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Conformity Scores Differentiate Older Hemodialyzed Patients and Patients with Continuous Peritoneal Dialysis

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Literature Search F
Funds Collection G

BE 1 **Zbigniew Nowak**
ABCDEFG 2 **Krzysztof Laudanski**

1 Department of Nephrology with Dialysis Unit, The Military Institute of Medicine, Warsaw, Poland
2 Department of Anesthesia and Critical Care & Pain, University of Pennsylvania, Philadelphia, PA, U.S.A.

Corresponding Author: Krzysztof Laudanski, e-mail: klaudanski@gmail.com
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Background: Conformity is a psychological variable related to the propensity of an individual to match his or her behavior and opinion to the perceived social and cultural norm, even if these do not represent the true beliefs of the person. The aim of the present study was to investigate whether the psychological variable of conformity is different in two distinct modes of renal replacement therapy (RRT) in end-stage renal disease (ESRD).





Material/Methods: A total of 56 hemodialyzed patients (HD group), 45 continuous ambulatory peritoneal dialysis patients (CAPD group) and 62 healthy volunteers (CONTR group) were enrolled in the study. The Social Appraisal Questionnaire (SAQ) was employed, and chart review was performed to collect clinical data.

Results: When age was not a factor, the conformity measure was significantly higher in the HD group compared with the CAPD and CONTR groups. The lowest conformity was found in healthy participants who were asked to imagine an acute medical problem. The highest conformity was found in older HD and CAPD patients.

Conclusions: Being chronically ill and having adaptable views may be more favorable traits for coping with ESRD in dialyzed patients, especially in elderly HD patients. On the other hand, conformity can be deleterious if CAPD patients decide to overlook certain facts or not confront the medical aspects of their condition.

MeSH Keywords: **Adaptation, Psychological • Hemodialysis • Peritoneal Dialysis, Continuous Ambulatory**

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Background

An increasing number of patients require renal replacement therapy (RRT) [1]. Consequently, the number of studies examining various psycho-medical aspects of RRT has soared during the last 20 years. The hallmark of the dialyzed patient's situation in most studies is a prolonged natural history of end-stage renal disease (ESRD) and a requirement that the patient be actively involved in their therapy [2–4]. The methodological design of the majority of studies has included a statistical control of several variables affecting a measured outcome [4]. However, it is important to keep in mind that dialysis involves a high patient dependency on medical technology and medical personnel [5,6]. This can create an emotional bond that may affect a patient's compliance with the therapy, as well as the results of self-assessment questionnaires, psychological quizzes, or formal interviews.

Conformity is the psychological process by which a person's values, attitudes, and behavior are influenced by other people. It has been studied for a long time [7–11]. Conformity may be either an unconscious influence or a direct pressure on the person to adopt certain values cherished by society or an attending physician. It can be present even when a perceived authority figure is not physically present. The reason for conformity is a desire to achieve a sense of security within a group [9–11]. Otherwise, an individual risks rejection, which is a source of stress [10]. It is not surprising that there is a high level of pressure on patients to conform to the expectation of the medical personnel during dialysis [2,4,7,9,11]. After all, members of the medical staff are the gatekeepers of a life-saving therapy. On the other hand, lack of patient cooperation with medical treatment results in a perception by medical personnel of the patient as “difficult” and can result in concomitant deterioration due to inadequate compliance with the demands of RRT [5,6,10,12,13]. In the situation of any psychological testing, conformity may bias the result if the participant is answering the questionnaire to please the interviewer and not necessarily to report their actual state of affairs [11,14]. Considering all of the aforementioned, we embarked on an investigation as to whether the psychological trait of conformity would be more exaggerated in the RRT patient population compared to healthy individuals who imagined themselves to be acutely ill (which is a starkly different psychological situation to the as compared dialyzed patient). Also, dialysis can be done in two main modalities: hemodialysis (HD) and continuous ambulatory peritoneal dialysis (CAPD) [5,13], which creates two very different psychological conditions. HD requires frequent and regular visits to a dialysis center where blood is purified via a machine. CAPD involves a patient herself or himself changing dialysis fluid in their abdominal cavity several times per day. Even from this very abbreviated description, it is obvious that the pressure on the patient, the level of his or her involvement,

and her or his overall situation is very different for HD versus CAPD patients. Therefore, we hypothesized that there would be different levels of conformity due to the varied pressure from medical personnel in the different scenarios. Based on the reported increasing passiveness in elderly patients [10], we speculated that this group would have a more exaggerated tendency toward conformity. This investigation studied whether conformity would affect the outcome of psychological assessment and if there would be a difference in the intensity of conformity between different modes of RRT.

Material and Methods

Study population

Three groups of patients were included in the study: ESRD patients treated with intermittent hemodialysis (HD), ESRD patients treated with continuous ambulatory peritoneal dialysis (CAPD), and healthy controls (CONTR). The ESRD patients had to meet the following criteria to be included in the study: enrolled in RTT for at least three months, no change in dialysis treatment within the past three months, medically stable, no exacerbation of any comorbid disease for at least three months before the interview, and no problems with cognitive function. Patients with serious comorbidities were excluded, including those patients with neoplasm of any kind, a history of recent acute coronary syndrome, a history of cerebrovascular incident, or a history of seizures or blindness. Of more than 120 patients who were approached, 109 participated in the study. HD patients were interviewed during dialysis, whereas CAPD patients participated in the study during routine hospitalizations. The control group consisted of healthy individuals who matched the patients according to age, gender, and educational level. We excluded patients with exacerbations of their comorbid conditions, but they were approved for the survey if their disease was stable. The control group participants were interviewed at their work place or home. The reason to include a control group was to validate our results in accordance with the statistician's and the SAQ instructions' recommendation that we provide external validation of the results [15].

All participants provided informed consent for the study. Then he or she filled out a questionnaire according to attached instructions. Throughout the study the participants were supervised by a psychologist. Additionally, socio-demographic and clinical data were collected, including age, gender, employment, and educational level. The latter variable was divided into three groups: elementary (no education, or primary school completed), intermediate (Certificate of Maturation obtained), and high (secondary school or university).

Table 1. Demographic data in studied groups.

	Young	HD		CAPD		CONTR	
		Young	Old	Young	Old	Young	Old
Age		44.7±10.17	69.3±4.64	43.8±7.26	66.5±4.16	49.2±7.49	67.7±5.36
Gender	Male	15	5	8	17	13	15
	Female	14	22	17	3	22	12
Education	Elementary	5	2	12	3	3	4
	Middle	15	19	7	8	20	16
	High	9	6	6	9	12	7
Employee	Yes	17	0	19	0	4	18
	No	12	27	6	20	31	9

HD – hemodialysed patient; CAPD – patients enrolled in continuous peritoneal dialysis; CONTR – control group.

Questionnaire

The Social Appreciation Questionnaire (SAQ), in which conformity was defined as a tendency of the individual to follow social demands and needs [15], was used in our study. SAQ is a self-explanatory, stand-alone questionnaire that has been used frequently for studies in the field of health psychology. It contains 23 items and a short introduction that does not need to be modified for the purpose of any study. Higher scores on the SAQ are interpreted as a higher tendency of the participant to obey social rules and authorities (including medical personnel). The psychometric characteristics of the SAQ are considered very satisfactory [15].

IRB approval

All patients had to express clear consent to participate. The Ethical Committee at the Military Medical Institute approved the experimental design.

Statistical analysis

We compared unadjusted SAQ scores. The study groups were divided according to age, with patients over the age of 60 defined as older individuals (elderly). The values reported throughout our study are expressed as a mean ($X \pm SD$). The Lavene's test and Kolmogorov-Smirnov statistical analysis were performed for normality and equality of the analyzed variables, respectively. For the parametric data, the unpaired Student *t*-test was applied. The Kruskal-Willis H test and the Mann-Whitney U test were used for the comparison of non-parametric data. The r^2 -Pearson factor was calculated as a measure of Pearson's product-moment correlation coefficient. A bilateral statistical *p* value of less than 0.05 for two-sided hypothesis was regarded as significant for all statistical procedures. The power analysis conducted after testing 10 patients from

each RTT group showed that we should approach at least 30 patients to attain satisfactory β values. Statistica v8.0 (Tulsa, AZ) software was used for all calculations.

Results

Questionnaires collected from 101 patients (56 HD, 45 CAPD) were matched to 62 healthy individuals (CONTR) according to their age, gender, and level of education. The demographic variables did not differ between the studied participants (Table 1).

Metabolic status may influence the psychological well-being of dialyzed patients. A comparison of several laboratory variables (duration of dialysis, haematocrit, serum creatinine, urea, albumins, and total phosphorus) showed no difference between the CAPD group versus the HD group, or between older versus younger participants (Tables 2). Serum potassium levels were different in the CAPD age groups, but this may represent a statistical aberration. These similarities suggest a lack of demographic and physiological bias between studied cohorts.

Finally, we compared the results of the SAQ questionnaires. There was no difference in conformity in the younger participants, as shown in Figure 1. However, when participants over the age of 60 were analyzed, significant differences were apparent. The highest conformity score was present in the HD group. The lowest degree of conformity was present in the CONTR group (participants with an imagined acute medical problem); a result that has been previously reported in other studies [13], and therefore validates the test results. When older and younger participants within our study groups were compared, the highest degree of conformity was found in older HD patients but not in older CONTR individuals. The difference between older and younger CAPD patients was significant as well.

Table 2. Clinical data in dialyzed patients.

	HD				CAPD			
	Young	Old	t	p	Young	Old	t	p
Dialysis duration [months]	33.6±33.4	21.1±20.31	1.34	NS	37.2±32.24	22.6±19.79	1.81	NS
Hematocrit [%]	30.3±3.35	30.7±3.19	-0.44	NS	31.3±4.94	31.1±1.89	0.27	NS
Potassium [mg%]	5.1±0.59	4.9±0±0.81	0.92	NS	4.3±0.56	5.1±1.1	-2.62	0.05
Creatinine [mg%]	9.6±1.29	9.1±1.9	0.72	NS	10.8±2.61	10.1±2.89	0.17	NS
Urea [mg%]	130.1±44.57	128.4±30.71	1.07	NS	115.9±28.39	124.5±32.31	-0.86	NS
Albumins [mg%]	3.9±0.59	3.5±0.23	2.41	0.05	3.3±0.39	3.2±0.48	0.41	NS
Total phosphorus [mg%]	6.9±1.94	6.1±1.40	1.65	NS	5.2±1.43	5.4±1.83	-0.35	NS

HD – hemodialysed patient; CAPD – patients enrolled in continuous peritoneal dialysis.

Discussion

In our study, we investigated whether the psychological trait of conformity, as measured by SAQ, can differ between two different modes of RRT in the context of age. Healthy individuals were employed as an external validation of the study measurements. The highest intensity of conformity was in HD patients who were more than 60 years of age. The score was also higher in patients undergoing chronic treatment versus healthy controls.

There are several plausible explanations for these observed results. For example, the older patients could have more impaired cognitive ability [2,15,16]. However, all patients were screened by a clinical psychologist to detect moderate and severe cognitive impairment before enrolment [14]. It is unlikely that psychometric features of the SAQ can be responsible for observed differences because this is a stand-alone questionnaire [15]. Its test items are general and they do not need to be modified to conduct testing in any targeted population, making this test very robust and age-neutral [15]. Conformity is a notoriously difficult subject to study because it is not an overt psychological process; instead, its presentation and influence are subconscious in nature [7,8,10]. During a pilot study, it was suggested that we use alternative psychological tools to measure the degree of conformity. A few other questionnaires have been developed for that purpose, but they do not differ in any significant way from the SAQ in terms of internal validity and robustness [17]; therefore, adding them to our study would be redundant and burdensome to the patients. Conformity could also be assessed during a psychological interview, but we decided against this since it would be difficult to blind the examiner, and the overall sensitivity and specificity would be low [9,14–16]. We believe our study results are robust for two reasons: 1) the conformity score seen in older patients is typical of that observed in individuals prone

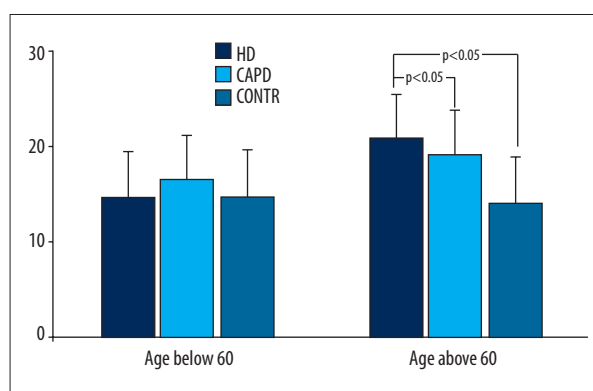


Figure 1. There was no significant difference in Social Appreciation Questionnaire (SAQ) score in all groups when patients younger than 60 years old were analyzed. In patients older than 60 years old, we observe significant differences between the groups being dialyzed in two different modes.

to manipulation and external pressure; and 2) we enrolled a group of healthy individuals and asked them to imagine that they were sick [15]. Such individuals virtually always have a lower conformity score than sick patients.

Further investigation is required into why older patients on RRT are more prone to conform in general. It is known that conformity is more prevalent in the population of cancer patients. Being chronically sick and having views that are easy to influence may be perceived by dialyzed patients as more beneficial from an overall psychological and medical well-being standpoint [5,6,10]. In fact, it has been shown that the Western style of medicine discourages a patient's active participation because that participation may be perceived as a hindrance by medical personnel [12]. Additionally, the circumstances of HD are more passive, since hemodialysis is done without the patient's active involvement. On the other hand,

CAPD requires frequent changes of the dialysis fluid, which is done by the patients themselves [6,13]. Therefore, CAPD patients have to be more engaged, questioning, and inquisitive. On the other hand, the trait of conformity can be deadly if the patient decides to overlook certain facts or not confront medical aspects in order to please medical professionals. In other words, for the more actively involved patients on CAPD, having lower conformity can also make them more likely to report a problem related to their treatment.

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Conclusions

The present study shows that older patients on dialysis have a greater degree of conformity. Though it is unclear whether it affects their outcomes, this observation warrants further investigation.

Conflicts of interest

None of the authors stated any conflict of interest in the 36 months prior to submission.