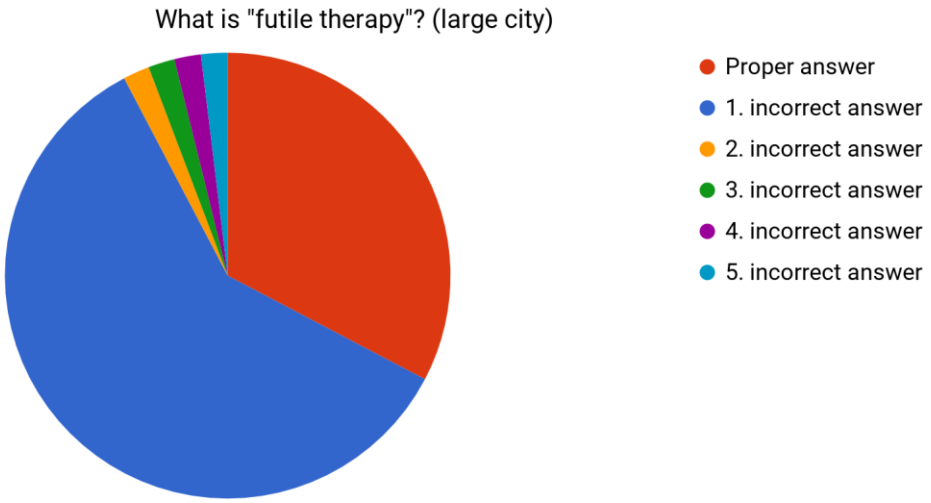

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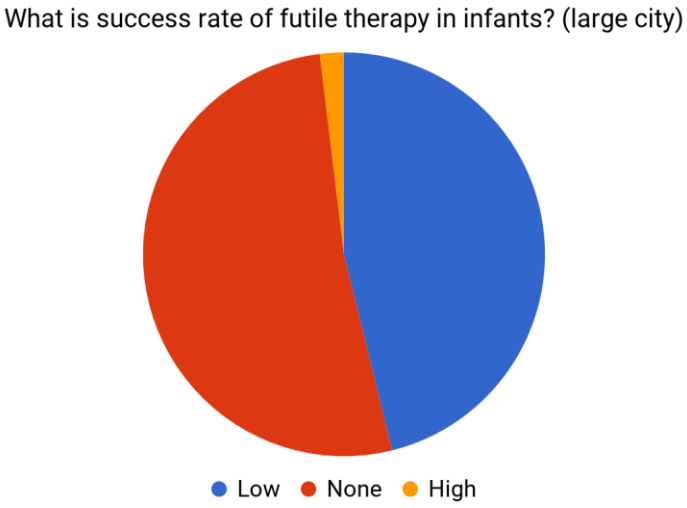

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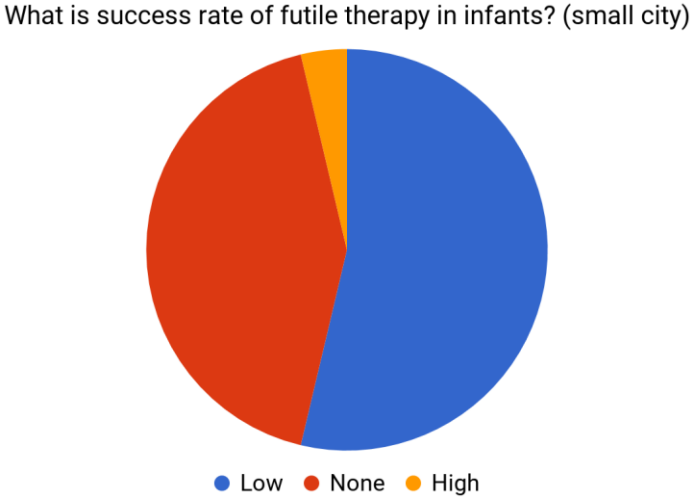


Fig. 10

Over 75% of those would agree to stopping futile therapy altogether, however none of them would agree to stopping of the therapy being only available option. In case of catholics, over 90% believes not commencing new procedures is correct, 55% of them agrees with stopping of futile therapy. Almost 48% of surveyed agrees to both. In their assessment futile therapy should continue, this view is opposed to one professed by atheists. Since number of other religions was too small their resonses were ommited from statistical review (Fig.11, Fig.12, Fig.13, Fig.14).

With reference to gender, women clearly agree to family of child undergoing futile therapy having deciding word on stopping such therapy, also women do not have clear view about physician deciding against parents wishes.

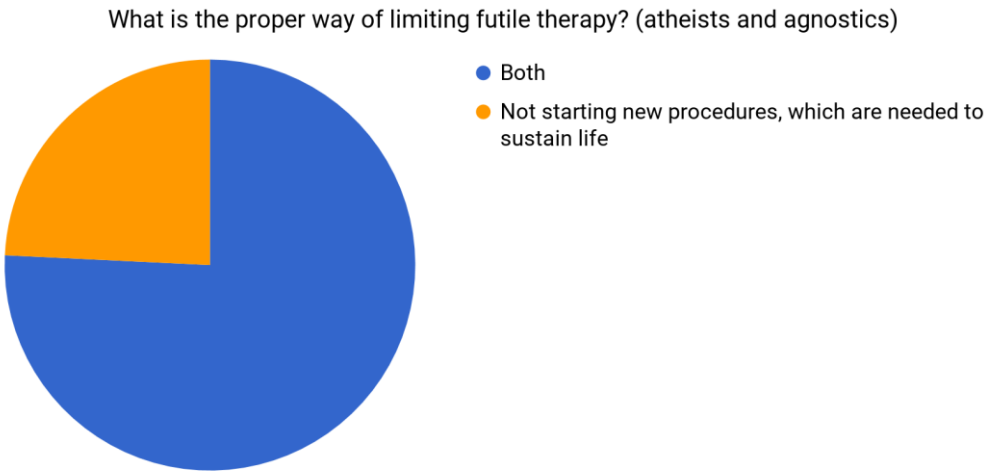
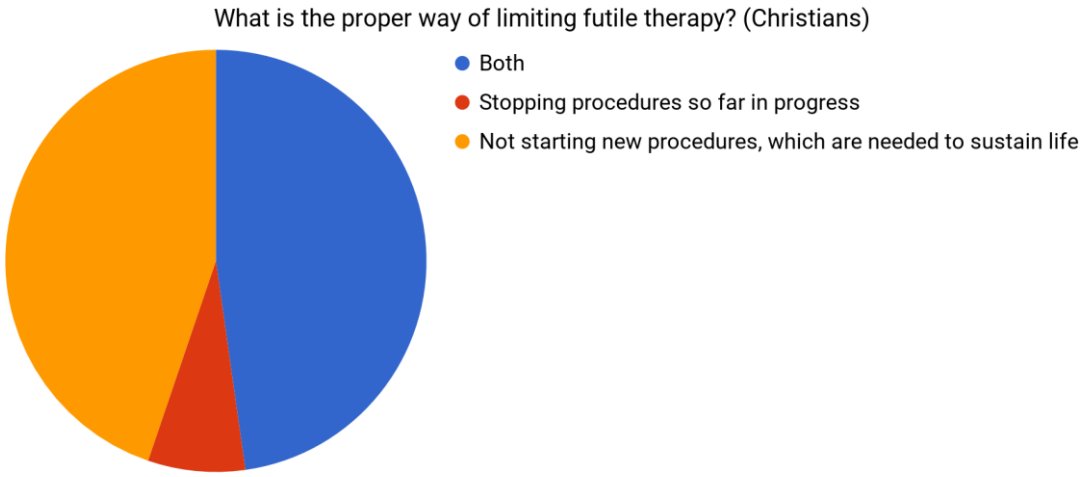


Fig.11



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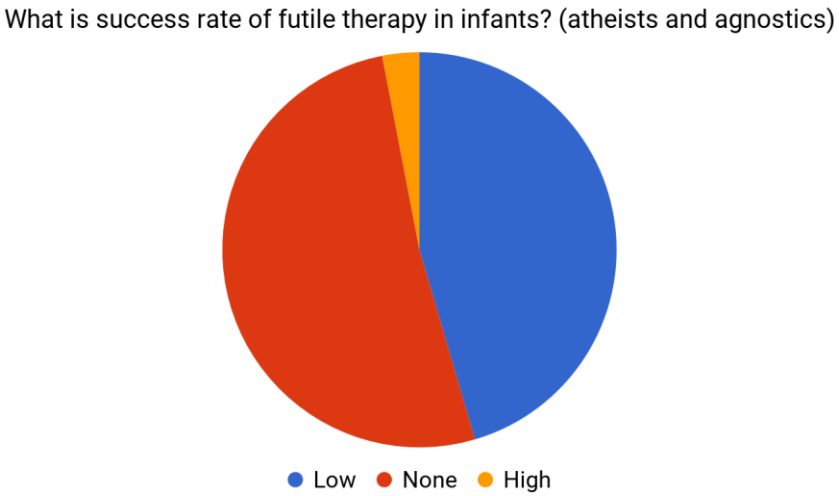

Fig. 13

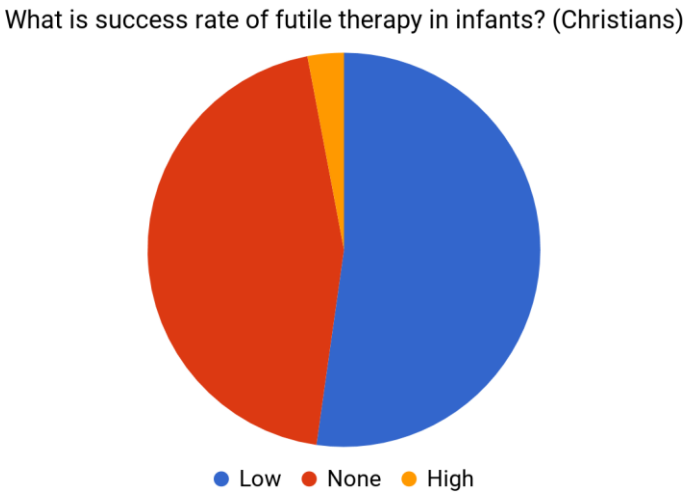

Fig. 14

On the contrary, most men agrees to doctor having deciding voice. Significant number of both women and men (approx 80%) believes in confortable end of life rather than futile therapy. None of the men believes such therapy is correct, however every tenth of woman does. Men more often would continue with painful therapy untli end of life. None of men would agree to stopping of painful therapy with stopping of futile treatment. Every 10th of women would (Fig.15, Fig.16, Fig.17, Fig.18, Fig.19, Fig.20).

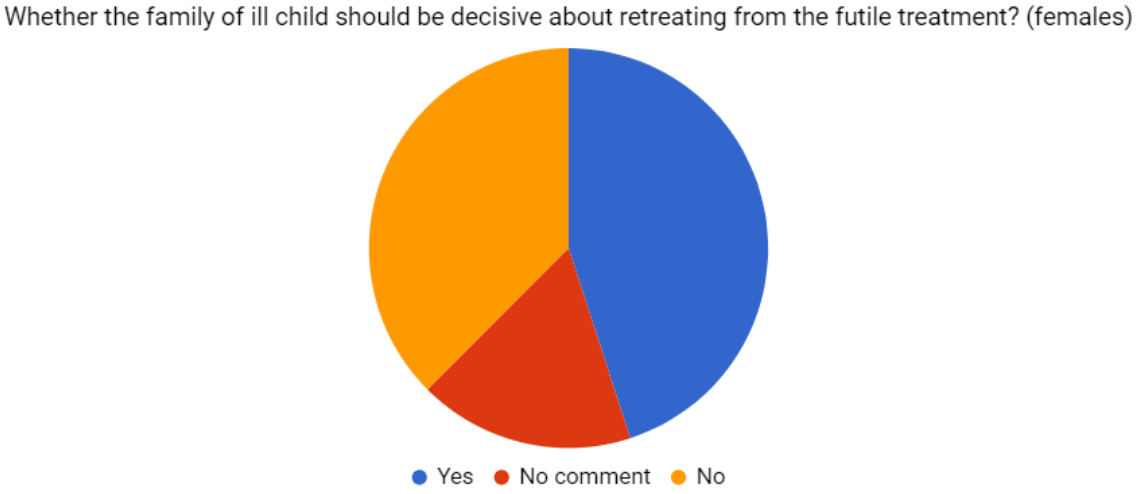

Fig. 15

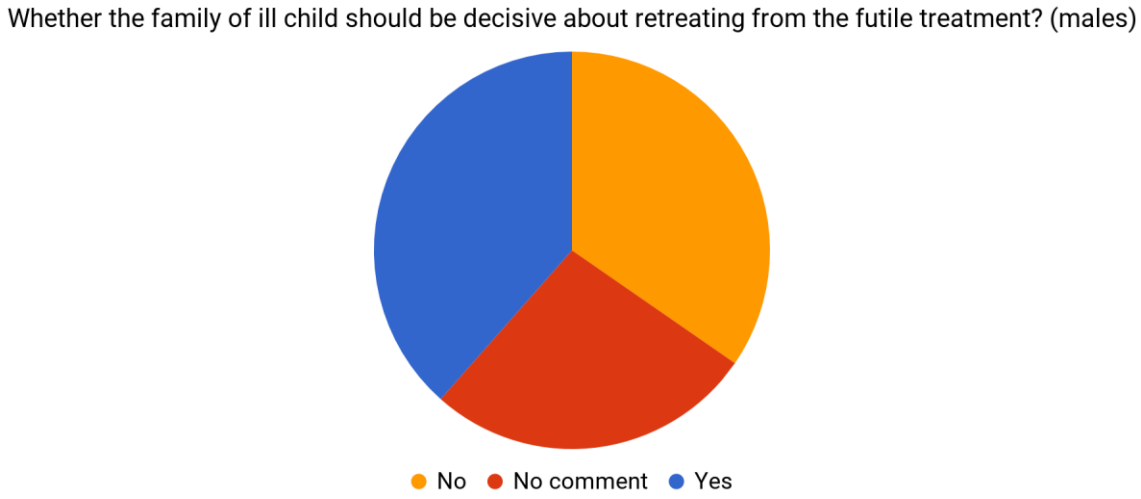

Fig.16

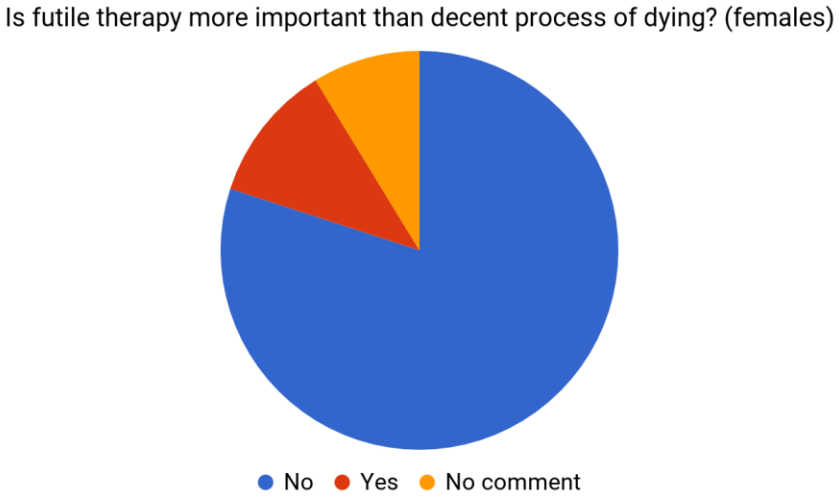

Fig. 17

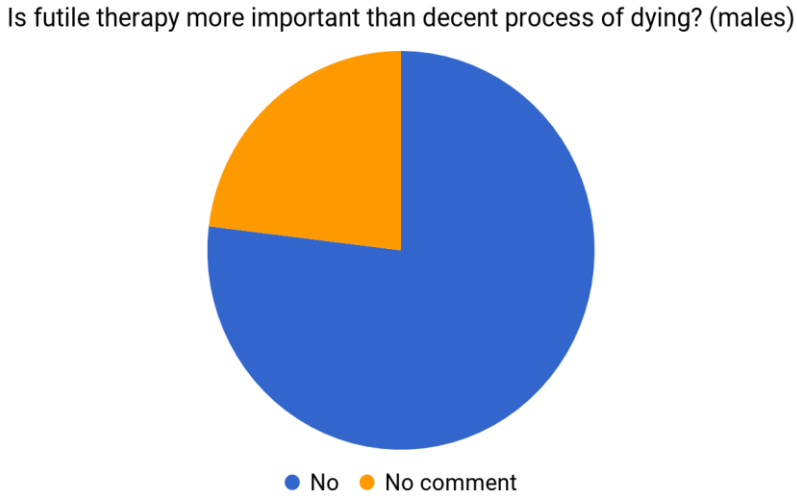

Fig. 18

Fig. 19

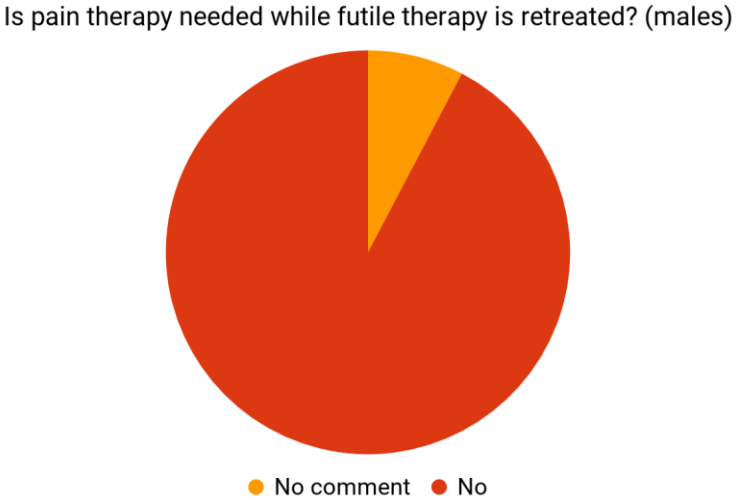

Fig. 20

Discussion

The progress of the medicine over the centuries allowed for crossing further limits. For example, the introduction of anesthesia by Horatio Wells in 1846 allowed for complete removal of pain during operation, pushing now available surgical limits much, much further.

Introduction of carbol by Lister, used as cleaning agent for skin as well as surgical instruments and Semmelweis fights for cleaner ob/gyn wards are prime examples of breakthroughs over the years. These small steps which proved to be giant leaps in medicine allowed for solution to problems which were believed impossible to tackle. Thanks to these leaps many illnesses which were once a death sentence are now quite curable. Desire to conquer death came to fruition with many of those illnesses. Certainly, dreams of revolutionary practitioners of medicine materialised as better drugs, wider spectrum of medical instruments and lower mortality rate. However, as noted by professor Gibinski, this chosen path leading to 'curing the death' is fatal. He believes caring for patient health and dignity is more important than extending life at all cost [3].

According to dr.hab. Dangel, physician deciding therapy, should decide whether illness can be cured and therapy will not bring pain and removes dignity [2]. Such decision is quite difficult due to internal moral conflict, which is caused by natural need for saving human life, but also due to incorrect equalizing futile therapy with passive euthanasia – which are quite different. However commonly agreed legal definition of futile therapy, which would clearly defined required modus operandi does not exist. Therefore there are no algorithms nor clear reference point for either continuing or stopping of the futile therapy [4].

Medical environment have large number of publications available (both national and international) on subject of ethics which attempt defining rules of engagement with regards to therapy of terminal patients. These are article 32 of Kodeks Etyki Lekarskiej, article 2278 and 2279 of Katechizm Kościoła Katolickiego [10] as well as doctrines laid by Popes Pius XII or Francis. These sources call for acceptance of of stopping of futile therapy in cases where outcome is bad, therapy is painful or extraordinary resources are required. Importance should be put on ensuring comfort and dignity of the patients. It stems from agreeing death being integral part of the life cycle and medicine however advanced has still a limits that cannot be reached or crossed. It was first described by Hippocrates in his *About of art (of medicine)* [9]. Thorough understanding of this subject is important not only in context of physician making decisions but society as well. According to CBOS [8] poll *Stopping futile therapy and euthanasia*, Poles may be understanding futile therapy incorrectly. This poll induced negative

reactions, since it reminds surveyed group about problems with National Health System. Social campaigns, education about end of life treatments are necessary. A proof of above is surveyed Christians are against stopping of the futile therapy, even though Catholic Church agrees to it. It indicates lack of available moral authority to spread the necessary knowledge. According to the results of authors studies, students who completed Anesthesiology and Intensive Care courses, where subjects related to problems of end of life therapy are taught, are convinced that stopping of futile therapy when there is no chance of cure is correct. Societal understanding of this subject will allow for doctors deciding on stopping futile therapy to not be penalised for doing so.

Problem of futile therapy concerns neonatal units as well. This subject is is quite difficult to discuss in context of pediatric patients. Due to lot of possibilities of supporting life functions in children born prematurely or with significant congenital defect, the border between increasing agony and supporting life become quite difficult to define.

Due to parents being legal guardians, the attending doctor should always consider their views, however final decision should be aimed at ensuring comfort of the patient.

In most difficult cases, such as stopping of futile therapy, the doctor, especially young and inexperienced one, may face lot of problems – related to decisions as well as ethics. Expectations and pressure from parents, who are motivated by finding cure for their sick child may create additional challenges. An example of heroical fight for life of a terminally ill child is case of Charlie Gard, which ended in litigation at European Tribunal of Human Rights [5].

Subject discussed in this group of patients created set of documents which are used as reference point for doctors attending terminally ill children [11,12]. Authors of these publications indicate importance of right of the child to comfortable death. Attitudes of doctors with regards to palliative care of terminally ill child as discussed above are mirrored in answers of students that completed AiLT courses.

Conclusions

There is a need for education of physicians and society about problems related to futile therapy. The aim of such education is to help physicians when making decisions and also to assist when solving ethical dilemmas, as for society such education will allow for better understanding of futile therapy.

Differences in responses from students prior and after the AiLT course proves that education on the subject of futile therapy is effective and helps with the decision-making process.

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Review of methods for breaking bad news

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Introduction

Unfavorable diagnosis always was a gloomy part of medicine, especially all the things concerned with conveying a grievous message to a patient. Luckily nowadays the topic of breaking bad news had been investigated thoroughly using scientific methods and many protocols had been created that facilitates effective patient-doctor communication through specific skills and knowledge described below. The aim of following article is a review of a few of these methods.

Notification a patient is a physician's duty through both law and ethics [1]. Basically, doctors are professionally obliged to break bad news, a huge chunk of their work is about that!

With this in mind, are there any situations when clinicians are legally able to conceal some crucial medical information?

Code of medical ethics stated that it is acceptable to withhold information if a doctor is deeply convinced that its disclosure will cause very serious suffering of the sick or other adverse health consequences. Although on the explicit request of the patient a physician is obliged to provide all the information [1].

Unfortunately, breaking bad news is a skill that is typically learned through two fundamental methods: observation of senior colleagues and trial and error [2].

The lack of student education in this topic is blamed for the insufficient knowledge of young doctors how it should be done properly [3].

Breaking bad news is neglected in curriculum of the medical studies, although a huge chunk of doctor's work concerning communication is connected with noticing the patient about the diagnosis which is not always optimistic.

What is a bad news in medicine?

The first question that needs to be asked is what exactly is a bad news? According to Buckman, any information which adversely and drastically alters the patient's view of the future could be deemed as a bad news. Its consequences may affect an individual or her or his family [4]. Another definition is "any information that produces a negative change to a person's expectations about their present and future" [5]. Therefore being diagnosed with a terminal illness, information about serious abdominal trauma injuries or hearing a need for putting a cast on for at least 4 weeks are perfect examples of bad news.

Although the last one may seem to be least severe, there is always a necessity to take into account patient's whole life and it is easy to imagine that a whole month of immobility for the only family provider can be related with the negative change of person's expectations for the future. Nevertheless, there is a wide range of seriousness of bad news, which should not be forgotten.

The Difficulty of Transmitting Unfavourable Medical Information

It is obvious that having a burden of telling somebody about his or her terminal illness is not pleasant. Especially when people are hoping for the best and are rarely prepared for hearing dreadful diagnosis.

What is the most daunting in breaking bad news is the complexity of the task. A doctor has to: first and foremost disclosure the diagnosis. Besides that: while doing so deal with patient's and his or her family emotions, make decision about future treatment together with the sick, think whether family members would like to participate in the conversation, stay calm and professional, be optimistic but not overoptimistic and moreover do it all in the time constraints imposed by the healthcare system.

On the top of that the syndrome of "shooting the messenger of bad tidings" can intimidate doctors, especially young doctors. This phenomenon describes the act of blaming the messenger of bad news and therefore taking out anger on him. Also a clinicist can feel that he is taking away patient's hope.

To omit the process some physicians use cryptoinformation - they skip some information during the visit but write it in the documentation that the patient receives.

Based on the survey from 2000 in the USA less than ⅓ of doctors could regularly observe senior colleagues during breaking bad news and fewer than 10% had training in the

matter [3]. Although most clinicians admit that the skill of breaking bad news has a great importance, unfortunately it is seldomly taught.

Benefits Of Protocols For Breaking Bad News

The efficient communication increases trust in the doctor and the treatment itself [6]. Consequently the patient is not only more involved but also more likely to follow medical recommendations!

A structured method for transmitting unfavourable information has the same benefit as every checklist, for instance those used in the airplane by the pilots [7]. It enables to organize set of actions into a methodic process which dramatically boosts its effectiveness. First of all, meticulous realisation of the protocol ensures that nothing from the procedure has been omitted. It gives the physician a sense of calm which will undoubtedly influence the patient. Another key point is that having a plan of disclosure of the unfavorable medical information increases level of doctors confidence [8]. This also helps to discuss the difficult and important topics because when doctors feel uncomfortable they may tend to shorten the time speaking about miserable prognosis [9].

There is also a direct benefit for medical staff: "*physicians who are comfortable in breaking bad news may be subject to less stress and burnout*" and nowadays it is a serious problem in health care [10].

The manner in which doctor and patient discuss about bad news also influence the level of understanding the diagnosis, satisfaction with medical care and amount of hope they have [11,12]. Moreover, doing it appropriately can lessen the feeling of social isolation and being alone with the problem, diminish anxiety and uncertainty, minimize the discomfort or even pain. Additionally it prevents from being overoptimistic about the success of the treatment.

The SPIKES Method

The most known and therefore probably the most often cited protocol for breaking bad news is SPIKES [3]. What is notable that it was published in The Oncologist in 2000 and based on the survey that had been conducted in 1998 at Annual Meeting of the American Society of Clinical Oncology, therefore it was developed after invention of the microscope, the first coronarography or understanding the structure of DNA. That does not diminish the

importance of doctor-patient communication. Of course noticing the patients was important to medicine before but nobody explored the process scientifically with such a deliberation.

SPIKES is specialized in transmitting information to oncological patients about their illness. It consists of six steps and is focused on gathering information, disclosure of unfavorable medical diagnosis, supporting the sick and planning future treatment. What is equally important that an increase of confidence in breaking bad news has been reported by the physicians who had been taught the protocol.

Step 1: S-SETTING UP the Interview

The main goal of this step is preparation and its foundation of future smooth communication. The physician has to know what he or she is about to say. The awareness of diversity of emotional reactions can prepare for embracing them, as well as the fact that messenger of unfavorable diagnose should expect to have negative feelings and be prepared to deal with anger, frustration and feeling responsible for the diagnosis.

Privacy in terms of both place and enough time is undoubtedly essential. If an interview room is not available it is a good practice to at least draw the curtains. The sick should be asked whether his or her significant other would like to participate in the conversation. Position of the patient and doctor should be comfortable. An eye contact is a fundamental communication tool that enables to build the connection. Another part of nonverbal communication is a touch. It does not always have to be holding hands but even touching the arm can make the patient feel the support. Not to mention that it is a good idea to turn off a mobile phone.

Step 2: P-Assessment of the patient's PERCEPTION

In this phase the objective is getting to know what is the patient's perspective of the situation and its gravity. Using open-ended questions, the doctor obtains the information about the patient's knowledge, for instance using expressions like: "What have you heard about your current medical condition so far?" [13].

Step 3: I-Obtaining the patient's INVITATION

Not only there are patients who wish to hear every detail about their illness but also there are few who refrain from meticulous descriptions of their tumors and knowing is their right in the same manner as not knowing. It is more likely that ignoring the knowledge will be manifested while the illness will become more severe. The physician should offer spending

more time on discussing about the diagnosis itself or focusing more on the available treatment methods.

Step 4: K-Giving KNOWLEDGE

Just before disclosing unfavourable medical information phrases like "I'm afraid that the situation is more serious than it seemed at the beginning", "I'm sorry to tell you that…" work like a warning shot - they diminish the shock and help in the communication process [14]. The key in transmitting the knowledge is doing so while adjusting vocabulary to patient's understanding - avoiding complicated terms and technical jargon. Moreover giving information in small chunks also improves comprehension. Phrases like "We have used all available treatment options" should be absolutely avoided. Firstly, because they are not true - there is always a palliative treatment that relieve symptoms and enhances quality of life and secondly, it kills the patient's hope and prompts to blame the messenger of the bad news.

Step 5: E-Addressing the patient's EMOTIONS with empathic responses

It is believed to be one of the most challenging steps of breaking bad news due to spectrum of patient's possible emotional reactions. The role of a doctor is to formulate an empathic statement which reduces feeling of being alone with the problem and shows support.

Step 6: S-STRATEGY and SUMMARY

It is time when the illness gravity should be acknowledged because being too optimistic gives false hope. Patient discuss with clinicist and together plan the future treatment, based on presentation of available options. A quick review is vital for the purpose of lessening anxiety.

Polish Protocol of Five Steps

Izabela Barton-Smoczyńska created a protocol that is specific for notification about illness or death of child during fetal life, which happens to approximately 20% of all pregnancies [15]. It is called "The Method of Five Steps". It can facilitate communication with parents and shorten the time of mourning, its depth and strength. The way in which a doctor transmits unfavourable news has a direct influence on expression of grief. What is worth mentioning that behaviour of medical staff, together with family help, is one of the main source of social support [16].

Step 1: Together

Both parents should receive bad news. The best situation is when a clinicist speaks with both parents together. If it is not possible, a doctor should offer a visit to absent parent in a consultation room or at least a conversation by the telephone.

In 95% of cases a woman receives unfavourable medical information alone and 58% of them have to pass the bad news themself. Certainly they are just after traumatic event, still under shock and high pressure, also some of them may feel guilty or responsible for miscarriage.

Under those circumstances the information can be easily reinterpreted and significantly distorted. For this reason better approach is when a physician transmits unfavourable diagnosis directly to both parents.

Step 2: Intimacy

It goes without saying that separate room will enable parents to express their emotions more freely than crowded hallway. What is worth mentioning that just manifesting their feelings is a curing factor and helps to keep control [17]. During possible burst out of feeling a physician should provide his presence, without attempts to comfort his interlocutors.

Step 3: Eliminate medical jargon

This advice is rather simple: use word children instead of embryo or fetus - speak about the person. Henceforth concentrate on the description of actual situation and on the future. Observe parents and their emotions.

Step 4: Specific advice

Now it is time for guidance about the places when parents can seek help after experiencing symptoms of posttraumatic stress disorder or post loss depression. Mother and father should hear about possibility of the funeral of their stillborn.

Step 5: Repeat

Crucial elements of the diagnosis needs to be repeated as far as they are understood. A doctor should underline the chance of asking questions and let the patients know where to find him if they will have any doubts later.

The BREAKS Method

Another protocol for breaking bad news has its origin in India and is called BREAKS [18]. It underlines that during noticing the patient physicians are daunted by anger, fear and being blamed. Conveying bad news is especially intricate while dealing with young patients and children, when a patient has expressed a great hope and for the positive outcome, when a doctor has a long lasting relationship with a patient.

Authors of this protocol emphasize that patient-centered communication style is most preferable, i.e. acceptance, begin non-judgmental and empathy are essential to achieving deep emotional connection. BREAKS is an acronym which stands for six-phase process: Background, Rapport, Explore, Announce, Kindling and Summarize.

Step 1: B - Background

The very first step is based on the assumption that effective communication with patient is based on the comprehensive knowledge of the issue. The doctor must study the case report thoroughly and formulate answers for all question that may be asked by the patient. Moreover, all the doubts and objections should be addressed in advance, also taking into account patient's relatives. The physician should be aware that nowadays due to computerization data is relatively easy to obtain through internet search engines, with results appearing immediately thus probably patient has done his own research in ample scope.

Past history, disease status and future treatment options should be studied in-depth before the meeting. Also being sensitive to cultural, ethnic and religion differences and respecting them is absolutely essential. Any physical barriers should be removed to maintain the eye contact and a sufficient amount of time should be given to eliminate the haste.

Step 2: R - Rapport

In this part of breaking bad news the physician should have appointed a meeting of adequate length. Now it is time to establish a good, professional relationship with the patient. An unconditional positive attitude, regard and avoiding patronizing demeanor are fundamental.

Rapport in psychology is a close and harmonious relationship in which people understand each other's emotions and opinions easily and thus can communicate smoothly [19]. The key is ongoing conversation and avoiding monologue. An ample space is crucial to open up. Equally important in this step is placement of the physician and patient in a

comfortable position. For the purpose of the medical interview focusing on open-ended questions will yield significantly better results than closed questions which can be answered in short "yes" or "no" response [13]. The enquiry should be concerned with the present condition of the sick.

Step 3: E - Exploring

As mentioned before, nowadays with such a wide access to the Internet and thus to the knowledge of different quality, patients and their families are already prepared before medical visit. Therefore the role of a physician is rather to confirm than break bad news. Exploring means finding out what the sick already knows about his or her disease, current condition and possible treatment. Any eventual doubts or confusions about the diagnosis should be explained in details. Family and the significant other are fundamental source of support for the patient in that situation and with this in mind it is a proper idea to invite them to the conversation. Of course it has to be done on the condition of sick's approval.

Step 4: A - Announce

A concept of an announcement is that it works like a warning shot, it precedes the real one. For this reason it gives the patient time to prepare mentally, physically and spiritually to receive an unpleasant information. In this situation there are a few useful phrases that doctor can use, for instance: "Mister John, unfortunately I have got some bad news to tell you…" or "Mister John, I am sorry to tell you that I have some shocking news about results of your magnetic resonance imaging…". The disclosure of the bad news should be done after receiving a consent of the patient, because it is his right to abstain from being informed by the same token he has right to know the diagnosis [1]. Narayanan et al. recommends mirroring body language and emotions of the sick [18]. Also a few things should be eliminated: medical jargon, elaborate monologues, lengthy explanations and stories of patients in the same plight. Using short and comprehensive sentences and not giving more than 3 pieces of information at a time is a valuable advice for effective communication [20].

Step 5: K - Kindling

People respond to diagnosis differently. Some break in tears, some laugh, some can not believe that it is real and are in the denial phase. Not only negative emotions like anger, anxiety or frustration can appear but also a black humor or jokes about the situation are common reactions. Important to realize is that a physician have to make space for them and

accept it. Also he have to make sure of understanding of the diagnosis and its gravity while being realistic when speaking about the future. In fact being overoptimistic will do definitely more harm than good and it should be avoided as well as lecturing the patient. It takes place when the sick receives big chunks of information without getting chance to ask questions or respond [21].

Step 6: S - Summarize

In summary of the session every concern and main points of future treatment plan should be repeated. It is a good practice to recap some key takeaway messages on paper as strong emotional reactions and stress could impair the memory. An encouragement to contact and visit appointment in case of any further doubts is very appreciable and helpful. Another good practice is to encourage the patient not to drive to home on his own and call for support in that matter so his safety will be ensured.

ABCDE

Rabow and McPhee are founders of another breaking bad news protocol called ABCDE [22], which had been modified and improved by VandeKieft who based his work on new scientific discoveries [23]. Its main goal is to increase the level of patient satisfaction and doctor's comfort through providing an honest and compassionate disclosure of an unfavourable diagnosis that people expect.

Step 1: A - ADVANCE Preparation

In this step focus on preparing in advance, that is become aware of patient's previous history, arrange appropriate length of time for the meeting and review available treatment methods. A splendid idea is to mentally rehearse what you are about to say or even arrange your colleagues into a role-play theatre, where they will be the patient.

Step 2: B - BUILD a Therapeutic Environment and Relationship

Introduce yourself and invite members of the family if the sick prefers to be with them at this moment. Use an announcement of bad news as a warning shot of "I'm sorry but I have bad news.". Be acquainted with patient's desire of how much they want to know. Also tell about the possibility of future meetings, where you can be found later.

Step 3: C - COMMUNICATE well

Explore patient's expectations and knowledge. After that, present the diagnosis without using medical jargon or euphemisms. Be direct and frank but not brusque. Don't rush and let the emotions flow. Use repetitions for better comprehension and make a note on paper of the key points.

Step 4: D - DEAL with Patient and Family Reactions

Familiarity of basic psychological coping mechanism, such as blaming the messenger, denial, dissociation from the reality or idealization of the future can be helpful during communication with patients. Observation is vital to realizing them and the next step is to react correspondingly.

Step 5: E - ENCOURAGE and Validate EMOTIONS

Being unrealistic is unacceptable because it can contribute to creating delusions by the patient. It is highly demanded to give hope but not false one. Find out what the diagnosis means for the sick and encourage to discussion about available treatment methods. Also offer your help in terms of recommending other services such as hospices or professional psychologists.

Summary

Learning breaking bad news protocols increases clinicians' confidence in disclosure of medical information [3], therefore the calmness transfers to the patients. The efficient communication augments the likelihood of implementing the medical recommendations [6], which has a direct effect on the treatment. A structured protocol prevents from forgetting about important tasks like any other checklist used in the realm of medicine [7]. A prepared doctor is less likely to shorten the time devoted to the explanation of the patient's current medical state.

Moreover, physicians who prioritize their skill of breaking bad news and are comfortable with that, are less susceptible to stress and occupational burnout [10]. The exact moment of terminal illness disclosure will be probably one of the most important in the sick's life and the proper manner of doing it will affect the satisfaction from medical services.

Nowadays doctors are indeed focused on diminishing the physical pain, forgetting about the psychological one. Breaking bad news tactfully surely lessen the second one, which is equally important.

With this in mind every physician should know at least one protocol for transmitting the knowledge about unfavourable diagnosis. Just choosing one acronym which is personally most convincing and easy to remember the most will be helpful and may significantly improve communication with patients.

All sources below agree that most common mistakes of breaking bad news are: having little time and being in rush, avoiding nonverbal communication - an eye contact, touch etc., asking only closed questions and therefore not giving a patient amble space to open up, giving false hope when there's none, a lack of privacy and using medical jargon. Just having this in mind can improve communication skills.

Disclosure of medical informations is an important skill to a majority of clinicians and despite that fact few of them had any academic training in the matter [3]. The curriculum of studies needs to be adjusted, especially concerning topics of doctor-patient relationship. The seminars can include methods like role-playing scenarios with video recording which would be beneficial for students.

A core of every protocol is listening to the patient, encouraging him or her to speak and ask questions, confirming whether diagnose and its gravity has been understood and taking care of the private conditions and having enough time. A perfect communication should include those key elements.

To summarize, although there is the dozen of methods for breaking bad news, they all have one thing in common. Empathy.

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What would your life look like if you could not swallow?

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Introduction

Swallowing seems simple, but it is actually quite complicated. It engages the brain, several nerves and muscles, two muscular valves, and an open, unconstructed esophagus, or swallowing tube to work just right.

Swallowing, also called deglutition, is one of the first physiological activities performed by the human and relies on the sequence of motor phenomena caused by muscles and coordinated by the central nervous system. It results in food intake, the chewing process, and transport from the mouth through the throat and esophagus to the stomach [1]. In simple words, swallowing is the act of passing food from the mouth, via pharynx (or throat) and esophagus, to the stomach [2]. The process of physiological swallowing requires the coordination of organs included in the respiratory system and digestive system because during a swallowing act a short break in breathing is necessary. The act of swallowing consists of three phases: an oral, a pharyngeal and an oesophageal. The first one is an arbitrary phase and the other two are reflexive phases [3].

The swallowing phases

The oral phase

This phase takes place 0,9-1,5 sec and is divided into the preparation phase (in which food is geared up to swallow) and the right oral phase (during which the food is moved to the oral part of the throat) [4]. The motor function of the tongue is the most important role during the oral preparation phase of swallowing. The movement of the tongue leads to mixing of mouthful in the oral cavity and sliding them to the oral recesses. At this stage, the soft palate prevents premature food intake to the throat. Food is crushed by teeth and, then, rubbed on the

hard palate by the tongue. Finally, the food is mixed with saliva and obtains the consistency to forma bite. Also, the tongue movements take place in forming a bite. The bite, which resembling a stump, is moved backwards, by the tongue, through the throat. This is the final stage of the right oral phase of swallowing [3,4].

The pharyngeal phase

The pharyngeal phase takes place 1 sec. This stage begins the reflexive part of swallowing, whose receptors are most likely located in the region of palato-glossal bar and palato-pharyngeal bar [3].

During this phase of swallowing the tongue, the soft palate, the hyoid bone with attached muscles, the throat, the oesophagus and the larynx with the trachea create a synergistic system. In the initial part of the pharyngeal phase, when the bite is possessed through the isthmus of fauces, the throat is shortened as the result of the activity of directly acting muscles (dorsal-pharyngeal muscles, palatopharyngeal muscles, pharyngeal levator muscles, throat sphincter and stylohyoid muscles, digastric muscles, genialhyoid muscles, thyroid muscles, mandibulohyoid muscles). They lift the hyoid bone and move the larynx up and forward [5].

This phase is the most crucial during swallowing and is responsible for the transport of the bite from the throat to the esophagus. At this stage the pressure of the root of the tongue and throat's muscles is used to transport the bite. The consequence of this process is the closure of the larynx entrance as the result of protection against the food aspiration to the respiratory tract, the relaxation of the upper esophageal sphincter muscle and simultaneous passage of food into the esophagus [5,6].

There are significant processes during the pharyngeal phase of swallowing which condition its correct course. It includes [5,7]:

- a tongue displacement to the backward part of the throat to move the bite to the laryngeal part the throat;
- closing the nasal part of the throat by lifting the soft palate and contraction of the backward part of the throat;
- moving forward and upward the hyoid bone and the larynx to extend the entrance of throat, esophagus and to pass the bite lower as the result of the suction force of the lower throat.

In addition, a breath inhibition and a simultaneous protection of the respiratory tract is observed. It appears at three stages [5]:

- a closure of the glottis;
- a closure of the larynx (as a result of a close-up of vestibular folds, arytenoid cartilages and an epiglottic base);
- a backward inclination of the epiglottis.

Thanks to the gravity action, the strength of the tongue contraction, the peristalsis of the throat sphincter, and the mechanism of the upper esophageal sphincter the mouthful passage took place [4,5].

The oesophageal phase

This part of swallowing takes place from 5 to 20 sec. It is the result of a peristaltic wave in the throat, which stimulates the receptors located in the mucosa of the mouth, the throat and the esophagus [3].

The bite is transported from the upper oesophageal sphincter through the shaft, the lower sphincter to the stomach. The oesophageal phase begins with a temporary pressure drop in the pharyngoesophageal sphincter, which allows the bite passage from the throat to the oesophagus. After that, there is a temporary pressure increase in the sphincter to prevent the air flow from the throat to the oesophagus. Then the peristaltic wave begins, an travels through the oesophagus - from the area with elevated pressure to the distally located region with the lower pressure. It causes a characteristic changes in pressure called the swallowing syndrome. The force of the oesophageal contraction at the wave site is relatively small and increases as it moves towards the stomach. At the time of the wave passing through the lower part of the oesophagus, the sphincter relaxes and the pressure drops, but never below the pressure of the stomach [7].

The swallowing reflex

The prenatal period is not only a stage in which anatomical structures are shaped but also functions and activities are developed. Swallowing is one of these activities. The child already in the third month of fetal life opens and closes the mouth and as a result of these movements gets and displaces the fetal water. These movements require breathing and speaking after birth. It is worth to add, that through swallowing child gets to know what is the taste, because amniotic fluid is contingent on mother's diet. On this basic, we can say that

taste is completely new experiences for the unborn baby. Swallowing is inseparably associated with suction. After 36th month of fetal life, suction is realized in completely and coordinated way. Suction and swallow reflexes determined newborn survival [8].

In the context of swallowing, the development of the gastrointestinal tract and the formation of its innervation in the prenatal period is worth analysing. The digestive tract is formed around the fourth week of fetal life. During the following weeks, it develops and grows in layers. Already in the second trimester of pregnancy, a woman can notice peristaltic movements. At the end of the first month of fetal life, glial and neural cells appear, which leads to the formation of the nervous system. The enteral nervous system is responsible for the innervation of the stomach and intestines, and the proper functioning of the digestive system. An integral part of the autonomic nervous system are the sympathetic nervous system and the parasympathetic nervous system. They are important for swallowing, because their fibres innervate the oesophagus. Oesophageal sphincters: upper and lower, are formed in the eighth month of fetal life and at the moment of birth their sizes reach the size of not more than 1 cm [8].

Healthy newborns already after the birth have a mature mechanism of swallowing. Newborns and infants during the act of eating have to coordinate sucking, swallowing and breathing. It is significant mechanism in correct and fully valuable feeding process. It is worth to remember that the external factors during feeding such as child's behaviour, the mother's attitude or nurse's attitude and the surrounding conditions should be appropriate [9].

Adults and children have the swallowing consciousness and desirabilit. In the neonatal period, infants' swallowing is inherently innate and reflexive. The swallowing reflex depends partly on the human's will, and partly is unconditional. In the first phase - the oral phase, muscles coordinated by the motor region of the cerebral cortex cause preparation of a bite to swallow, which we are fully aware of and do it on purpose. During swallowing, it is necessary to stimulate the receptors of the tongue, the throat, the palate, which are associated with sensory and motor nervous pathways. The next stages, the pharyngeal and the oesophageal phases are independent of human will and we could not influence on them. The physiological and normal swallowing reflex occurs in the so-called safe swallowing phase. It is characterized by a temporary stop of breathing. This occurs after exhaling and before inhaling. Healthy people, regardless of their age, have affective integration of sensory feedback with centres responsible for sucking, swallowing and breathing in the brainstem [3,10].

The throat reflex severs an important role in the swallowing process. It is present in the second phase of swallowing. It is associated with a proprioceptive feeling. The mechanism of the throat reflex allows moving the food bite to the oesophagus in a precise manner. It prevents the passage of food into the respiratory tract and nasal cavity [11].

The infantile swallowing

Swallowing is inseparable from the central nervous system, its maturation, and formation, pattern settings and habits. However, anatomical factors associated with development also actively participate in the process of swallowing. Therefore, the size and the volume of the oral cavity is important. Teeth, their quality, and number take an active participation in the swallowing process. Eating habits, the way of feeding, the food consistency also affect swallowing [12,13].

The infantile swallowing occurs physiological in children and is transformed into a mature swallowing up to 3 years of age. If it occurs in later years of life, it is called an improper or a persistent swallowing. The mechanism that accompanies this type of swallowing is characterized by the involvement of the muscles of the mouth, cheek and chin, and also the specific arrangement of the tongue between the gums or teeth. The specificity of the tongue's position is that the lateral edges of the tongue touch the mucous membrane covering the cheeks, and the tip of the tongue touches the mucosa of the lower lip [12].

Mature, adult, somatic type of swallowing is formed in stages. It is conditioned by the growth of the mouth, changes in the quality and the structure of the teeth. The mechanism of the mature swallowing is characterized by the shortening of the dental arches and raising the tongue tip to the front of the hard palate. There is also stabilization of the mandible through the muscles of the masseter. Compared to infantile swallowing, the muscles of the mouth margin, the buccal and the beard joints do not play a significant role here, and their activity is insignificant in this case [12].

Mature swallowing is not just an act of transporting the bite to the digestive tract. The activity of the muscles lifting the mandible and the correct position of the tongue affect the physiological change in the bite, the proper development of the dental arches and the assurance of functional and anatomical balance in the stomatognathic system [12,13].

An important role in the formation of the right swallowing pattern is food, its consistency, form and texture. The child’s diet with overgrown incisors should contain liquid and semi-liquid foods served with a spoon. Supportively, there is also the method of biting

biscuit and bread crust. As more teeth appear, the diet should be expanded and includes products that should be chewed. It is associated with proper setting of jaws against each other and supporting the pattern of proper swallowing [12,13].

It is important that the sucking reflex, which the child needs at the beginning of life, should physiologically disappear by the age of 18th months. Therefore, it is a diet that forces sucking, but ending in this developmental period does not disturb the right swallowing process [13].

The essence of infantile swallowing problems at a later age is the inadequacy and the disharmony of the muscular and nervous systems in the comparison to anatomical changes related to the physiological development of the child. In contrast to masseter muscles, muscles surrounding lips, cheeks, and mentum muscles have a major role in the muscle range. The tongue position and function is also incorrect because the tongue lies between the dental arches and it results in a posterior short circuit. The causes of the infantile swallowing are mostly: the immaturity of the neuromotor system, the way of eating, the food consistency, the prolongation of natural feeding [12,13].

Dysphagia

Swallowing disorders, or dysphagia (gr. *dys* - obstruction, *phago* - swallowing), is an obstacle in formation of the mouthful and transport from the mouth to the stomach. Dysphagia refers to a difficulty in swallowing - it takes more effort than normal to move food from the mouth to the stomach. The disorder is classified under "symptoms and signs" in ICD-10 as the R13.1 code, but it is sometimes used to describe a condition in its own right [3].

Subjectively dysphagia manifests itself with a feeling of difficulty in swallowing, objectively dysphagia is stated as an abnormalities in the mechanism of swallowing. In the course of dysphagia the speed of swallowing food and the control over the saliva secretion are disturbed. Also, the saliva leakage from the mouth, choking, a productive cough and returning fluid from the nose are observed. These symptoms intensify over time and gradually lead to the malnutrition, to the aspiration of secretions into respiratory tract or to the pneumonia [14].

People with dysphagia are sometimes unaware of having it. Swallowing disorders usually develop unnoticed and initially mildly. Only the weight loss due to conscious avoidance of food due to swallowing and choking disorders is the first tangible proof of the existence this disorder [3,14].

Depending on the location of the cause, there are three general types of dysphagia [3,15]:

- **oral dysphagia (high dysphagia)** - the problem is in the mouth, sometimes caused by tongue weakness after a stroke, difficulty chewing food, or problems transporting food from the mouth;
- **pharyngeal dysphagia** - the problem is in the throat. Issues in the throat are often caused by a neurological problem that affects the nerves (such as Parkinson's disease, stroke, or amyotrophic lateral sclerosis);
- **oesophageal dysphagia (low dysphagia)** - the problem is in the oesophagus. This is usually because of a blockage or irritation. Often, a surgical procedure is required.

Patients diagnosed with oropharyngeal dysphagia have difficulties in swallowing mainly liquids, rarely solid foods. The opposite situation is observed in patients with mechanical obstruction, which dominates in the case of oesophageal dysphagia. Swallowing disorders both solid foods and liquids are characteristic of motor disorders, developing slowly over a period of several months. In turn, the consumption of cold fluids with the coexistence of oesophageal spasm may lead to an increase in dysphagia [15].

The oropharyngeal dysphagia

It arises from abnormalities of muscles, nerves or structures of the oral cavity, pharynx, and upper oesophageal sphincter**.** The patient loses the ability to form a bite, move it towards the throat and has difficulties with the beginning of the swallowing act, which in effect leads to the food retention in the oral cavity. These disorders are often accompanied by cough, choking, feeding back through the nose and retching, which leads to the food aspiration to the respiratory tract. The consequence of this process may be recurrent lung inflammation. Sometimes the initial symptom of oropharyngeal dysphagia may be a feeling of scratching in the throat, tearing, salivation, change of voice and speech, sneezing and a dry cough [16].

The oropharyngeal dysphagia in 80% of cases is caused by neuromuscular disorders, while 20% of cases are the structural changes. The neurogenic causes of swallowing disorders are the result of changes located in different parts of the nervous system. The most common causes of neurogenic dysphagia are complications of cerebrovascular disease, such as ischemic stroke, intracerebral haemorrhage or embolism. Other common causes are demyelinating diseases, brain tumours and changes following craniocerebral injuries [3,16].

The oesophageal dysphagia

It is a form of dysphagia where the underlying cause arises from the body of the oesophagus, lower oesophageal sphincter, or cardia of the stomach, usually due to mechanical causes or motility problems. Characteristic symptoms are: feeling of a bite retention when passing through the oesophagus, spreading and creasing behind the sternum and sometimes chest pain occurring in the area corresponding to the location of the lesion in the oesophagus [16].

The oesophageal dysphagia in about 85% of cases is associated with structural disorders (mechanical disorders) such as: the oesophageal stricture (the most common cause is the oesophageal and cardiac cancer), the oesophageal reflux disease in the form of ulceration of the mucous membrane, erosions and inflammation leading to oesophagus' scars, caustic burns (acids, alkalis), drugs (e.g. salicylates, quinidine), radiotherapy used to treat the cancer located in the immediate vicinity of the oesophagus (the larynx, the thyroid) [2,6].

Swallowing disorders can also occur as a result of trauma, perforation, and oesophageal surgery. 15% of cases of oesophageal dysphagia are associated with primary or secondary motor disorders. The primary motor disorders include: achalasia, characterized by the increase of resting pressure of the lower oesophageal sphincter, the impairment of its diastole, the lack of primary peristaltic wave of the oesophagus and the diffuse oesophageal spasm (cardiospasm), involving the occurrence of strong muscles' spasms at various levels of the oesophagus that cause chest pain in the retrosternal area. In turn, secondary motor disorders result in the connective tissue disease (scleroderma), diabetes, the gastroesophageal reflux disease, the alcohol abuse and certain medications (e.g., phenothiazine and parasympatholytics) [2,14,16].

Causes of dysphagia

All causes of dysphagia are considered as differential diagnoses. Possible causes of dysphagia include [2,3,15]:

- **amyotrophic lateral sclerosis** - an incurable form of progressive neurodegeneration; over time, the nerves in the spine and brain progressively lose function.
- **achalasia** - lower oesophageal muscle does not relax enough to allow food into the stomach.
- **diffuse spasm** - the muscles in the oesophagus contract in an uncoordinated way.

- **Stroke** - brain cells die due to lack of oxygen because blood flow is reduced. If the brain cells that control swallowing are affected, it can cause dysphagia.
- **oesophageal ring** - a small portion of the oesophagus narrows, preventing solid foods from passing through sometimes.
- **eosinophilic esophagitis** - severely elevated levels of eosinophils (a type of white blood cell) in the oesophagus. These eosinophils grow in an uncontrolled way and attack the gastrointestinal system, leading to vomiting and difficulty with swallowing food.
- **multiple sclerosis** - the central nervous system is attacked by the immune system, destroying myelin, which normally protects the nerves.
- **myasthenia gravis** (Goldflam disease) - the muscles under voluntary control become easily tired and weak because there is a problem with how the nerves stimulate the contraction of muscles. This is an autoimmune disorder.
- **Parkinson's disease and Parkinsonism syndromes** - Parkinson's disease is a gradually progressive, degenerative neurological disorder that impairs the patient's motor skills.
- **radiation** - some patients who received radiation therapy (radiotherapy) to the neck and head area may have swallowing difficulties.
- **cleft lip and palate** - types of abnormal developments of the face due to incomplete fusing of bones in the head, resulting in gaps (clefts) in the palate and lip to nose area.
- **scleroderma** - a group of rare autoimmune diseases where the skin and connective tissues become tighter and harden.
- **oesophageal cancer** - a type of cancer in the oesophagus, usually related to either alcohol and smoking, or gastroesophageal reflux disease (GERD).
- **oesophageal stricture** - a narrowing of the oesophagus, it is often related to GERD.
- **xerostomia (dry mouth)** - there is not enough saliva to keep the mouth wet.

Diagnosis of dysphagia

Diagnosis of dysphagia is a multi-stage process. It consists of an interview, laryngological examinations, imaging examinations, sometimes the patient is examined for neurological reasons [11].The general practitioner should focus on the ways of helping the patient. This term improves the diagnostic and rehabilitation-therapeutic process [17].

The interview should include questions about feelings of impaired patency, aspiration of food or fluids into the airways, presence of food in the nasal cavity while eating, feeling of

lack of strength during eating, discouragement of food intake, pain during eating, drinking in larynx, feeling an obstacle in the respiratory tract, discomfort, tightness to the respiratory tract. The interview should also include questions about additional symptoms such as: coughing, choking, difficulty in starting to speak, a distinct change in voice quality. Also the dynamics of the problem, its duration, as well as previous operations, head and neck treatments, diseases of the respiratory and digestive systems, thyroid and cardiovascular disorder, and existing neurological problems have significant meaning. An additional element that gives important information for the doctor are questions whether the patient can determine the location of the problem [3,17].

The laryngological examination is an important subject. The focus should be on the skills of the soft palate, the tongue and lips. The laryngologist should determine if the facial muscle tension is not too big or too small, whether the mandible mobility is optimal and what is the state of the oral cavity and the throat. During the laryngoscopic examination the laryngologist pays attention to the condition of the lingual-epiglottic wells, pear-shaped pings and the larynx vestibule. An ENT physician assesses whether saliva or food default in these structures. In the glottis area, the back sections of the vocal folds are analysed [17].

After detailed interview specialists used screening questionnaires to clarify the diagnosis. One of such questionnaires is the Eating Assessment Tool (EAT-10). It is a questionnaire subject to validation on the population of people suffering from dysphagia associated with neurological and non-neurological diseases as well as head and neck cancer. The form of the interview makes it possible to see the severity of the patient's problem as well as to monitor the symptoms. In practice, there are also swallowing screening tests aimed at detecting aspiration. The principle of these tests consists of giving the patient a certain amount of water and observing the patient's response [18].

The scales can be used to describe the magnitude of a patient's problem related to dysphagia. One of them that the American Speech-Language-Hearing Society recommends is the Swallowing Rating Test. On this scale, 0 means no testing due to the patient's large problem of food and liquids aspiration and other accompanying symptoms. However, 7 is the highest grade and at this level patient has no swallowing problems in any situation. Dysphagia Severity Rating Scale is another scale for the diagnosis of dysphagia. It is used as an auxiliary form of describing the diffusion during videofluoroscopy. In it, 0 is described as the normal swallowing, in which there are no disturbances. However, 6 is defined as an order to abandon the oral nutrition, because more than 10% of food is aspirated regardless of their consistency [10].

Developing diagnostics of swallowing and speech disorders in dysphagia are also complemented and conducted by the neurologopedics. By conducting an accurate interview and applying appropriate questionnaires for assessing patient's problems, a neurologist can propose therapeutic and rehabilitation methods [19].

One of the diagnostic methods of dysphagia is endoscopy of the upper gastrointestinal tract, also called gastroscopy or Esophago-Gastro-Duodenoscopy. It is used in the assessment of the mucosa of the esophagus and the stomach. It allows finding the organic causes of swallowing problems. Another method of diagnosis is videofluoroscopy, which allows determining the anatomy and physiology of the mouth and the throat when the patient swallows fluids and foods of different consistency [20]. Fluids and foods are mixed up with a countermeasure to illustrate the act of swallowing. During the examination, a film recorded and analyzed later. The ultrasound examination can assess the function of the tongue, especially its posterior part, and the hyoid bone that is involved in swallowing, hovering and shortening of the digestive tract. The manometry is used to examine the pressure in the esophagus and in the area of its the upper and lower sphincter. The common imaging studies such as the roentgenography, the computed tomography, the magnetic resonance imaging are used to diagnose organic changes in the digestive or respiratory tract conducive to dysphagia [3,8].

Summary

To sum up, the swallowing act is a very complicated process which requires the coordination of many anatomical structures. It engages the nervous system to right and mature swallow. This process is independent of human's will and without it, human's life will be very tough. Swallowing disorders may lead to severe complications and that's the way the detailed diagnosis is so significant in the treatment and the rehabilitation.

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Does believing in God heals

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Introduction

In The Book of Exodus God says: "If you listen carefully to the Lord your God and do what is right in his eyes, if you pay attention to his commands and keep all his decrees, I will not bring on you any of the diseases I brought on the Egyptians, for I am the Lord, who heals you" [1]. There are more such promises and messages in the Old Testament. Also, the New Testament gives many examples of the healing power of faith. For instance, a woman who suffered from bleeding for twelve years was healed when she touched the cloak of Jesus. Words of Jesus were: "Daughter, your faith has healed you. Go in peace and be freed from your suffering" [2].

Over two thousand years have passed since these events. Today, in the era of evidence-based medicine, it is not possible to make general conclusions on the basis of individual cases. Question asked in the title of the article is, of course, too vague and – in case of scientific research – should be reformulated. But is it possible to scientifically investigate relations between faith in God and human health? The answer to this question is, at least in part, affirmative. These associations have been studied since 1897 when Emile Durkheim pointed that being religious might lower a risk of suicide. [3] Over the years, many magazines publishing religion and health issues have been created –"Journal of Religion and Health", "Journal of Religion, Disability, and Health"; "Spirituality and Aging"; "Mental Health, Religion, and Culture" among others. The issue of the link between religion and health has even got its own handbook– created by Koenig, McCullough, and Garson „Handbook of Religion and Health." [4] Almost 30 medical schools in the United States of America offer courses on religion, spirituality, and health [5].

The purpose of this article is to present selected scientific publications to answer the question – whether broadly understood faith in God, religiosity, and spirituality might be related to human health.

Religious people and psychiatric diseases

The majority of studies dedicated to the relationship between religiosity and health focus mainly on mental health. In 2001 Mueller et al. [6] provided very valuable metaanalysis of publications on religiosity and health written between 1970 and 2000. It contained over 1200 studies, that mostly concerned spiritual health, which indicates a particularly strong relationship between religion and mental component of wellness. Available publications show that majority of analyzed observational studies find lower rates of depressive disorder and fewer depressive symptoms among the more religious. [7, 8]. Also longitudinal studies tend to show that greater religiousness is associated with lower depression severity or faster remission of symptoms at follow-up. The bulk of the few randomized controlled trials found that so-called religious-based psychological interventions result in faster symptom improvement, compared with secular-based therapy or with control subjects. [9] Substantially, link between being religious and prevalence of depression or coping with depression appears to be markedly expressed in severely ill subjects. Koenig compared group of 1000 depressed in-patients suffering from congestive heart failure or chronic pulmonary disease with 428 non-depressed patients. In the first group there were more patients with no religious affiliation and less subjects that do pray or read religious scriptures. These associations remained significant after controlling for social and physical health as well as demographic factors. Moreover, severity of depression was inversely related to religious factors. [10] One of prospective studies was conducted in Netherlands on 177 persons between 55 and 89 years. It revealed that self-reported religious salience is associated with less risk of depression and more effective recovery from depression. [11] These results are consistent with outcomes of other studies that show significant association between intrinsic religiosity and likelihood of remission from depression, even after adjustment for potential confounding factors. [12-15] Interesting thing is, that attendance at religious services itself may be associated with depression prevalence. Oman and Reed [16] performed a study in which, they divided subjects on people who attend religious services weekly and those who do it only occasional or never. It was displayed that in first group prevalence of depression was lower in man (4.7 vs 6.7%; $p<0.05$) but not in woman. In the context of treatment of depressive disorders, there

is an evidence, that therapy of religious patients is more efficient if contains religious content or even consists of pastoral care alone. [17-18]

There are also studies that display no association between religious involvement and depression course, although these are in minority. For example in McCullough [19] analysis only 5 of 29 studies revealed no association, whereas Koenig reported that among 93 studies – 34 found no relationship. [9] In 4 publications authors suggested that religious people are at higher risk of depression.

Also, other mental disorders seem to be modified by religiosity. As mentioned before, first research on the suicide and religion was conducted in 1897 by E. Durkheim and it showed an inverse relationship between them. Of the 68 studies analyzed by Koenig et al. 57 reported lower rates of suicide among the more religious, 9 displayed no connection and 2 showed inconsistent results. [4] Available studies mostly show that self-reported religiosity, attendance at religious services, religious involvement or belief In God are negatively related to suicide risk, acceptance or ideation. [6] Prospective studies provide an evidence for protective effect of religion in this issue. Consistent results are observed in different populations, including North America [20, 21], Israel [22] and western countries [23]. In Christianity and many other religions suicide is a severe sin and therefore lower suicide rates in religious people are expected. Partially because of the value system of believers, but is it the only reason? So far this question remains unanswered.

Another mental condition worth discussing is anxiety. In a review of nearly 70 cross-sectional and longitudinal studies Koenig concludes that religious involvement is linked to less fear and anxiety. [4] However, later he points out that anxiety itself is a strong factor that motivates to religious activity – when people are scared or anxious, they pray more. That is the reason why cross-sectional studies should not be interpreted in case of religion and anxiety connection. It is better to focus on longitudinal studies or randomized controlled trials. Among 7 of the latter, analyzed by Koenig, 6 studies showed greater efficiency of religious than secular interventions in religious patients suffering from anxiety. [9]

A separate issue is death anxiety. Interesting study was provided by Wink and Scott in 2005. [24] 155 subjects were followed for nearly 30 years to establish the influence of religiosity on fear of death. No linear relations between religiousness and fear of death and dying were found. Interestingly, the moderately religious subjects feared death the most. High and low score on religiousness were associated with less anxiety. Nevertheless, other studies displayed that religiosity in terminally ill patients is related to better frame of mind and greater acceptance of death. [25, 26]

Religion itself is a kind of signpost indicating ethical way of living. Therefore, it probably will not surprise that plenty of studies reported that religious people use alcohol and/or other drugs less often than others. This association has already been demonstrated in 1976 [27] and then confirmed in other studies in different populations. [4, 28-30] Low religiousness is more often reported in drug and alcohol addicted people. [31] As in other mental conditions, also in alcoholism spiritually based therapy brings better results than the conventional one. [32] These associations seem to be specifically expressed in groups of younger people. [33, 34]

Psychotic disorders and its relations with religion are of special interest in psychiatric health care. Religious delusions might be a sign of psychiatric illness, especially schizophrenia. [35] This raises the question of whether religious beliefs stand in the etiological basis of schizophrenia and other mental illnesses. There is a lack of data on this issue and results of available studies are inconsistent. Some display that religious delusions in schizophrenia are associated with more severe symptoms, longer duration of disorder, more intensive treatment, worse long-term prognosis and greater functional disability, although others suggest that in patients with psychotic disorders ordinary religious activity, such as regular church attendance, improves prognosis. [9] These discrepancies probably result from differences in classification schemes, a common problem in religiosity studies.

Religiosity and cardiovascular diseases

Hypertension is one of the most common diseases in the modern world. Data have been accumulated that religious people have lower blood pressures and in this group hypertension occurs less frequently. [6].

Interestingly, it is probably attending at religious or spiritual practices that lowers blood pressure. Koenig et al. divided subjects into two groups – frequent attenders of religious services (at least once a week) and infrequent attenders. After adjustment for confounding factors, such as sex, age, education, ethnicity and previous blood pressure in the first group lower values of systolic and diastolic blood pressure were observed. Also prayer and other individual religious activities were associated with lower rates of diastolic hypertension. [36] Similar observations were made also by other authors. [37, 38]

Data from many studies indicate that religious activity is associated with lower rates of cardiovascular diseases. There were few publications concerned Jewish persons which

displayed lower risk of fatal coronary heart disease and myocardial infarction in Orthodox patients after adjustment for confounding factors. [39, 40]

Other diseases

It has been shown that religious activity in people is related to many health-promoting behaviors. This association was found among others in smoking cessation, proper nutrition, seat belt use, physical exercise and use of preventive services. [6] Moreover, people with greater religiosity cope better with illness, suffer and serious impairment than others. [41, 42] Riley et al. [43] showed that in persons with chronic diseases, religiosity is associated with higher levels in health-related quality of life index (HRQOL). Population consisted of inpatients suffering from breast cancer, prostate cancer, spinal cord injury postpolio and amputation.

Mortality

There are plenty of studies concerning relationship of religiosity and mortality. In a great majority they present consistent results indicating that religious involvement is associated with lower mortality, both in the general population and in some particular groups.

In 1997 Strawbridge et al. [44] announced results of large longitudinal study in which 5286 people were observed for 28 years. Study showed that frequent attendance at religious services (at least once a week) reduced mortality in this group by 23%. Noteworthy, results were adjusted for confounding factors, such as gender, age, ethnicity, body mass index, education, religious affiliation, chronic conditions, mobility impairment, perceived health and depression. One year later Oman and Reed [3] published results of their study based on 5-year observation of 1931 subjects. The purpose of the study was – once again – to establish whether attendance at religious services was associated with lower risk of death and whether potential confounding factors could explain observed differences. Considered factors were demographics, health habits, social functioning and support, and physiological state. Study revealed that subjects who attended religious services regularly exhibited lower mortality than persons who did not (HR=0.64; 95% CI=0.52-0.78). After multivariate adjustment this relationship abated, however remained substantial (HR=0,76; 95% CI=0.52-0.94). Of the note, religious attendance appeared to be more protective for people with high social support.

Another year later Hummer et al. [45] presented results of their study conducted on larger population of over 22 thousand subjects followed for nine years. Once again, it revealed significant correlation between religious involvement - defined as attendance at church or worship service – and all-cause mortality. After control for demographic, socio-economic, health, behavioral and social variables subjects who attend services more than once a week were identified with the lowest risk of death, whereas people who never attend at any religious service exhibited the highest risk. Finally, after another year large metaanalysis of 42 independent studies on this issue was published [46].

It included a total number of nearly 126 thousand people and concluded that subjects who scored higher on measures of religious involvement (such as religious attendance, membership in religious groups, finding strength from religious beliefs or religious orthodoxy) had 29% higher odds of survival than those who scored lower. Of 18 studies analyzed by Mueller et al. [1] only 1, did not display significant relationship between religious involvement and mortality.

Can we trust the studies?

It is essential to remember that research concerning spirituality, religion and related aspects of human living cannot be interpreted directly. First of all, there is always problem with definitions. How does one asses if one is religious? How to distinguish spirituality and religiosity? How to measure religiosity? In most of studies authors give an information about used definitions and tools, which have to be carefully read before assessing results. In an article published in prestige New England Journal of Medicine Sloan et al. listed most frequent methodological objections [47].

As they indicate – most of studies assessing an effect of religion on health were based on church attendance, disregarding other religious activities. They also point out a little number of randomized research, although it is obvious that randomized trial in case of religion would be very difficult to conduct and highly problematic. Another issue is generalizing results obtained in particular circumstances. For example, studies indicating that patients would like to have their spirituality and religiosity to be considered in clinical medicine generally are conducted in family practice, where relationship of patients and physicians are closer. Therefore these results should not be easily extrapolated to all medical fields.

Should religion be a point of interest for physicians?

The above-mentioned research indicates that religion is important in human morbidity, disregarding the causes and mechanisms of this association. In the modern world there is an opinion that the physicians should not consider religious life of their patients. This is probably due to the prohibition of religious discrimination. However, more than three quarters of hospitalized patients would like their physicians to consider their spiritual needs and up to 48% of patients wish their doctors to pray with them [48].

Regarding relevant association of religious practices and human health, a question might be raised – is it possible to enhance conventional therapy with spiritual interventions in some selected cases? Results of mentioned studies on mental disorders give an affirmative answer to that question. In opinion of some authors spiritual history of patients should be considered as a family history, as it can impact course of disease and general condition of patient. Puchalski et al. proposed special scheme that can be used to remember what should be asked in a spiritual history of the patients, known by the acronym of FICA (Faith, Importance, Community, Address) [49].

Anandarajah and Hight introduced another tool, which ought to help doctors to assess spiritual and religious sphere of patient lives – HOPE questionnaire [50]. H letter stand for sources of hope, strength, comfort, meaning, peace, love and connection, O for the role of organized religion for the patient, P for personal spirituality and practices and the E letter for effects on medical care and end-of-life decisions. On the other hand, there is plenty of factors associated with better health, like marriage [51, 52] or early childbearing [53, 54], that will rather not be recommended by physician though. Among American physicians only 6% think that religion and spirituality often change “hard” medical outcomes, however more ten half of them believe that these factors have much or very much influence of health. [55] Mueller et al. claim that doctors should take religiosity and spirituality of their patients into account, reminding that it enhances good relationship between them, regardless of its impact on health [1]. On the other hand, Sloan et al. [47] remind that religion should not be trivialized and used instrumentally by medicine since it exists in a different domain and is qualitatively different. They also suggest that scientific evidence in this matter is not convincing enough. In a conclusion – there is a lot of data suggesting that in selected cases religiosity is associated with better outcome, however a question – is it a causal association and whether physicians should prescribe religious activities or not – remains unsolved.

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