Report

The Practa intervention's outcomes and practical implications

Content

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I. The aim of the report

The objective of this report is to present the main outcomes of the PRACTA interventions observed in the groups of GPs and senior patients. To this aim, the method adopted in the PRACTA project will be described first: the study design, the PRACTA intervention and flow of participation in the study.

Next, characteristics of participating GPs and patients will be presented, including differences between study groups.

The analysis of effects of the PRACTA intervention in the group of GPs encompasses: changes in GPs' perception of seniors' medical appointment-related expectations, changes in self-assessed GPs' communication skills, changes in GPs' perception of seniors' attitude toward treatment and health.

The analyses of effects of the PRACTA intervention in the group of seniors encompasses changes in their attitude toward treatment and health as reported by seniors themselves.

II. Description of the method adopted in the PRACTA study

1. The study design

The PRACTA study consisted of GPs' baseline questionnaire examination (Time 1), implementation of intervention (available for three months) and GPs' follow-up examination (Time 2, took place a month after the intervention) (Diagram 1).

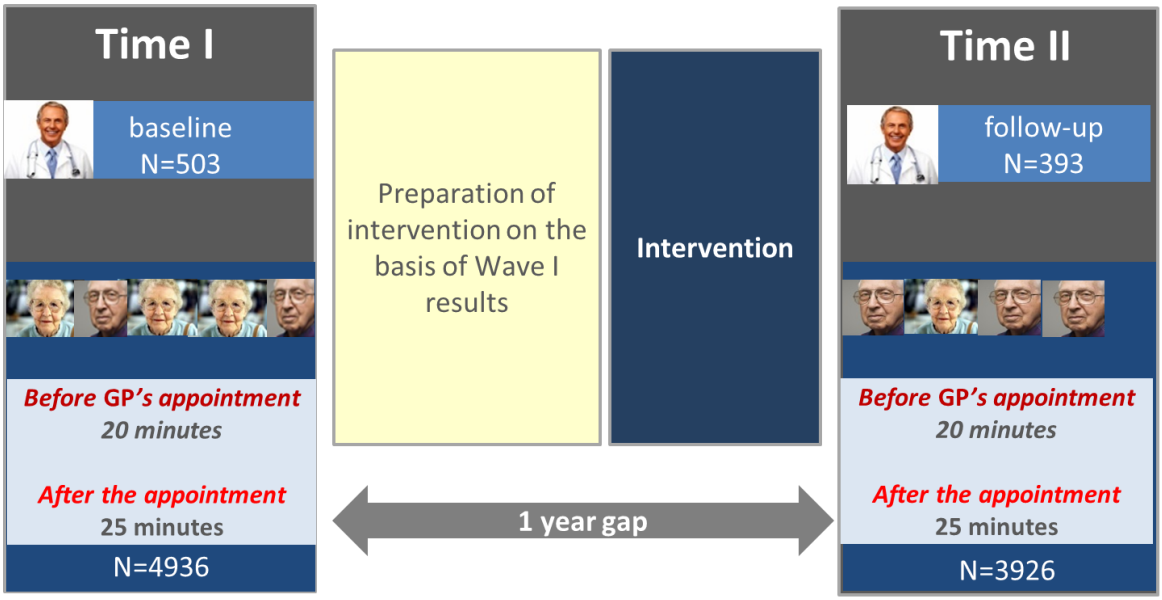

Diagram 1. The PRACTA study design

The procedure of recruitment comprised two stages: recruitment of facilities (approval of facility management determined to obtain permission to recruit the GPs) and recruitment of GPs working in such facilities.

The following inclusion criteria for facilities were considered: delivering primary care, having a contract with the National Health Fund (patients did not pay for services out of their private funds) and the location in central Poland (slightly wealthier part of the country including both urban and rural areas).

The inclusion criteria for doctors were as follows: working in a facility recruited for the study, delivering primary care and signing a written consent to participate in all parts of the project.

The procedure guaranteed depersonalized character of data collection, and every GP was instructed on how to create an individual code that enabled matching scores from Time 1 and Time 2.

2. The PRACTA intervention

The PRACTA intervention has been developed in two forms. First, e-learning was prepared and then, based on its content, a pdf-article was created. Both forms included five modules that were identically themed and presented in the same order; they were different, however, in their range, volume and teaching approaches to present both knowledge and skills.

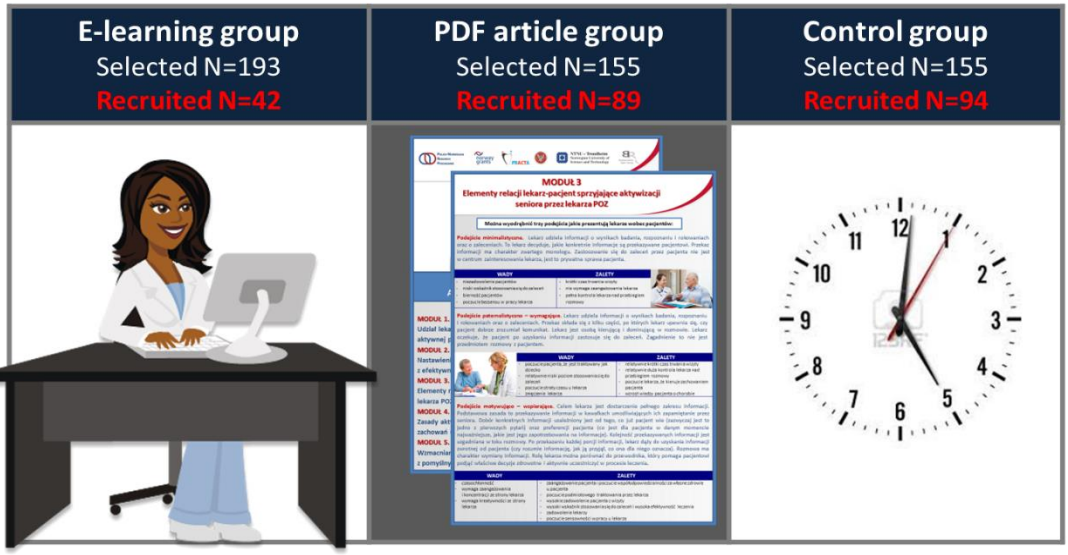

Diagram 2. Type of the PRACTA intervention and assignment of GPs to the study groups

E-learning was designed to be a game in which participating players choose their character (female/male) and then receive specific task-missions to complete. It included various multimedia which allowed for demonstration of specific practical solutions and for modelling communication and seniors' activation skills. One module took about one hour. In order to join e-learning, each participant was given a personal login and password and an USB flash drive with the information about time to access and rules of conduct.

The pdf-article intervention took a form of a text with concise information, divided in small sections, structured visually with simple pictures and figures (all images used in pdf version were extracted from e-learning). Information presented in the pdf-article had a form of a summary of e-learning content and included a general description of solutions and techniques. Each pdf-article module had a length of 3 pages of A4 size paper. In order to join this form of intervention, each participant was given an USB flash drive with the article in pdf format.

3. GPs' participation in the study

Data was collected in 151 (20%) of the 767 invited health care facilities delivering primary health care, having a contract with the National Health Fund and located in central Poland.

The facilities were randomly assigned to three groups: e-learning, pdf-article and control (random assignment of facilities was employed only to ensure that all GPs working in the facility had access exclusively to one type of intervention).

Out of 996 invited GPs, 503 (50%) agreed to participate in the Time 1 assessment.

At Time 2, there was a 78% response rate but in 24 cases a missing or wrong individual code made matching scores from both measurements impossible (these cases were considered as a dropout).

Figure 1 presents a flow chart of GPs' participation in consecutive stages of the project.

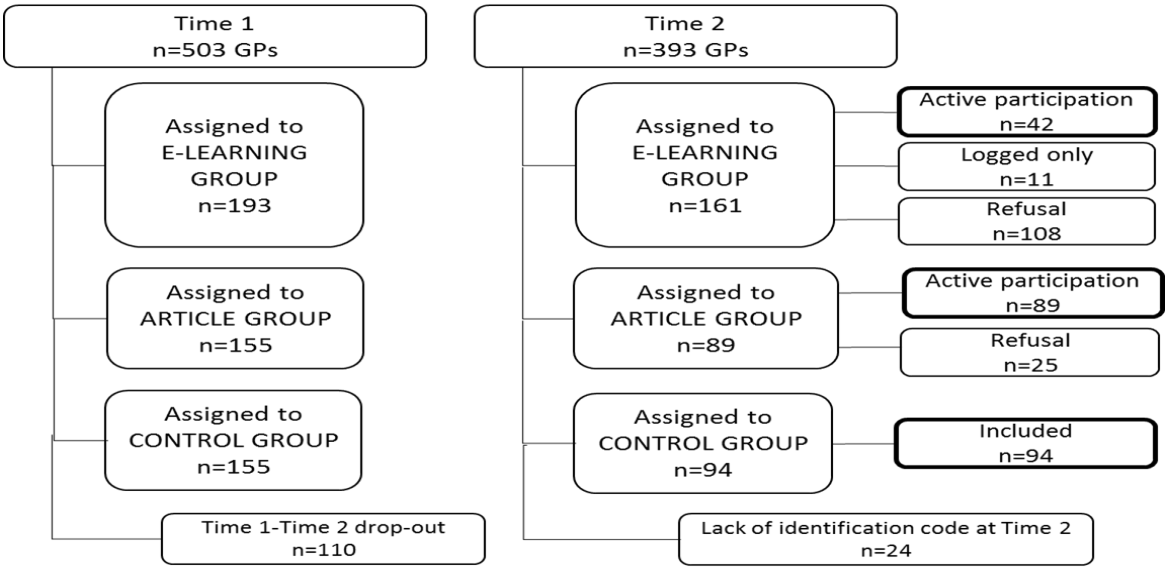

Figure 1. Flow chart of GPs' participation in PRACTA study

The final study sample consisted of 225 GPs: 42 actively taking part in e-learning (logged in and received points in at least one test), 89 actively participating in the pdf- article intervention (filling out the form with questions regarding the pdf-article that was an indicator of active participation), and 94 constituting the control group (participating in Time 1 and Time 2 surveys without any intervention at this time).

III. Characteristic of doctors depending on the study group

Table 1 presents descriptive statistics regarding factors describing facilities of GPs' participating in three study groups.

Table 1. Descriptive statistics of GPs' participating in the study - factors describing facilities

Characteristic		E-learning (n=42)	Pdf-article (n=89)	Control (n=94)	Test of differences
Location (no. of inhabitants) / n (%)					
	Less than 100 000	13 (35.1)	27 (33.3)	26 (39.1)	χ^2_4=27.37; *P*<.001
	More than 100 000	3 (8.1)	27 (33.3)	42 (45.7)	
	Capital	21 (56.8)	27 (33.3)	14 (15.2)	
Organizational form of facility / n (%)					
	State owned	14 (36.8)	53 (59.6)	65 (69.1)	χ^2_2=11.74; *P*=.003
	Privately owned	24 (63.2)	36 (40.4)	29 (30.9)	
Visits system[b] / n (%)					
	Numbers	2 (5.3)	20 (22.5)	22 (24.2)	χ^2_4=11.69; *P*=.02
	Scheduled time	32 (84.2)	49 (55.0)	56 (61.5)	
	Order of coming	4 (10.5)	20 (22.5)	13 (14.3)	
Average time of visit / n (%)					
	Less than 15 min	17 (48.6)	27 (31.4)	22 (25.6)	χ^2_2=6.07; *P*=.048
	More than 15 min	18 (51.4)	59 (68.6)	64 (74.4)	
Average number of patients per GP in facility/ M (SD)					
		1444 (425)	1681 (672)	1754 (791)	B-$F_{2,215}$[a]=3.33; *P*=.04
Number of doctors working in facility / M (SD)					
		5.45 (3.12)	4.79 (2.93)	5.41 (3.38)	$F_{2,218}$=1.08; *P*=.34

[a] B-F - Brown-Forsythe test

Analyzed groups differed in respect of some features of facilities. In the e-learning group there were more doctors working in privately owned facilities and in facilities where times of visits were scheduled individually for every patient. In the e-learning group there were less doctors working in facilities located in bigger towns (more than 100 000 residents) and in those where the average single visit lasted longer than 15 minutes. Doctors in the e-learning group worked in facilities where the average number of patients assigned to a single doctor was significantly lower than in control group facilities.

Table 2 presents descriptive statistics regarding factors describing doctors of GPs' participating in three study groups. As for factors concerning the doctors, the total number

of working hours per week was significantly lower in the e-learning group than in the pdf-article group.

Table 2. Descriptive statistics of GPs' participating in the study - factors describing doctors

Characteristic		E-learning (n=42)	Pdf-article (n=89)	Control (n=94)	Test of differences
Age / M (SD)		49.56 (11.56)	49.44 (11.35)	50.39 (13.16)	$F_{2,218}$=.15; *P*=.86
Gender / n (%)					
	Female	36 (85.7)	62 (69.7)	62 (66)	χ^2_2=5.67; *P*=.06
	Male	6 (14.3)	27 (30.3)	32 (34)	
Marital status / n (%)					
	Single	4 (9.5)	12 (13.5)	8 (8.5)	χ^2_6=3.16; *P*=.79
	Married	33 (78.6)	65 (73)	77 (81.9)	
	Divorced/Widowed	5 (11.9)	12 (13.5)	9 (9.6)	
Seniority /M (SD)		23.90 (12.13)	23.57 (11.99)	23.87 (13.15)	$F_{2,220}$=.02; *P*=.98
Hours weekly in facility / M (SD)					
		33.89 (9.48)	32.72 (10.82)	31.34 (9.89)	$F_{2,219}$=.98; *P*=.38
Hours weekly – overall / M (SD)					
		39.53 (11.01)	45.36 (15.23)	41.54 (13.21)	$F_{2,219}$=3.07; *P*=.048
Training in geriatrics[a] / n (%)					
	None	28 (66.6)	49 (55.1)	49 (52.1)	χ^2_4=6.56; *P*=.16
	Single	12 (28.6)	30 (33.7)	27 (28.7)	
	Multiple	2 (4.8)	10 (11.2)	18 (13.2)	
Percentage of seniors [b] / n (%)					
	Up to 25%	3 (7.1)	14 (15.7)	10 (10.6)	χ^2_6=3.71; *P*=.72
	Between 25-50%	19 (45.3)	32 (36)	33 (35.1)	
	Between 50-75%	16 (38.1)	36 (40.4)	40 (42.6)	
	Above 75%	4 (9.5)	7 (7.9)	11 (11.7)	
Specialization / n (%)					
	Internal medicine	15 (36.6)	28 (33.7)	46 (54.8)	χ^2_6=11.05; *P*=.09
	Family medicine	15 (36.6)	32 (38.6)	24 (28.6)	
	Two specializations [c]	9 (22)	13 (15.7)	9 (10.6)	
	Others	2 (4.9)	10 (12)	5 (6)	

[a] training in geriatrics encompassed any form of a postgraduate course

[b] GPs' ratings of percentage of seniors (age 65+) among their patients last year;

[c] two specializations when at least one was internal medicine or family medicine.

IV. Characteristics of patients

1. Characteristics of patients at Time 1 by age group

The group of patients at Time 1 consisted of 5030 participants but due to missing data 4 921 (98%) of them were included in the further analyses. There were 1 595 patients who refused to participate (52.60% of women and 47.40% of man).

The inclusion criteria were: 1) age above 50, 2) being able to independently fill in questionnaires, 3) awaiting for a visit to a doctor recruited for the PRACTA study, 4) patient's written consent to participate. All participants were fully informed about the study's background, purpose, design, procedure, voluntary nature of participation and possibility to withdraw at any time.

The age of patients ranged from 50 to 98 (M=68,9; SD=9,1). For further analyses the group was stratified by age and four age groups were created:

1) the youngest group consisting of 1529 respondents aged 50-64 (M=58.24; SD=4.35);
2) young-old group consisting of 2011 respondents aged 65-74 (M=69.29; SD=2.75);
3) middle-old group consisting of 1180 respondents aged 75-84 (M=78.67; SD=2.68);
4) oldest-old group consisting of 201 respondents aged above 85 (M=87.58; SD=2.59).

Table 3 presents **socio-economic profile** of patients by age group.

Table 3. Socio-economic profile of patients by age group

	50-64 years (n=1529)	young- old 65-74 years (n=2011)	middle-old 75-84 years (n=1180)	oldest-old 85+ years (n=201)	Chi^2	Cramer's V
	n (%)	n (%)	n (%)	n (%)		
Gender						
Female	847 (55.4%)	1176 (58.5%)	723 (61.3%)	112 (55.7%)	10.05*	.05*
Male	682 (44.6%)	835 (41.5%)	457 (36.7%)	89 (44.3%)		
Marital status						
Single	82 (5.4%)	103 (5.1%)	46 (3.9%)	18 (9.0%)	617.58*	.35*
Marriage/partnership	1122 (73.4%)	1210 (60.2%)	458 (38.8%)	69 (34.3%)		
Divorced/separated	145 (9.5%)	144 (7.2%)	46 (3.9%)	12 (6.0%)		
Widowed	180 (11.8%)	554 (27.5%)	630 (53.4%)	102 (50.7%)		
Education level						
Primary	47 (3.1%)	155 (7.7%)	220 (18.6%)	53 (26.4%)	445.02*	.30*
Voccational	373 (24.4%)	679 (33.8%)	440 (37.3%)	76 (37.8%)		
Secondary	748 (48.9%)	868 (43.2%)	4120 (34.7%)	58 (28.9%)		
Higher	361 (23.6%)	309 (15.4%)	110 (9.3%)	14 (7.0%)		

Place of residence						
Rural area	181 (11.8%)	168 (8.4%)	127 (10.8%)	29 (14.4%)	115.20*	.15*
Small town	135 (8.8%)	90 (4.5%)	82 (6.9%)	9 (4.5%)		
Medium town	220 (14.4%)	243 (12.1%)	146 (12.6%)	14 (7.0%)		
Large town	993 (64.9%)	1510 (75.1%)	825 (69.9%)	149 (74.1%)		
Who do you live with? (Respondents were asked for to refer to all categories responding yes or no.)						
Alone	241 (15.8%)	530 (26.4%)	475 (40.3%)	51 (25.4%)	205.94*	.21*
Spouse/Partner	1121 (73.3%)	1220 (60.7%)	457 (38.7%)	67 (33.3%)	383.67*	.28*
Children	531 (34.7%)	385 (19.1%)	283 (24.0%)	61 (30.3%)	114.88*	.15*
Grandchildren	76 (5.0%)	153 (7.6%)	148 (12.5%)	30 (14.9%)	63.23*	.11*
Other memebers of the family	68 (4.4%)	90 (4.5%)	57 (4.8%)	16 (8.0%)	5.27	-
Others - nonmembers of the family	36 (2.4%)	25 (1.2%)	12 (1.0%)	5 (2.5%)	10.80**	.05*
Nursing home	4 (0.3%)	4 (0.2%)	6 (0.5%)	2 (1.0%)	5.19	-
Work status						
Working full time	657 (43.0%)	121 (6.0%)	8 (0.7%)	4 (2.0%)	1208.76*	.50*
Working part time	202 (13.2%)	185 (9.2%)	18 (1.5%)	3 (1.5%)	134.12*	.17*
Retired	398 (26.0%)	1523 (75.7%)	1027 (87.0%)	176 (87.6%)	1387.96*	.53*
Annouitant	298 (19.5%)	260 (12.9%)	130 (11.0%)	26 (12.9%)	46.63*	.10*
Unemployed	76 (5.0%)	17 (0.8%)	17 (1.4%)	0 (0%)	78.13*	.13*
Financial situation						
Poor	26 (1.7%)	64 (3.2%)	34 (2.9%)	8 (4.0%)	84.00*	.13*
Rather poor	208 (13.6%)	262 (22.2%)	262 (22.2%)	23 (11.4%)		
Average	865 (56.6%)	669 (56.7%)	669 (56.7%)	132 (65.7%)		
Rather good	361 (23.6%)	174 (14.7%)	174 (14.7%)	29 (14.4%)		
Good	69 (4.5%)	41 (3.5%)	41 (3.5%)	9 (4.5%)		

*p<.01 **p<.05

These four groups were not homogeneous in terms of gender and they differed in marital status with the number of widowed seniors increasing with age and decreasing of those who were married or in partner relationship. There were differences in education. With the age patients with primary education were more numerous, whereas the number of respondents with secondary and higher education decreased. Distribution of respondents' place of residence was also not equal since patients who lived in large town or city dominated in each age group.

There were also differences between groups when various categories of flat-sharing were analysed. Groups differed in numbers of participants living alone. The most patients living alone (40.3%) were in middle-old group. The groups differed also in terms of who lived with spouse or partner, lived with children, with grandchildren, as well as with non-family

members. With the age, lower percentages of patients who were living with spouse or partner were observed. In case of patients who lived with family members, there were not observed differences between analysed age groups. The most respondents who lived with family members were in the group of patients aged above 85. The groups differed also in terms of occupational status. The number of patients with full time, part time employment and unemployed decreased with the age. In contrast, number of patients who were retired increased with age. Differences were also found in numbers of annuitants, with the lowest percentages noted in middle-old group (11.0%). Differences in financial situation were also noted, indicating poor or average status increasing with the age.

Table 4 presents **health status of patients** at Time 1 by age group. Characteristic of health status of the sample included: evaluation of subjective health status, self-reported number of diseases, the use of health care within past 6 months and the aim of the current visit.

The groups differed in subjective health status (Chi^2=175.14, p<0.01; Eta-squared = 0.03). The number of patients declaring good health decreased whereas patients declaring poor health increased with age. We found analogous differences in self-reported number of diseases (Chi^2=251.61, p<0.01; Eta-squared = 0.05) which increased with age. The profiles of hospital care use in analysed age groups were different. With the age, higher frequencies of emergency use were observed (Chi^2=17.23, p<0.01; Cramer's v=0.06, p<0.01). There were also differences in hospital admissions for surgery or other procedures (Chi^2=19.91, p<0.01; Cramer's v =0.06, p<0.01). Patients 50-64 years reported the lowest percentage of such incidents (8.5%). Admissions for treatment or observation were most common among patients aged 75-84 (Chi^2=23.57, p<0.01; Cramer's v =0.07, p<0.01). The use of medical care, such as specialist's visits had lower rates in patients aged 50-64 than in other age groups (Chi^2=101.85, p<0.01; Cramer's v =0.14 p<0.01). The use of medical tests was more common in patients aged 75-84 (Chi^2=40.78, p<0.01; Cramer's v =0.09, p<0.01), but use of other GP's visits was more common in patients aged 65-75 (Chi^2=24.94, p<0.01; Cramer's v =0.07, p<0.01). No differences were found for sanatorium admissions (Chi^2=7.06, p>0.05).

The groups differed in the aims of the visit (Chi^2=22.78, p<0.01; Cramer's V=0.04; p<0.01). Formal reasons alone (e.g. a referral to a specialist or for the tests) regarded approx. 10% of visits and were less common than appointments concerning medical help (treatment, check-up, diagnosis) in all groups. However, the patients 50-64 years and oldest-old patients (85+)

reported formal reasons of encounter more often. Patients 75-84 years more often declared that their medical visits were concerning medical help (treatment, check-up, diagnosis).

Table 4. Health status of patients by age group

		50-64 years (n=1529)	young- old 65-74 years (n=2011)	middle-old 75-84 years (n=1180)	oldest-old 85+ years (n=201)
		n (%)	n (%)	n (%)	n (%)
How do you evaluate your health (in comparison with people of similar age)?	Very good	35 (2.3%)	37(1.8%)	22 (1.9%)	3 (1.5%)
	Good	497 (32.5%)	373 (18.5%)	191 (16.2%)	27 (13.4)
	Average	811 (53.0%)	1255 (62.4%)	718 (60.8%)	90 (44.8%)
	Poor	175 (11.4%)	307 (15.3%)	223 (18.9%)	75 (37.3%)
	Very poor	11 (0.7%)	39 (1.9%)	26 (2.2%)	6 (3.0%)
How many diseases have you had/ have you been currently treated for?	None	383 (25.0%)	158 (7.9%)	66 (5.6%)	6 (3.0%)
	1 disease	451 (29.5%)	686 (34.1%)	325 (27.5%)	45 (22.4%)
	2 or 3	485 (31.7%)	804 (40.0%)	497 (42.1%)	77 (38.3%)
	4-5 diseases	170 (11.1%)	291 (14.5%)	235 (19.9%)	45 (22.4%)
	6 or more diseases	40 (2.6%)	72 (3.6%)	57 (4.85)	28 (13.9%)
Have you attended within past 6 months: *	Emergency room	32 (2.1%)	82 (4.1%)	49 (4.2%)	13 (6.5%)
	Surgery or other procedure in hospital	130 (8.5%)	253 (12.6%)	157 (13.3%)	21 (10.4%)
	Treated or observed in a hospital	53 (3.5%)	120 (6.0%)	90 (7.6%)	9 (4.5%)
	Visited other general practitioner	388 (25.4%)	637 (31.7%)	292 (24.7%)	57 (28.4%)
	Visited a specialist	634 (41.5%)	1101 (54.7%)	698 (59.2%)	89 (44.3%)
	general medical tests (blood count ECG. etc.)	586 (38.3%)	878 (43.7%)	593 (50.3%)	77 (38.3%)
	Sanatorium	146 (9.5%)	157 (7.8%)	83 (7.0%)	13 (6.5%)

2. Characteristics of patients at Time 1 by study group

Table 5 shows **a comparison of selected demographic characteristics in three study groups**: e-learning, pdf-article, control.

Table 5. Characteristics of patients by study group

Feature	E-learning (n=397)	Article (n=877)	Control (n=901)	Pearson's Test of difference
Female/ n (%)	248 (56.9)	504 (56.0)	492 (54.6)	χ^2=0.71; p=0.70
Married/ n (%)	268 (61.5)	601 (66.8)	581 (64.5)	χ^2=7.23; p=0.3
Age <65 / n (%)	139 (31.9)	288 (32.0)	230 (25.5)	χ^2=12.76; p=0.012
Education - vocational or less/ n (%)	205 (46.1)	301 (33.5)	266 (29.5)	χ^2=93.42; p=0.000
Living alone/ n (%)	90 (20.6)	148 (16.4)	161 (17.9)	χ^2=8.96; p=0.18
working/ n (%)	92 (21.1)	262 (29.1)	209 (23.2)	χ^2=20.69; p=0.002
Medical aim of the visit / n (%)	384 (88.1)	739 (82.1)	727 (80.7)	χ^2=15.96; p=0.003
4 or more diseases	57 (13.1)	53 (5.9)	77 (8.5)	χ^2=24.34; p=0.000
Good health state (no hospital or ICU)	117 (26.8)	230 (25.6)	268 (29.7)	χ^2=4.08; p=0.13

The proportion of gender, marital status, living arrangement using inpatient care was equal between the study groups. The control group had a lower rate of youngest patients (<65) and a higher educational level. Patients in the e-learning group were less likely to have a non-medical aim of the visit (e.g. referral or prescription only) and more likely to have 4 or more morbidities. Patients in the pdf-article group tended to be employed more often than in other groups.

V. The effects of the PRACTA intervention on GPs

Figure 2 presents **the effects of the PRACTA intervention on GPs' perception of seniors' medical appointment-related expectations** depending on the study group. The following senior' expectations were included: disease explanation, treatment explanation, health advice, quality of life, rapport and emotional support.

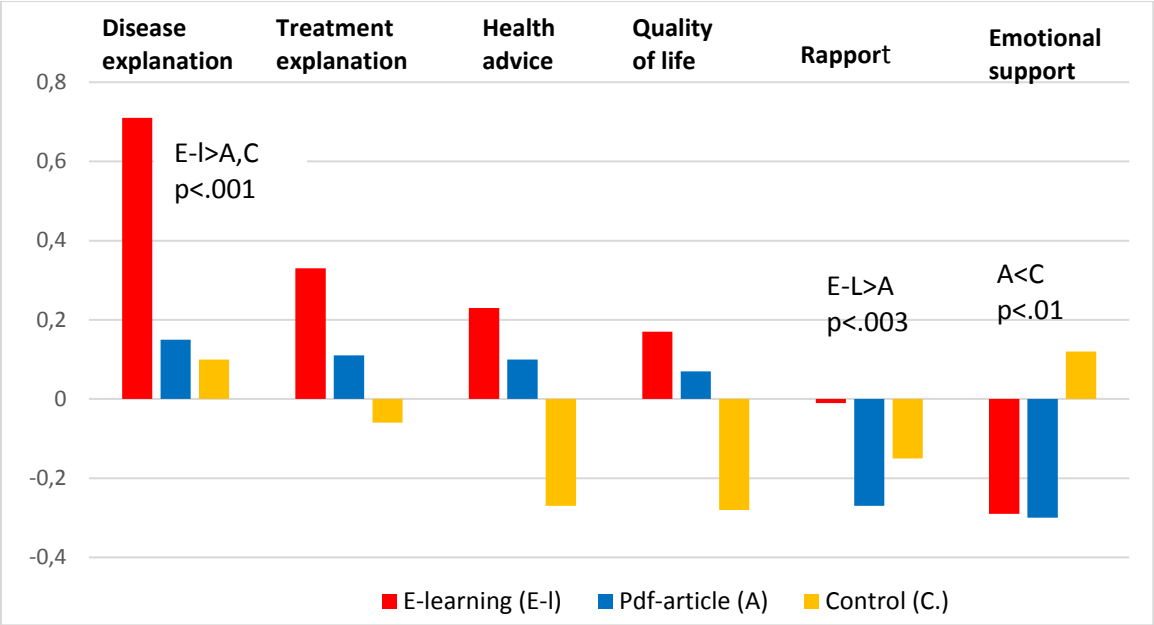

Figure 2. Indexes of change in GPs' perception of seniors' expectations depending on study group

The results presented in Figure 2 demonstrate that the greatest differences between the groups regarded the index of change in GPs' perception of seniors' expectations for disease explanation. In the e-learning group the importance of this expectation increased more than in the control and pdf-article groups. In relation to GPs' perception of seniors' expectations for emotional support and rapport overall models also indicated significant main effects of intervention but with no significant pairwise comparisons.

In case of expectation for emotional support the pairwise differences only approached significance. They would indicate that in the pdf-article group, perception of the importance of seniors' expectations for emotional support decreased in comparison to the control group. In case of expectations for rapport, adoption of least squares difference test (method less restrictive that Bonferroni's correction) revealed that index of change in the e-learning group was significantly higher than in the pdf-article group (p=.04).

What was not significantly affected by the intervention was GPs' perception of seniors' expectations for treatment explanation, health advise and quality of live improvement.

Figure 3 presents **the effects of the PRACTA intervention on GPs' self-assessed communication global score** depending on the study group.

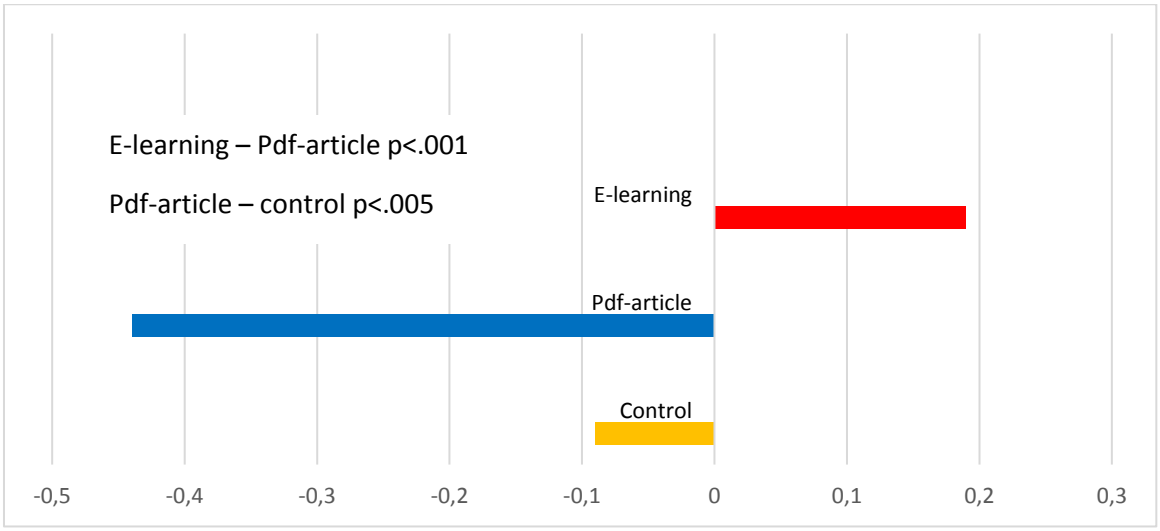

Figure 3. Index of change in GPs' self-assessed communication global score depending on the study group

As presented in Figure 3 the intervention had significant impact on the global communication score. Importantly, the changes observed in the pdf-article group and the e-learning group had the opposite directions with decrease in the pdf-article group and increase in the e-learning group. The index of change in the pdf-article group was much lower than in the control and e-learning groups.

At the level of specific GPs' communication behavior (results regarding individual items used to calculate the global score in communication), significant between-group differences were noticed in 20 out of 26 analyzed cases (significant overall model and difference between at least two groups). The mean values of indexes of change in the pdf-article group and e-learning group demonstrated that changes had opposite directions. In 19 cases, in the pdf-article group indexes of change in communication with senior patients were significantly different from those in the e-learning group and in most cases (12) also in the control group. The most distinct differences between the e-learning and the pdf-article groups (difference exceeded level of 1) referred to the following behaviors: encouraging seniors to participate in making decisions, giving them opportunity to express their opinions and taking their opinions into account in making decisions. It is worth noticing that there were another 13 items where such differences exceeded level of 0.5.

Figure 4 presents **the effects of the PRACTA intervention on GPs' perception of seniors' attitude toward treatment and health** depending on the study group. Seniors' attitude toward treatment and health encompasses: cognitive aspect, positive emotions, negative emotions, motivational aspect and sense of self-efficacy.

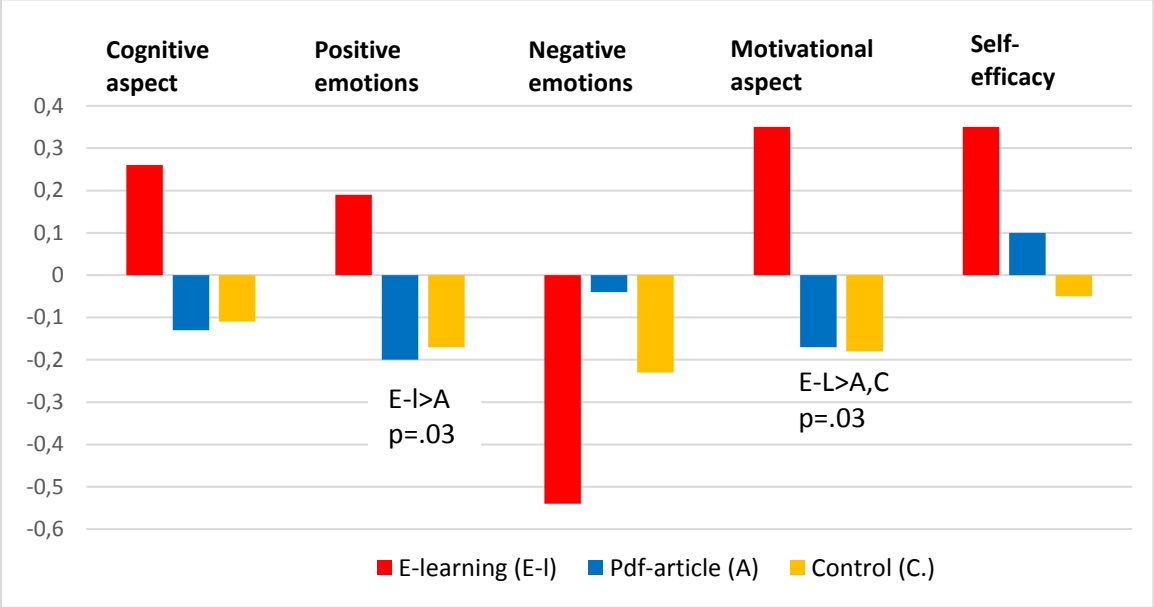

Figure 4. Indexes of change in GPs' perception of seniors' attitude toward treatment and health depending on the study group

The strongest between-group effects occurred in relation to changes in GPs' perception of seniors' motivation for active participation. There were significant differences between the e-learning group and control and pdf-article groups. Similar but weaker effect occurred in relation to GPs' perception of positive emotion demonstrated by seniors at the end of the visit. The difference between e-learning and pdf-article groups only approached significance. What was not significantly affected by the intervention was GPs' perception of the following aspects of ATH: cognitive, negative emotions and self-efficacy.

VI. The effects of the PRACTA intervention on senior patients

Figure 5 presents **indexes of change in attitude toward treatment and health in three study groups of senior patients**: e-learning (n=397), pdf-article (n=877) and control (n=901). As previously, the following aspects of the attitude (subscales) were included: cognitive aspect, positive emotions, negative emotions, motivational aspect and sense of self-efficacy. To detect changes in the pre and post-intervention attitude an indexes of change were created. To this end, the means from all subscale scores at Time 1 were calculated for each facility. This values were subtracted from the individual score of each patient at Time 2, matching the scales.

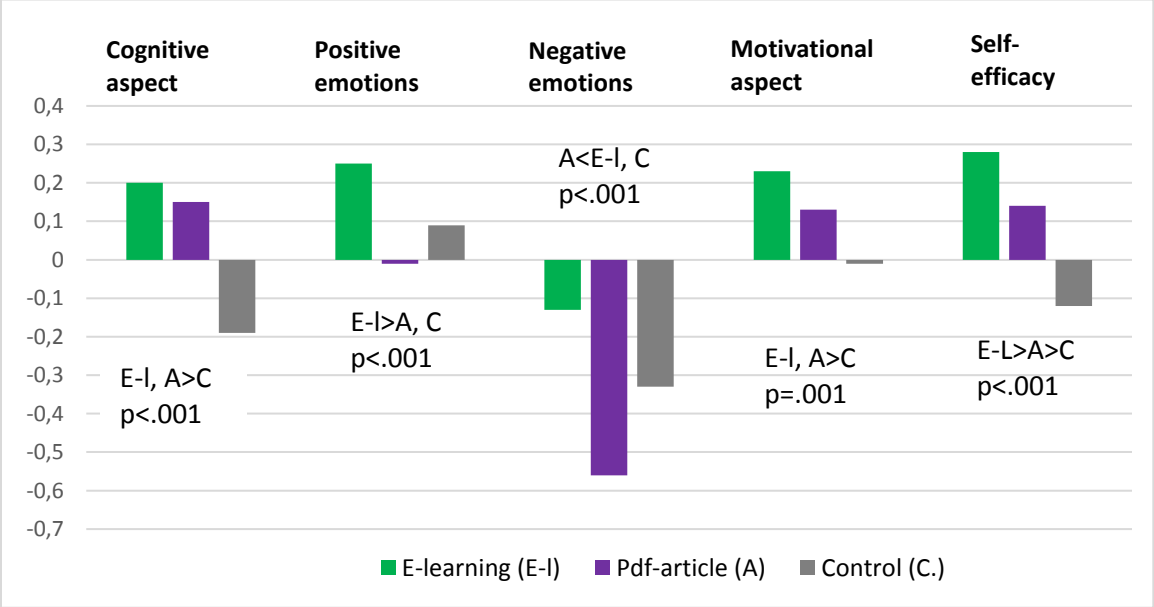

Figure 5. Indexes of change in attitude toward treatment and health in three study groups of patients

The intervention had significant impact on all aspects of seniors' attitude toward treatment and health. Similar effects of the e-learning and pdf-article interventions were observed for cognitive and motivational aspect of the attitude, whereas for positive emotions and self-efficacy the effect of e-learning was significantly stronger than pdf-article. Moreover, the pdf-article intervention turn out the most beneficial for decrease in seniors' negative emotions.

Further analysis revealed that the differences between study groups stayed meaningful after controlling for patients' health status but appeared unrelated to patient's age.

VII. Practical implications

As for the GPs: The impact of e-learning manifested itself mainly in the form of growing importance of seniors' cognitive expectations, especially expectation for disease explanation. In terms of self-assessed communication both forms of intervention yielded different effects with substantial decrease in the pdf-article group and moderate increase in the e-learning group. Despite the negative direction of changes in the pdf-article group, such a result may be perceived as desired effect of the intervention as it reflects a critical self-assessment by doctors of their own communication behavior. In terms of the attitude toward treatment and health the strongest effect concerned the e-learning group in which there was a significant increase in GPs' perception of seniors' motivation for active participation and positive emotions than in the control and/or pdf-article groups.

As for the senior patients: Patients' attitude toward treatment and health changed into more active in the study groups where e-learning and pdf-article were made available for GPs, with stronger effects observed for computer based intervention. The strongest effects of e-learning were observed for positive emotions and self-efficacy.

Generally: The results demonstrate the suitability of the two methods of the PRACTA intervention but with pointing to e-learning as the method with stronger effects both in the GPs and senior patients groups. The key benefits of the e-learning intervention were related to intensification of seniors' activation in majority of the

attitude aspects and to increase in GPs' perception of seniors' positive emotions and motivation and GPs ' perception of importance of seniors' expectations regarding disease explanation.

The key benefits of the pdf-article intervention were related to the decrease in seniors' negative emotions and GPs' growing reflection on their limitations in communication skills.

At the same time, there were aspects of the seniors' attitude similarly impacted by e-learning and pdf-article: cognitive and self-efficacy aspect of the attitude toward treatment and health.

Although not all the expected effects of PRACTA intervention have been achieved, both its forms seem promising in terms of growing competencies of GPs in communication with and activation of seniors.

Referring to the low response rate on facilities and, to a lesser extent, on doctors the effects of recruitment give a space for speculation about specific profile of the group of participating GPs. Participating facilities on the managerial site and doctors on engagement (e.g. in care for elderly) could have higher standards compared with ones that refused, and therefore, be more prone to benefit from the such intervention. Having faced this problem, nonparticipants might be perceived as those at higher need for an intervention in the field of doctor-patient relationship. Thus, the means permitting an effective approach to less skilled groups or those with a weaker educational motivation should be carefully considered in future projects.