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The belief in miracles among students of medicine

There is an extensive literature concerning the research on the influence of religious practices on human life. In a few American medical universities issues on the role of religiosity and spirituality in human life were introduced into the curriculum (9). Hitherto conducted research in this field only refers to patients. However, little is known about the influence of religious practices on doctor's professional life. This influence is likely to be essential not only to issues concerning the beginning of human life (e.g. methods of contraception), its end (abortion, euthanasia, persistent therapy) (4, 9), but also in making every day diagnostic and therapeutic decisions (3). One of phenomena which belong to the field of faith, but still remaining important to the science (mainly medicine) is a miracle. In Medline Base literature the word "miracle" is included in about 600 articles. In most of them it is used as a metaphor. Some of the authors describes miracles which occurred in the past, trying to find scientific explanation based on contemporary medical knowledge (8,10).

Results of the recent research carried out by HCD Centre Research and Finkelstein's Institute in New York indicate that 73% of American doctors accept the possibility of miracle, and 55% admitted that they had witnessed miraculous recovering of their own patients (14). The relation between these convictions and everyday practice was not taken into account. Hence, it is worth discussing it.

The belief in miracles among patients and their families might influence a doctor's decisions. Their relatives may demand persistent therapy in hope of a miraculous recovery (2,4). In the scientific field doctors deal with the issue of miracle when they are appointed to be experts in church trials to prove whether a recovery is miraculous or not. The role of expert is to ascertain whether a recovery may be explained on the basis of contemporary medical knowledge (7).

The positivistic approach is characteristic of contemporary scientific thinking. The orthodox variant of this approach states that irrational things are devoid of sense and therefore do not exist (5). This point of view correlates with patterns of modern culture which put unlimited trust in solutions and results of the positivistic approach in science. This results in considering a contemporary doctor to be empiricist, rationalist and naturalist.

The cultural trends denying the possibility of miracles as a result of God's interference, caused the occurrence of conflicts between science and religion. In Europe in late Middle Ages scientific knowledge and religious faith gained the autonomy. In the opinion of the Catholic Church it led to an artificial division and consequently potential conflicts (6). Various philosophical approaches have tried to reconcile knowledge and faith. Believers' respect for scientific progress and belief in God's presence in the World may pose a spiritual problem for believers particularly from a medical circle (5).

As to our knowledge no research on the beliefs on miracles among medical doctors has been ever conducted in Poland. This is the reason why we decided to perform the research among future doctors.

The aim of the study was to examine whether the students of medical universities believe in miracles and whether opinions in this matter correlate with declared

religiosity, bioethical convictions and basic sociometric rates. We wanted to find out whether the students experience the conflict between scientific knowledge and faith.

MATERIAL AND METHODS

The research was performed on the basis of a questionnaire specially designed for this work with half open questions. A miracle was defined as a supernatural phenomenon caused directly by God. In the questionnaire age, the sex, the line of studies, the background, religion and religiosity were taken into account. Religiosity was measured according to external criterion, that is a declared frequency of attending community religious practices and internal criterion, that is declared frequency of praying.

354 students aged 18 to 27 were questioned (average 20 ± 1.2 ; median 21): 238 (68%) women and 116 (31%) men. Among the respondents there were 52 first-year students of the Nursing Department and 302 students of the Medical Department (113 first-year students and 189 third-year students). A statistical analysis was performed by means of Statistica (version 5.0) using chi square tests, Pearson's test and Spearman's correlation ratio.

RESULTS

In the group, 69% (245) students stated that they believed in miracles (miracles as results of direct God's interference), 15% (56) answered negatively to the question, 12% (46) gave different answers ("I do not know", "difficult to say"), 4% (16) did not give any answer (Fig. 1).

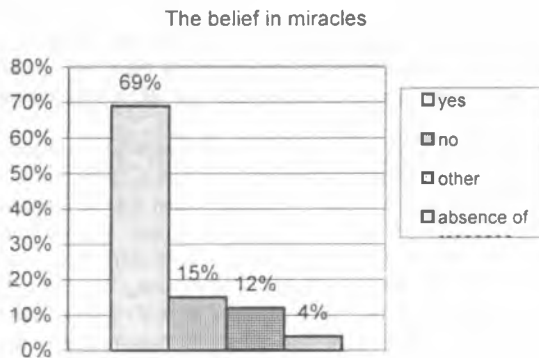


Fig. 1

The factor differentiating answers was the sex of the respondent. The belief in miracles was declared by 77.5% (179) women and 56.5% (61) men ($p < 0.001$) (Fig. 2). This declaration was made by far students of Nursing Department (92%) than students of Medical Department (65%); $p < 0.001$ (regardless of the sex and age). In the group of female students belief in miracles declared 93% students of Nursing Department and 78% students of Medical Department ($p < 0.05$). The number of male nursing students was too small to perform a reliable analysis for this sex, though the tendencies were similar: 89% believing in miracles in the first year of nursing and 50% in the first year of medical studies. However, the essential differences in results concerning the year of medical studies were not found. The students coming from the country declared belief in miracles more frequently than students living in cities (81% vs. 66%; $p < 0.05$).

Sex and the belief in miracles



Fig. 2

In the group of respondents 9% stated that scientific knowledge and religion exclude each other. This opinion was supported by considerably more students who reject belief in miracles (27% vs. 6%, $p < 0.001$).

The relation between belief in miracles and the intensity of religiosity was established on the basis of the declared frequency of attending community religious practices ($p < 0.001$). Among students participating in community religious practices more frequently than once a week 89% believed in miracles. Among respondents participating in community religious practices once a week 81% believed in miracles. Among students participating in community religious practices several times a year 51% believed in miracles. Among students who did not participate in community religious practices 29% believed in miracles (61% of them did not believe in miracles) (Fig. 3).

External religiosity and the belief in miracles

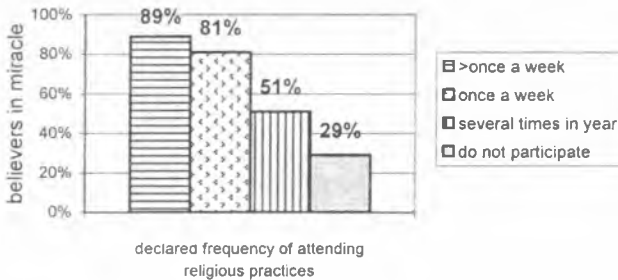


Fig. 3

A similar relation was found between the belief in miracles and frequency of praying. ($p < 0.001$), but it should be noted that among students who prayed a few times a day there were students who did not believe in miracles (13%) and among those who did not pray at all there were respondents who believed in miracles (3%) (Fig. 4).

Inner religiosity and the belief in miracles

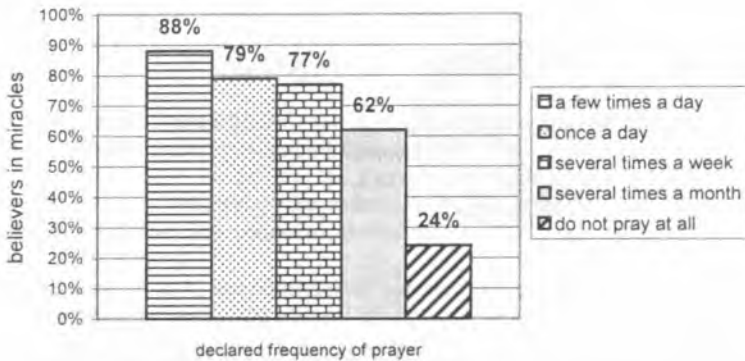


Fig. 4

The factors differentiating responses of believers and non-believers were also their declared views on euthanasia and *in vitro* fertilization. 5% of students believing in miracles and 14% out of students disbelieving in miracles ($p < 0.001$) answered affirmatively to the following question: "Would you give an incurably ill patient a lethal injection at their request?" Furthermore, 40% out of students believing in miracles and 57% out of students disbelieving in miracles ($p < 0.05$) answered affirmatively to the following question: "In the case of sterility would you decide in favour of *in vitro* fertilization?" Results were regardless of the frequency of praying. Among respondents who pray every day or more frequently 31% believing in miracles and 58% disbelieving in miracles ($p < 0.05$) considered *in vitro* fertilization to be ethically permissible.

Between two groups of respondents: believing and disbelieving in miracles there were significant differences in their attitude to abortion regardless of the intensity of religious practice. There were significant differences in the attitude of those groups to brain death. Among respondents, 20% disbelieving in miracles and 11% believing in miracles ($p < 0.05$) answered in the positive the following question: "In the case of brain death would you continue an intensive care therapy?" According to students disbelieving in miracles further intensive care therapy is conditioned by the will of a patient's relatives (61% vs. 50% ($p < 0.05$)).

Among the respondents the belief in miracles was not a differentiating factor as far as contraception is concerned.

DISCUSSION

In the history of ideas thinkers have dealt with the issue of a miracle and defined this notion in various ways. The most popular definition was given by D. Hume who defined a miracle as a phenomenon going beyond the laws of nature as a consequence action caused by a god or an invisible factor (1,12)

The findings show that almost 70% of students believe in miracles. The miracle was defined as a supernatural phenomenon caused by God. We wish to avoid understanding the miracle as only an extraordinary phenomenon by respondents because this does not clearly imply that miracle is caused by God. The results of research indicate that among students of medical universities reductionism and naturalistic thinking do not dominate but the approach open for mystery and transcendence. We came to a conclusion that students believing in miracles almost in 95% of cases do not feel an inner conflict between science and religion in opposition to students disbelieving in

miracles who in 30% of cases claimed that scientific knowledge excludes faith. It would be interesting to examine in what way students reconcile scientific knowledge and faith. In an attempt to solve this problem three hypotheses should be taken into consideration: the first one deals with division into two levels of reality, the second one involves a conscious acceptance of some logical discrepancies in the outlook on life; the third hypothesis consists in accepting "the theory of two truths". However, the method employed in our investigation does not allow to solve this problem completely.

The belief in miracles proved to be an important factor differentiating views on the analysed problems. It was not surprising in the case of the relation between faith and science or bioethical issues such as: abortion, euthanasia and *in vitro* fertilization. What surprised us was the lack of differences in relation to contraception. This could be caused by the way of asking the questions. Undoubtedly, it is worth mentioning that only less than 17% respondents declared willingness to perform euthanasia and about half of students would accept *in vitro* fertilization.

The findings show the correlation between the intensity of religious practices and belief in miracles. It results from the fact that an intensive religious life is connected with the conviction about God's presence in human life and God's care for the world. It should be highlighted that the religiosity of students (measured according to the frequency of attending community religious practices) is higher than national average (average in Poland – 46.9%, average in Catholic Archdiocese of Lublin – 42.3%, (13); average for our students – 59.6%). A few methodological discrepancies between our research and the research conducted by The Institute of Statistics of Catholic Church (smaller diversification of possible answers in our research) results in lowering the number of students who attend religious practices by a few percent. Despite this problem we ought to accept that the students' intensive religiosity is slightly higher than the national average. Perhaps witnessing death and suffering of patient results in the need to search for answers to existential problems and consequently leads to a religious involvement. It is worth noticing that on the basis of similar research conducted in other countries the religiosity of medical doctors is less intensive than that of their patients (11).

We discovered an essential correlation between the belief in miracles and the place of birth and sex. It may result from high level of religiosity in the country and higher intensity of religiosity among women (13). It seems that the belief in miracles and views on basic bioethical issues are the main factors of the outlook on life which involves: intensive religiosity, respect for natural pace of human life (from birth to natural death) and consciousness of God's presence in everyday life.

Our research has certain limitations. It was only conducted in three groups of students from the same university and it refers to first-year and third-year students. It seems to be equally important to examine how the belief in miracles influences doctors' decisions concerning the process of treatment. Our findings suggest the possibility of this relation.

CONCLUSIONS

1. Almost 70% of medical students believe in miracles.
2. The belief in miracles correlates with declared intensity of religiosity, the place of birth and the sex.
3. The belief in miracles is related to declared views on basic bioethical issues such as: abortion, euthanasia and *in vitro* fertilization, but not with views on contraception.
4. Most of the students state that scientific knowledge and religious faith do not exclude each other.
5. The research on the belief in miracles among doctors should be conducted and especially the issue how the belief in miracles influences doctors' decisions concerning the process of treatment.

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SUMMARY

The influence of religious beliefs on doctor's professional life is important with regard to issues concerning the beginning of human life (e.g. methods of contraception), its end (abortion, euthanasia, persistent therapy) and also in making everyday diagnostic and therapeutic decisions. One of the phenomena which belong to the field of faith, but still remaining interesting to science (mainly medicine) is a miracle. The aim of the study was to examine whether the students of medical universities believe in miracles and whether opinions on this matter correlate with declared religiosity, bioethical convictions and basic sociometric rates. In our research we have tried to make an attempt to find out whether the students experience conflict between scientific knowledge and faith. The research was performed on the group of 354 students on the basis of a questionnaire specially designed for this work with half open questions. A miracle was defined as a supernatural phenomenon caused directly by God. Almost 70% of medical students believe in miracles. The belief in miracles correlates with declared intensity of religiosity, the place of birth and sex. The belief in miracles is related to declared views on basic bioethical issues such as: abortion, euthanasia and *in vitro* fertilisation. Most of the students state that scientific knowledge and religious faith do not exclude each other.

Wiara w cuda wśród studentów medycyny

Wpływ przekonań religijnych na życie zawodowe lekarza jest istotny z punktu widzenia problemów związanych zarówno z początkiem ludzkiego życia (np. oceną metod antykoncepcji), jak i jego końcem (problem aborcji, eutanazji, uporczywej terapii), a także w podejmowaniu codziennych decyzji diagnostycznych i terapeutycznych. Zjawiskiem, które należy do sfery wiary, pozostając jednocześnie przedmiotem zainteresowania nauki (głównie medycyny), jest cud. Celem badania było określenie, czy studenci medycyny wierzą w cuda i czy opinie na ten temat korelują z deklarowaną religijnością, przekonaniem bioetycznymi oraz podstawowymi danymi socjometrycznymi. W badaniu podjęliśmy próbę oceny, czy studenci doświadczają konfliktu między wiedzą naukową i wiarą. Badanie zostało przeprowadzone w grupie 354 studentów na podstawie kwestionariusza własnej konstrukcji z pytaniami półotwartymi. Cud został zdefiniowany jako zjawisko nadprzyrodzone powodowane bezpośrednio przez Boga. Prawie 70% studentów medycyny wierzy w cuda. Wiara w cuda koreluje ze zadeklarowaną intensywnością religijności, miejscem urodzenia oraz płcią. Wiara w cuda jest zależna również od zadeklarowanych przez respondentów poglądów na podstawowe kwestie bioetyczne, takie jak: problem aborcji, eutanazji oraz zapłodnienia *in vitro*. Większość studentów uważa, że wiedza naukowa i wiara religijna nie wykluczają się.