

# Influence of social competence of physicians on patient compliance with osteoporosis medications – a study on Polish postmenopausal women

Wpływ kompetencji społecznych lekarzy na stosowanie się do zaleceń lekarskich przez pacjentów przyjmujących leki na osteoporozę – badanie na grupie Polek po menopauzie

Bryl Nadia<sup>1</sup>, Horst-Sikorska Wanda<sup>1</sup>, Ignaszak-Szczepaniak Magdalena<sup>1</sup>, Marcinkowska Michalina<sup>1</sup>, Michalak Michał<sup>2</sup>, Sewerynek Ewa<sup>3</sup>

<sup>1</sup> Department of Family Medicine, Poznan University of Medical Sciences, Poland

<sup>2</sup> Department of Statistics, Poznan University of Medical Sciences, Poland

<sup>3</sup> Lodz University of Medical Sciences, Poland

## Abstract

**Objective:** The aim of the study was to examine the impact of social competence of physicians on the effectiveness of patient compliance and persistence with therapy.

**Material and methods:** The study included physicians and their patients, previously diagnosed with osteoporosis, and eligible to receive pharmacological treatment. The physicians were evaluated with the Social Competence Questionnaire involving three dimensions: social exposure, intimacy and assertiveness, as well as in the combined scale. All patients in the study group were prescribed the same medication: alendronate once a week. Compliance and persistence of the patients were juxtaposed with social interaction skills of physicians during 7 scheduled appointments at 2-month intervals.

**Results:** Doctor's effectiveness in situations demanding close interpersonal contact was higher in the group with good compliance - group A ( $p < 0.001$ ), as well as in the situations of social exposure, ( $p < 0.001$ ). On the other hand, their assertiveness was higher in the group with poor compliance – group B ( $p < 0.001$ ). Co-morbid conditions (group A: 76%, group B: 74%), as well as earlier fractures (40.43% vs. 36.78%) were comparable in both groups. Disease acceptance and suggested methods of treatment were more often accepted by patients from group A than group B (56% vs. 33%, respectively).

### Conclusions:

1. Disease acceptance is essential for effective treatment.
2. Social skills of physicians influence patient adherence to therapy recommendations.
3. Close interpersonal contact between physicians and their patients eliminates the feeling of fear and increases patient compliance.

Key words: **osteoporosis / patient adherence / doctor-patient relations / communication /**

### Corresponding author:

Michalina Marcinkowska  
Poznan University of Medical Sciences, Department of Family Medicine  
tel./fax: +48 618691143  
e-mail: mmarcin@ump.edu.pl

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## Streszczenie

Intencją autorów było zbadanie wpływu kompetencji społecznych lekarza na wytrwałość pacjenta w leczeniu oraz poziom stosowania się chorego do zaleceń lekarskich.

**Materiał i metody:** Projekt badania zakładał udział lekarzy oraz pacjentów, z uprzednio zdiagnozowaną osteoporozą, bez przeciwwskazań do farmakologicznego leczenia osteoporozy. Poziom kompetencji społecznych lekarzy oceniono przy użyciu Kwestionariusza Kompetencji Społecznych (KKS), w 3 wymiarach: Intymność, Ekspozycja Społeczna, Asertywność oraz w Skali Łącznej. Wszyscy pacjenci otrzymali receptę na ten sam lek- alendronian przyjmowany raz w tygodniu. Poprawność stosowania się do zaleceń i wytrwałość w terapii analizowano względem poziomu kompetencji społecznych lekarzy, podczas 7 wizyt pacjentów w dwumiesięcznych odstępach.

**Wyniki:** Efektywność działań lekarzy w sytuacjach wymagających bliskiego interpersonalnego kontaktu była wyższa w grupie A- pacjentów dobrze współpracujących ( $p < 0,001$ ), podobnie jak w sytuacji oceny społecznej ( $p < 0,001$ ). Z drugiej strony, wyższą asertywność lekarzy obserwowano w grupie o gorszej współpracy- grupa B. Współwystępowanie chorób przewlekłych było porównywalne w obu grupach (A 76% vs B 74%), podobnie jak wcześniejsze złamania (40,43% vs 36,78%). Grupa A częściej akceptowała chorobę i proponowane metody leczenia (56% vs 33%).

### Wnioski:

1. Akceptacja choroby i metod leczenia jest niezwykle istotnym elementem decydującym o efektywności leczenia.
2. Silna dyrektywność lekarza zmniejsza wytrwałość pacjenta w leczeniu chorób przewlekłych.
3. Umiejętność nawiązania bliskiego kontaktu z chorym pozwala w dużej części wyeliminować obawy związane z chorobą, podnosi zaufanie do lekarza, a tym samym pozytywnie wpływa na stosowanie się pacjenta do zaleceń.

Słowa kluczowe: **osteoporoza / przestrzeganie zaleceń / współpraca lekarz - pacjent / komunikacja /**

## Introduction

Osteoporosis affects 30% of the European population of women over the age of 50 [1]. Hip fractures increase mortality rates up to 20% [2]. The estimated number of osteoporotic fractures in the world will increase up to 6.26 million cases by the year 2050 [3]. In Europe, osteoporosis brings more women to hospital care than other commonly observed diseases, such as myocardial infarction or breast cancer [4, 5]. Osteoporosis requires a long-term and systematic therapy. Its prevention, early identification and effective treatment are important goals for health care systems. According to the results of various studies, poor patient compliance with the recommended therapy is often the base of therapeutic failures [6, 7, 8]. Approximately 60-80% of patients withdraw from therapy before the end of the first year [9, 10]. In case of osteoporosis, similarly to other chronic diseases, it is difficult to motivate patients to observe therapeutic regimes over longer periods of time [10, 11]. On the other hand, research on the actual collaboration between physicians and patients clearly indicates insufficient efforts of the former to increase the motivation of the latter.

The effectiveness of the treatment depends on proper diagnosis, availability of medical agents and successful collaboration between physicians and their patients [12, 13]. The longer the therapy, the greater changes in the lifestyle of patients are required [14]. Osteoporosis affects mainly elderly people with concomitant diseases. Treatment failure worsens the prognosis, decreases the quality and length of life, creating a serious burden for state budgets. Osteoporotic fractures increase the risk of death on average by 60% in women and 78% in men (a 5-year risk in the studied population over 60 years of age) [15].

## Objectives

The study aimed to evaluate the effects of physician social competence on the level of patient compliance with pharmacological recommendations of the osteoporosis treatment.

## Material and methods

### Study population

The study was performed in Poland during the years 2007-2008. The study protocol was approved by the Bioethical Committee of the Poznań University of Medical Sciences. A group of 72 physicians from 5 medical centres (Poznań, Łódź, Wrocław, Gdańsk, Kraków) took part in the study. Their initial task was to select a random sample of 10-30 patients with diagnosed postmenopausal osteoporosis. The final number of physicians participating in the study was 42 and of patients was 656. Written informed consent was obtained from all participants.

### Study design

The Study Protocol assumed there would be seven (7) scheduled appointments at 2-month intervals. Following the guidelines of the International Osteoporosis Foundation (IOF), patients with postmenopausal osteoporosis were recommended either pharmacological or non-pharmacological treatment. Patients eligible for pharmacological treatment and without any contraindications to bisphosphonate therapy were enrolled into the study. During the first appointment, demographic data were collected, including age, education, place of residence (rural area, town, city) and concomitant diseases. Also, patients were educated about osteoporosis and treatment methods. During the last appointment, physicians subjectively assessed the level of patient knowledge about osteoporosis, treatment methods and enquired about the treatment convenience.

During each appointment, the patients were examined and prescriptions for the recommended drug were dispensed. Drug intake was monitored by collecting empty packaging units. Physicians were trained to evaluate patient approach to the treatment (understanding, acceptance, fear, non-compliance). Alendronate (70 mg), a medical agent selected for the therapeutic program, is an effective first-line drug in the treatment of postmenopausal osteoporosis (following the standards of IOF and the guidelines for the therapy of osteoporosis in Poland). Administration of same drug to all patients allowed for standardization of the study conditions. Alendronate is a reimbursed medication, thus the risk of rejecting the drug due to its cost was low. Thanks to all the abovementioned factors, the therapy with alendronate (administered once a week) minimized the secondary factors and allowed us to focus the attention on the aspects of doctor-patient collaboration.

The study assumption was that, depending on the number of the attended appointments and the use of the prescribed drug, the patients would be divided into 2 groups: A – good compliance (drug intake for more than 9 months) and B – poor compliance (drug intake for less than 9 months). That division was based on literature data, indicating that positive effects of osteoporosis treatment may be expected, when medical agent is received for at least 60% of the recommended treatment duration [16]. The level of patient competence and practice duration of their physicians were analysed. Patient perseverance in treatment was evaluated vs. the social competence and practice duration of their doctors.

The social competence of physicians was measured by the Social Competence Questionnaire [17], a Polish standardised inventory in 3 dimensions: the skill of effective coping with situations which require close, interpersonal contact (Intimacy), the ability to deal effectively with situations of social evaluation (Social Exposure), and the ability to cope with assertiveness-demanding situations (Assertiveness), as well as in the combined scale.

The dimension of Intimacy concerns contacts with patients, showing understanding and empathy toward their anxieties, as well as tolerance for their impatience with therapeutic effects. The dimension of Social Exposure represents coping with situations of being the centre of potential criticism from the environment. Assertiveness means the ability to achieve goals by means of persuasion and the skill to resist the influence of others. Score level criteria of the results, following the standards of the Social Competence Questionnaire, are displayed in Table 2.

The level of assertiveness, measured by the Social Competence Questionnaire, correlates with dominance, which may decrease the effectiveness of physician collaboration with patients receiving treatment for chronic diseases. Physicians who participated in the programme received financial remuneration.

### Statistical analysis

The analysed data were derived from ordinal and nominal measurement scale. Two unpaired groups in the ordinal scale were compared with the Mann-Whitney test, while the Kruskal-Wallis test was applied if more than two groups were analysed. In the event when the latter test showed significant differences between the analysed groups, an additional analysis was performed, based on the post-hoc test (Dunn's test) in order to determine homogenous groups. The strength of the relationship between two variables was measured by Spearman's correlation coefficient and its significance was verified by t-student test. Data from the nominal scale were analysed by the Chi-square test of independence or Fisher's exact test. For contingency tables above 2x2 with zero or very low observed frequencies, Fisher-Freeman-Halton test was performed. Statistical analysis was performed with Statistica 8.0 (StatSoft) and StatXact 3.0 (Cytel Software Corporation) statistical software packages. All the tests were analysed at significance level of  $\alpha=0.05$ .

### Results

The number of patients in group A was 576 vs. 88 in group B. The age of the patients was 48-89 years (mean: 68 years). 60% of the patients lived in cities with population above 500.000, 20% in towns below 500.000 and 20% in rural areas. Patient education was: primary: 20%, secondary: 60%, post-secondary: 20%. Analysis of patient age, education and place of residence did not reveal any intergroup differences.

In 36% of the patients, osteoporosis was diagnosed 2-5 years before the onset of the program. Earlier, low-energy fractures were reported by 40% of the patients, chronic diseases occurred in 75% of cases. There were no statistically significant differences in the prevalence of chronic diseases (group A: 76% vs. group B: 74%) or low-energy fractures before enrolment in the study (group A: 40.43% vs. group B: 36.78%).

Patient level of attendance at scheduled appointments was 85%, while drug intake varied from 95.8% to 86.1%. The exact results are presented in Table I.

**Table I.** Medicine intake at particular appointments.

Appointment / ID	I	II	III	IV	V	VI	VII
Number of attending patients	656 100%	633	612	608	604	587	595
Number/% of patients reporting alendronate intake	-	629 95.8%	603 91.9%	601 91.6%	587 89.5%	566 86.3%	565 86.1%
Number of patients reporting drug intake discontinuation	-	11	21	17	19	25	20

**Table II.** Intergroup differences with regard to analysed variables.

Variables	A- group with good compliance (n=567)	SD	B- group with poor compliance (n=88)	SD	p level
<b>Social competence of physicians:</b>	(mean score values)		(mean score values)		
Intimacy (L:<38, M:39-49, H:>50)	50.80	7.82	46.53	8.72	<0.001
Social exposure (L:<42, M:43-61, H:>62)	55.98	8.79	51.10	8.77	<0.001
Assertiveness (L:<39, M:40-55, H:>56)	46.66	7.62	49.80	7.99	<0.001
Combined scale (L:<150, M:151-197, H:>198)	186.23	19.35	191.17	21.43	NS
<b>Patient emotional approach:</b>					
Fear	21.36%	-	9.09%	-	NS
Acceptance	55.91%		33.33%		0.01
<b>Patient cognitive approach:</b>					
Understanding of disease	58.71%	-	72.73%	-	NS
<b>Concomitant chronic diseases</b>	76%	-	74%	-	NS
<b>History of fractures</b>	40.43%	-	36.78%	-	NS

L – low, M – moderate, H – high  
NS – not significant

Disease understanding and acceptance were observed in 50% of patients, fear in 19%. No differences were noted in the frequency of reporting fear and understanding, while disease acceptance was more often expressed by patients in group A (56% vs. 33% p=0.01). More extensive knowledge about osteoporosis and treatment methods was observed in 75% of the patients, while 56% regarded the therapy as convenient.

The length of physician practice varied between 1.5 and 42 years (the mean values were: 21 years in group A was and 20 years in group B). The differences in particular groups were not statistically significant. Close interpersonal contact competence was high in physicians from group A (p<0.001). Competence levels in the situations of social exposure were high in both groups (p<0.001). In turn, assertiveness of physicians was significantly higher in group B (p<0.001). However, in both cases the results were within the average range of values. Table 2 presents selected intergroup differences.

Assertiveness was negatively correlated with compliance level (p<0.001). Statistical analysis indicated a relationship between the level of social competence of physicians and patient disease acceptance. Patients more often accepted their disease and treatment if their physicians obtained high scores in the Social Competence Questionnaire (p=0.0001). The results of the combined scale of the Social Competence Questionnaire were correlated with the level of patient compliance with recommendations of physicians. The result of the correlation was statistically significant (p=0.029). When physician competence regarding close emotional contact was high, only 15% of the patients revealed symptoms of fear of disease and treatment, in comparison to 40% of the patients, if the competence of the physician was low. Results of the correlation are presented in Table III.

**Table III.** Results of correlation between physician social skills and patient compliance.

Variables	correlation	P level
<b>Combined Scale/compliance</b>	0.09	<0.05
<b>Intimacy/ compliance</b>	0.2	<0.001
<b>Social Exposure /compliance</b>	0.19	<0.001
<b>Assertiveness/compliance</b>	-0.16	<0.001

## Discussion

Physicians often try to justify selecting the biomedical consultation model by the growing number of patients and limitations of the health system organisation [18]. Their attention and interest are mainly focused on the medical parameters, what is an unsatisfactory approach for long-term therapy outcomes [19]. According to the results of extensive studies on European populations, there are at least two deficiency areas in doctor-patient collaboration, namely communication and relations [8]. Considering the relationship between social competence of physicians and the level of patient compliance with recommendations, we focused our attention on the skills of the physicians in relation to patients.

A significant number of physicians withdrew from the program, justifying their decision with excess of duties, resulting from the frequency of patient appointments (specified in the program schedule), and problems with enrolling the required number of patients into the study. The appointments were

scheduled more frequently than anticipated by the National Healthcare Fund for patients with osteoporosis and more time was dedicated to an individual patient during each appointment. Also, a certain amount of time was needed to complete the required study documentation. Therefore, not everyone was willing to undertake such efforts. We assumed that physicians who declared their participation in the study were better prepared to work within the model.

Persistence with therapy and patient compliance with doctor's recommendations were significantly higher than in the available literature data. According to the assumptions presented in the theoretical part of the paper, 80%-compliance might be expected, whereas in our study, the compliance level varied between 95.8% and 86.1%. Such high score was also noted in a comparable study (comparing patient compliance with the use of various drugs for osteoporosis), performed in the Czech Republic in 2004. Their result was 93% for bisphosphonate, taken once a week [10]. The study relied upon the principle of 'self-reporting', what means that physicians verified drug use by means of oral reports from their patients. A study like ours, unlike the ones based on laboratory monitoring of medical parameters (e.g., drug concentration in blood), is burdened with higher possibility of measurement errors. Presumably, physicians or their patients could have overestimated or inaccurately calculated the number of the received tablets. Still, it seems fair to assume that the collection of empty packaging units was a fairly reliable method of verification.

Our results reflect the relationship between physician competence and patient behavior in the course of therapy. The ability to establish a close contact with patients is very helpful in reducing their fear, ensures better understanding and acceptance of disease and therapy [18,20,21,22]. Literature data from studies on doctor-patient relation provide information on the role of assertiveness, which is regarded as one of the major competence aspects in communication with patients. Assertive behavior is also helpful for physicians with regard to the aspect of safety and in establishing the boundaries in relations with patients. However, high level of assertiveness demonstrated by physicians may be perceived as overbearing and, in consequence, diminish the quality of the doctor-patient relations in a long-term therapy [19,23,24]. The results, as presented in our paper, indicate that the more assertive the doctor in contacts with the patient, the more frequently non-compliance and withdrawal from therapy are observed. Therefore, such behavior of the patient may be perceived as a form of resistance against the directive approach of the doctor [25,26].

The role of patient fear and disease acceptance in the therapeutic process should be emphasized. According to Selye's concept of perceiving a disease as 'stressor', patients who do not experience sufficient tension will not have enough motivation to undertake health improvement actions [27]. In turn, excessive fear triggers protective mechanisms to maintain a positive image of oneself and the situation, what often results in a total withdrawal from contact with the physician and avoidance of disease-related topics [25,27]. In our study, high level of social competence with regard to close emotional contact, reduced patient fear and, in consequence, positively influenced their willingness to comply with therapeutic recommendations. We assume that a similar trend can be observed in the general population.

Although many physicians declare systematic efforts undertaken to inform, motivate and monitor patient activities, the patients still frequently report lack of knowledge about basic treatment principles. According to some physicians [8], one of the reasons for patient withdrawal from therapy is their 'lack of understanding'. It is a fairly interesting observation, as studies on patient compliance with osteoporosis therapy report that, out of 85% of the physicians whose patients interrupted the therapy, 71% had no knowledge about the reason of such a decision. The same study also demonstrates that 39% of patients who considered withdrawal from therapy, eventually decided to continue with it, provided they had been given an opportunity to discuss their doubts and/or fears with their doctor before treatment commencement. Unfortunately, 12% of patients in the same group admitted that their physician, having heard about treatment discontinuation, did not offer to them any counseling [8]. Clearly, a possibility to confront and discuss patient doubts is an important element of effective collaboration, whereas lack of knowledge and understanding of disease and treatment principles give rise to false assumptions, impairing patient compliance with therapeutic recommendations and compromising therapy duration [19,25,26]. Our results clearly indicate that doctor-patient understanding is helpful in building disease acceptance and developing the spirit of collaboration. Acceptance is, in turn, the key element of compliance and effective collaboration.

## Conclusions

1. Disease acceptance is essential for effective treatment.
2. Social skills of physicians influence patient adherence to therapy recommendations.
3. Close interpersonal contact between physicians and their patients eliminates the feeling of fear and increases patient compliance.

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V

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**Obdukcja i postępowanie z dzieckiem  
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**Współpraca z Komendą Główną Policji  
i psychologiem policyjnym**

# Częstość występowania wad macicy i ich wpływ na płodność

## Prevalence of uterine malformations and their impact on fertility

Gruszka Monika<sup>1</sup>, Wilczyński Jan<sup>2</sup>, Nowakowska Dorota<sup>2</sup>

<sup>1</sup> Studenckie Koło Naukowe przy Klinice Medycyny Matczyno-Płodowej i Ginekologii, III Katedry Położnictwa i Ginekologii Uniwersytetu Medycznego (UM) w Łodzi, Polska

<sup>2</sup> Klinika Medycyny Matczyno-Płodowej i Ginekologii Instytutu Centrum Zdrowia Matki Polki w Łodzi, Polska

### Streszczenie

**Cel pracy:** Wady macicy należą do najczęstszych wrodzonych nieprawidłowości w obrębie żeńskiego układu rozrodczego. Ich częstość w populacji ogólnej wynosi 2-4%. Występowanie wady macicy prowadzi do upośledzenia płodności kobiety oraz wielu powikłań położniczych takich jak zagrażający poród przedwczesny, miednicowe i poprzeczne położenie płodu, przedwczesne odpływanie płynu owodniowego, wewnątrzmaciczne ograniczenie wzrostu, zagrażające pęknięcie mięśnia macicy, poród operacyjny. Celem pracy było przeanalizowanie wpływu poszczególnych wad macicy na płodność kobiety.

**Materiał i metody:** Badaniem objęto 124 kobiety z wadami macicy hospitalizowanych w Klinice Medycyny Matczyno-Płodowej i Ginekologii Instytutu Centrum Zdrowia Matki Polki w Łodzi w latach 1994-2007. Pacjentki podzielono na sześć grup na podstawie rodzaju rozpoznanej wady.

**Wyniki:** W naszym badaniu najczęściej występującym defektem była macica dwurożna, diagnozowana w 46,7% przypadków. Najgorsze rokowanie położnicze występuje wśród pacjentek z macicą z przegrodą. Wśród tych kobiet dochodzi do największej liczby poronień oraz występowania zaburzeń płodności. Jednocześnie istnieją pozytywne dane co do leczenia tego rodzaju defektu.

**Wnioski:** Wskazane jest poszerzenie diagnostyki wad macicy, zwłaszcza u kobiet z zaburzeniami płodności, bowiem wczesne rozpoznanie i wdrożenie odpowiedniego leczenia pozwala na uzyskanie zadowolających rezultatów położniczych.

Słowa kluczowe: **wady macicy / nieplodność / ciąża /**

### Corresponding author:

Dorota Nowakowska  
Klinika Medycyny Matczyno-Płodowej i Ginekologii,  
Instytut Centrum Zdrowia Matki Polki  
Polska, 93-338 Łódź Rzgowska 281/289,  
tel: 042 271 13 05, fax: 042 271 14 71  
e-mail: dnowakowska@yahoo.com

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