

Family physicians' attitudes toward people with dementia and their association with empathy

Sidika Ece Yokus

yokusece@gmail.com

Manisa Celal Bayar University

Fatih Ozcan

Manisa Celal Bayar University

Huseyin Elbi

Manisa Celal Bayar University

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Abstract

Background

Family physicians' attitudes toward people with dementia are important for delivering person-centered care and coordinating long-term care. Accordingly, this study aimed to evaluate the relationship—which remains insufficiently clarified—between empathy and family physicians' general, supportive, accepting, and exclusionary attitudes toward people with dementia.

Methods

This cross-sectional study included 412 family physicians working at family health centers in Türkiye who participated voluntarily. Data were collected face-to-face and online from May 2023 to February 2024. Attitudes and empathy were assessed using the Dementia Attitudes Scale and the Empathy Quotient. Multiple linear regression models were constructed separately for the total score and subscales of the Dementia Attitudes Scale.

Results

Participants' mean age was 43.03 ± 9.65 years; mean Dementia Attitudes Scale and Empathy Quotient total scores were 97.74 ± 16.58 and 50.51 ± 8.22 , respectively. Empathy was positively associated with general attitude ($r = 0.445$), supporting attitude ($r = 0.481$), and accepting attitude ($r = 0.348$), but not with exclusionary attitude ($r = 0.091$; $p = 0.066$). In multiple linear regression, empathy was independently associated with general attitude ($B = 0.871$; 95% CI 0.696–1.047; $p < 0.001$), supportive attitude ($B = 0.535$; 95% CI 0.439–0.631; $p < 0.001$), and accepting attitude ($B = 0.295$; 95% CI 0.216–0.374; $p < 0.001$), but not with exclusionary attitude. A higher daily patient volume was independently associated with a more positive general attitude and a less exclusionary attitude, while prior dementia training was independently associated with a less exclusionary attitude.

Conclusion

Family physicians' empathy levels were independently associated with general, supportive, and accepting attitudes toward people with dementia, but not with exclusionary attitudes. Higher daily patient volume was linked to more positive general attitudes and fewer exclusionary attitudes, while prior dementia training was associated with fewer exclusionary attitudes.

Background

Dementia is a major long-term care challenge as populations age. The needs of people with dementia (PwD) extend beyond assessing cognitive symptoms; they also include preserving functioning, managing coexisting health problems, supporting caregivers, and involving patients in care decisions as much as possible [1]. Meeting these multidimensional needs makes training health professionals to provide person-centered, continuous, and coordinated care increasingly important [1, 2].

Attitudes toward PwD encompass the cognitive, emotional, and behavioral tendencies that shape how health professionals perceive these patients, communicate with them, and support their participation in the care process (3). Negative or exclusionary attitudes lead to evaluations based on illness and limitations and to increased social distance. Dementia-related stigma can lead to discrimination, reduced self-esteem, and exclusion. Reducing negative feelings, in turn, can improve PwD self-esteem and quality of life, encourage social participation, and improve overall well-being (4). On the other hand, positive attitudes toward these patients strengthen patient-physician communication and contribute to the delivery of effective medical care (5). Empathy, often described by family physicians (FPs) as “connecting” with their patients, underpins meaningful communication and has been associated with improved treatment adherence and health outcomes (6). In caregiver interventions, content that focuses on practical care strategies, emphasizes PwD's preserved abilities and strengths, and addresses the interpersonal aspects of care leads to more positive attitudes toward PwD [5].

FPs are often the first point of contact for older adults presenting with dementia symptoms and play a central role in ensuring appropriate management from the earliest stages of care (7). However, studies of FPs have largely focused on attitudes toward the syndrome and care processes, and have generally found an optimistic orientation in this group (8,9). Nevertheless, primary care research has paid considerably less attention to general attitudes toward PwD and to the multidimensional structure of these attitudes—comprising supporting, accepting, and exclusionary dimensions.

This study aimed to evaluate FPs' attitudes toward PwD and overall empathy levels, and to examine the association between empathy levels and sociodemographic and professional characteristics, as well as these attitudes.

Methods

Study design and setting

This cross-sectional study was conducted among FPs working at family health centers in Türkiye. Data were collected face-to-face and online from May 2023 to February 2024. This study was reported in accordance with the STROBE guidelines.

Participants and sampling

The study's target population consisted of physicians actively practicing family medicine in Türkiye during the data collection period. The study included physicians working at family health centers who were informed about the study and who voluntarily agreed to participate. Using nonprobability convenience sampling, the researchers recruited participants through professional communication networks and face-to-face contact.

At the planning stage, using the 27,762 FPs reported in the 2022 Ministry of Health data as the population, we calculated a minimum sample size of 379 participants in Epi Info, based on an expected frequency of 50%, a 95% confidence level, and a design effect of 1.0. A total of 418 physicians participated in the study; after excluding six participants with missing scale data, analyses included 412 participants.

Data collection and duplicate-entry control

Participants completed an introductory information form, the Dementia Attitudes Scale (DAS), and the Empathy Quotient (EQ). We obtained informed consent from all participants before enrollment and checked for duplicate entries using participants' names and email addresses.

Measurement instruments

The introductory information form consists of 16 items covering sociodemographic characteristics and professional variables. Professional variables include working conditions (region of practice, size of the registered patient population, daily number of patient visits, etc.) and data on the patient population (number of registered PwD, percentage of patients aged 65 years and older, etc.).

O'Connor and McFadden developed the DAS (10), and Çetinkaya et al. conducted a validity and reliability study in Turkish. The scale is a 20-item, 7-point Likert-type instrument that assesses attitudes toward PwD across three subscales—supporting, accepting, and exclusionary attitudes. Six items are reverse-scored. The scale has no established cutoff point. Total scores range from 20 to 140, with higher scores generally indicating more positive attitudes. On the exclusionary attitude subscale, higher scores indicate less exclusionary attitudes. Cronbach's alpha was 0.84 (11).

The EQ was developed by Lawrence et al. (12) and adapted into Turkish by Kaya and Çolakoğlu. The scale assesses empathy within a social understanding framework and consists of 13 items using a 5-point Likert-type response format. It includes three

subscales: social skills, emotional reactivity, and cognitive empathy. The scale has no established cutoff point. Total scores range from 13 to 65, with higher scores indicating greater empathy. In this study, Cronbach's α was 0.87 (13).

Statistical analysis

Statistical analyses were conducted using IBM SPSS Statistics 27.0 (IBM Corp., Armonk, NY, USA). We presented categorical variables as counts and percentages, and continuous variables as mean $\pm$ standard deviation. We assessed normality of continuous variables using the Kolmogorov–Smirnov test. For bivariate analyses, we used the independent-samples Student's t -test for normally distributed data and the Mann–Whitney U test for non-normally distributed data. For comparisons among more than two groups, we used ANOVA for normally distributed data and the Kruskal–Wallis test for non-normally distributed data. Associations between continuous variables using Pearson correlation analysis.

To evaluate independent associations between explanatory variables and the total score and subscales of attitudes toward PwD, we constructed four standard multiple linear regression models: one for the total DAS score and one for each of the supportive, accepting, and exclusionary attitude subscales. The models simultaneously included the following variables: duration of employment in family medicine, daily patient volume, gender, marital status, parental status, living arrangement, presence of dementia in a first-degree relative, prior dementia training, practice location, and total EQ score. Living arrangement was dichotomized: participants living with a spouse, children, or parents were grouped into the "not living alone" category, while those living alone served as the reference category. The final models excluded age, total duration of medical practice, registered patient population, residence area, and family structure during upbringing. The number of registered people with dementia and the proportion of the registered population aged 65 and older were also excluded from the models due to missing data. Regression assumptions were assessed using residual plots and the Durbin–Watson statistic. Results were reported using the unstandardized regression coefficient (B), standard error (SE), standardized regression coefficient (β), 95% confidence interval (CI), p -value, and variance inflation factor (VIF). A two-tailed p -value < 0.05 was considered statistically significant in all analyses.

Results

Participant characteristics

Among the 412 FPs analyzed, the mean age was 43.03 ± 9.65 years, and the mean duration of family medicine practice was 9.70 ± 5.28 years. Of the participants, 164 (39.8%) were women. Participant characteristics are shown in Table 1.

Table 1. Sociodemographic and professional characteristics of participants

Variable	Value	Valid n
Age, years	43.03±9.65	412
Years of experience in family medicine	9.70±5.28	412
Total years as a physician	18.15±9.86	412
Female	164 (39.8%)	412
Married	317 (76.9%)	412
Having children	293 (71.1%)	412
First-degree relative with dementia	116 (28.2%)	412
Prior dementia training	134 (32.5%)	412
Practicing in a city center	251 (60.9%)	412
Living in a city center	300 (72.8%)	412
Registered patient population	3220.33±688.16	412
Daily patient volume	67.07±22.76	412
Number of registered PwD	23.47±34.14	361
Percentage of registered patients aged 65 and over, %	14.78±11.00	377

Continuous variables are presented as mean±standard deviation; categorical variables as n (%).

Scale scores

DAS total score was 97.74±16.58, and EQ total score was 50.51±8.22. In correlation analyses, EQ total score was positively associated with DAS total score ($r=0.445$) (Figure 1), with supporting attitude ($r=0.481$), and with accepting attitude ($r=0.348$) (all $p<0.001$), but showed no significant correlation with the exclusionary attitude subdimension ($r=0.091$; $p=0.066$) (Table 2).

Table 2. Correlations Between Dementia Attitudes Scale and Empathy Quotient

Scale/subscale	Number of items	Range	Mean±SD	EQ total r; p
DAS total	20	20-140	97.74±16.58	0.445; <0.001
Supporting attitude	9	9-63	45.50±9.22	0.481; <0.001
Accepting attitude	6	6-42	26.13±7.05	0.348; <0.001
Exclusionary attitude	5	5-35	26.09±5.41	0.091; 0.066
EQ total	13	13-65	50.51±8.22	-

DAS: Dementia Attitudes Scale, EQ: Empathy Quotient, SD: Standard deviation

Attitude scores by sociodemographic and professional variables

DAS total scores were higher among those who had received prior dementia training than among those who had not ($p=0.044$). DAS total scores were positively correlated with daily patient volume ($r=0.114$; $p=0.021$) and with the percentage of registered patients aged 65 and over ($r=0.112$; $p=0.029$). Years of experience in family medicine was weakly and negatively correlated with both the supporting attitude ($r=-0.101$; $p=0.041$) and accepting attitude ($r=-0.108$; $p=0.028$) subscale scores (Table 3).

Table 3. Comparison of Dementia Attitudes Scale total and subscale scores by categorical variables

Variable	Category	n	DAS	SD	p	Support.	p	Accept.	p	Exclus.	p
Sex	Female	164	99.13	16.12	0.138	46.14	0.247	26.59	0.161	26.39	0.462
	Male	248	96.81	16.85		45.08		25.83		25.89	
Marital status	Not married	95	96.07	17.31	0.316	45.28	0.600	25.86	0.887	24.92	0.031
	Married	317	98.23	16.35		45.57		26.22		26.44	
Having children	Yes	293	97.78	16.80	0.793	45.31	0.962	25.86	0.406	26.61	0.004
	No	119	97.63	16.09		46.00		26.81		24.81	
Living arrangements	Spouse and/or children	325	98.13	16.48	0.612	45.47	0.884	26.18	0.966	26.47	0.043
	Parent(s)	31	97.67	14.15		46.61		26.35		24.70	
	Alone	56	95.48	18.41		45.08		25.76		24.62	
Family structure during upbringing	Nuclear	339	97.67	15.65	0.484	45.69	0.760	26.09	0.427	25.89	0.068
	Extended family	73	98.05	20.48		44.67		26.35		27.02	
Residence area	City center	300	100.89	15.44	0.662	45.65	0.687	26.26	0.608	25.97	0.552
	District	112	97.89	16.17		45.05		25.89		26.61	
Practice region	City center	251	96.86	16.64	0.235	45.01	0.217	25.90	0.348	25.94	0.594
	District	161	99.11	16.45		46.28		26.49		26.32	
First-degree relative with dementia	Yes	116	99.60	17.96	0.070	46.07	0.317	26.72	0.320	26.80	0.020
	No	296	97.01	15.98		45.28		25.90		25.81	
Prior dementia training	Yes	134	100.20	16.90	0.044	46.31	0.217	26.67	0.198	27.21	<0.001
	No	278	96.55	16.32		45.12		25.88		25.55	

DAS: Dementia Attitudes Scale total; Support.: Supporting attitude subscale; Accept.: Accepting attitude subscale; Exclus.: Exclusionary attitude subscale. Mann–Whitney U test was used for two-group comparisons, and the Kruskal–Wallis test for three-group comparisons. On the exclusionary attitude subscale, a higher score indicates a less exclusionary attitude.

On the exclusionary attitude subscale, higher scores indicate a less exclusionary attitude. Exclusionary attitude subscale scores were significantly higher among married participants ($p=0.031$), those with children ($p=0.004$), those living with a spouse and/or children ($p=0.043$), those with a first-degree relative with dementia ($p=0.020$), and those who had received prior dementia training ($p<0.001$), indicating less exclusionary attitudes. Exclusionary attitude scores were positively correlated with age ($r=0.134$; $p=0.006$), total years as a physician ($r=0.139$; $p=0.005$), daily patient volume ($r=0.150$; $p=0.002$), and number of registered PwD ($r=0.110$; $p=0.037$) (Table 4).

Table 4. Correlations of Dementia Attitudes Scale total and subscale scores

Variable	DAS mean score r^2	p	Supporting attitude r^2	p	Accepting attitude r^2	p	Exclusionary attitude r^2	p
Age	0.007	0.889	-0.059	0.229	-0.009	0.853	0.134	0.006
Years of experience in family medicine	-0.073	0.141	-0.101	0.041	-0.108	0.028	0.090	0.067
Total years as a physician	0.009	0.848	-0.058	0.242	-0.009	0.855	0.139	0.005
Registered patient population size	-0.041	0.403	-0.034	0.487	-0.074	0.136	0.028	0.573
Daily patient volume	0.114	0.021	0.090	0.067	0.035	0.480	0.150	0.002
Number of registered patients with dementia	0.092	0.080	0.057	0.277	0.062	0.242	0.110	0.037
Percentage of patients aged 65 and over	0.112	0.029	0.092	0.074	0.090	0.081	0.070	0.174

r^2 Pearson correlation analysis. On the exclusionary attitude subscale, a higher score indicates a less exclusionary attitude. DAS: Dementia Attitudes Scale

Multivariable models

Standard multiple linear regression analyses were conducted—simultaneously controlling for sociodemographic, professional, and empathy-related variables—to identify factors that independently explained the total DAS score and each of its subscales (Table 5). In the total DAS score model, the EQ total score ($B = 0.871$; 95% CI: 0.696–1.047; $\beta = 0.432$; $p < 0.001$) and the daily patient volume ($B = 0.070$; 95% CI: 0.006–0.135; $\beta = 0.097$; $p = 0.032$) were independently associated with a higher total DAS score. The association between working in a district and the total DAS score was not statistically significant ($B = -2.982$; 95% CI: -5.971 to 0.008; $\beta = -0.088$; $p = 0.051$).

The EQ total score was independently associated with supportive attitude ($B = 0.535$; 95% CI: 0.439–0.631; $\beta = 0.477$; $p < 0.001$) and accepting attitude ($B = 0.295$; 95% CI: 0.216–0.374; $\beta = 0.344$; $p < 0.001$). None of the other explanatory variables were statistically significant in these two subscale models.

In the exclusionary attitude model, the daily patient volume ($B = 0.028$; 95% CI: 0.005–0.051; $\beta = 0.118$; $p = 0.017$) and prior dementia training ($B = 1.503$; 95% CI: 0.406–2.601; $\beta = 0.130$; $p = 0.007$) were independently associated with a higher exclusionary attitude subscale score—in other words, a less exclusionary attitude. No significant relationship was found between the EQ total score and exclusionary attitude ($B = 0.041$; 95% CI: -0.022–0.104; $\beta = 0.062$; $p = 0.201$).

Table 5. Multiple linear regression analyses for Dementia Attitudes Scale total and subscale scores (n=412)

Variable	B (SE)	β	95% CI	p	VIF
DAS total					
Constant	48.887 (5.348)	-	38.373 to 59.401	<0.001	-
Years of experience in family medicine (1 year)	-0.226 (0.163)	-0.072	-0.546 to 0.093	0.165	1.403
Daily patient volume (1 patient)	0.070 (0.033)	0.097	0.006 to 0.135	0.032	1.055
Sex (female; ref: male)	1.335 (1.531)	0.039	-1.674 to 4.345	0.384	1.069
Marital status (married; ref: not married)	3.064 (2.722)	0.078	-2.288 to 8.415	0.261	2.502
Having children (yes; ref: no)	-1.723 (2.272)	-0.047	-6.190 to 2.743	0.449	2.018
Living arrangement (not alone; ref: alone)	1.563 (3.018)	0.032	-4.370 to 7.496	0.605	2.036
First-degree relative with dementia (yes; ref: no)	1.248 (1.636)	0.034	-1.968 to 4.463	0.446	1.030
Prior dementia training (yes; ref: no)	2.327 (1.558)	0.066	-0.737 to 5.391	0.136	1.014
Practice region (city center; ref: district)	-2.982 (1.521)	-0.088	-5.971 to 0.008	0.051	1.048
Total EQ score (1 point)	0.871 (0.089)	0.432	0.696 to 1.047	<0.001	1.024
Supporting attitude					
Constant	17.815 (2.926)	-	12.062 to 23.568	<0.001	-
Years of experience in family medicine (1 year)	-0.151 (0.089)	-0.086	-0.326 to 0.024	0.091	1.403
Daily patient volume (1 patient)	0.032 (0.018)	0.080	-0.003 to 0.068	0.072	1.055
Sex (female; ref: male)	0.256 (0.838)	0.014	-1.391 to 1.903	0.760	1.069
Marital status (married; ref: not married)	1.042 (1.489)	0.048	-1.886 to 3.970	0.485	2.502
Having children (yes; ref: no)	-1.121 (1.243)	-0.055	-3.565 to 1.323	0.368	2.018
Living arrangement (not alone; ref: alone)	0.681 (1.651)	0.025	-2.565 to 3.928	0.680	2.036
First-degree relative with dementia (yes; ref: no)	0.148 (0.895)	0.007	-1.612 to 1.907	0.869	1.030
Prior dementia training (yes; ref: no)	0.426 (0.853)	0.022	-1.250 to 2.102	0.618	1.014
Practice region (city center; ref: district)	-1.516 (0.832)	-0.080	-3.152 to 0.119	0.069	1.048
Total EQ score (1 point)	0.535 (0.049)	0.477	0.439 to 0.631	<0.001	1.024
Accepting attitude					
Constant	11.282 (2.402)	-	6.560 to 16.004	<0.001	-
Years of experience in family medicine (1 year)	-0.106 (0.073)	-0.079	-0.249 to 0.038	0.148	1.403
Daily patient volume (1 patient)	0.010 (0.015)	0.032	-0.019 to 0.039	0.498	1.055
Sex (female; ref: male)	0.286 (0.688)	0.020	-1.065 to 1.638	0.677	1.069
Marital status (married; ref: not married)	1.356 (1.223)	0.081	-1.047 to 3.759	0.268	2.502
Having children (yes; ref: no)	-1.489 (1.020)	-0.096	-3.495 to 0.516	0.145	2.018
Living arrangement (not alone; ref: alone)	0.406 (1.355)	0.020	-2.258 to 3.071	0.765	2.036
First-degree relative with dementia (yes; ref: no)	0.551 (0.735)	0.035	-0.893 to 1.995	0.453	1.030
Prior dementia training (yes; ref: no)	0.398 (0.700)	0.026	-0.978 to 1.774	0.570	1.014
Practice region (city center; ref: district)	-0.716 (0.683)	-0.050	-2.059 to 0.626	0.295	1.048

Total EQ score (1 point)	0.295 (0.040)	0.344	0.216 to 0.374	<0.001	1.024
Exclusionary attitude					
Constant	19.790 (1.916)	-	16.024 to 23.557	<0.001	-
Years of experience in family medicine (1 year)	0.030 (0.058)	0.029	-0.084 to 0.145	0.606	1.403
Daily patient volume (1 patient)	0.028 (0.012)	0.118	0.005 to 0.051	0.017	1.055
Sex (female; ref: male)	0.793 (0.548)	0.072	-0.285 to 1.871	0.149	1.069
Marital status (married; ref: not married)	0.666 (0.975)	0.052	-1.251 to 2.583	0.495	2.502
Having children (yes; ref: no)	0.887 (0.814)	0.074	-0.713 to 2.487	0.276	2.018
Living arrangement (not alone; ref: alone)	0.476 (1.081)	0.030	-1.650 to 2.601	0.660	2.036
First-degree relative with dementia (yes; ref: no)	0.549 (0.586)	0.046	-0.603 to 1.701	0.350	1.030
Prior dementia training (yes; ref: no)	1.503 (0.558)	0.130	0.406 to 2.601	0.007	1.014
Practice region (city center; ref: district)	-0.749 (0.545)	-0.068	-1.820 to 0.322	0.170	1.048
Total EQ score (1 point)	0.041 (0.032)	0.062	-0.022 to 0.104	0.201	1.024

DAS: Dementia Attitudes Scale; EQ: Empathy Quotient; B: unstandardized coefficient; SE: standard error; β : standardized coefficient; CI: confidence interval; VIF: variance inflation factor. On the exclusionary attitude subscale, a higher score indicates a less exclusionary attitude.

Discussion

This study examined FPs' attitudes toward PwD and the relationship between these attitudes and empathy. Multivariate analyses showed that higher empathy was associated with more positive general attitudes—as well as more supportive and accepting attitudes—toward PwD, but not with exclusionary attitudes. A higher daily patient volume was associated with more positive general attitudes and fewer exclusionary attitudes, while prior dementia training was linked to fewer exclusionary attitudes. These findings suggest that empathy is not uniformly associated with all dimensions of attitudes toward dementia, and that different attitudinal dimensions may relate to different factors.

Previous studies of FPs have primarily focused on dementia knowledge, diagnostic confidence, and approaches to early diagnosis [8, 9, 14–16]. In the present study, however, we examined the attitudinal dimension of the person-centered professional relationship—distinct from diagnostic knowledge and clinical behaviors—by evaluating empathy alongside supportive, accepting, and exclusionary attitudes within the same analytical framework. Previous findings indicating that positive attitudes are associated with perceived competence in dementia care and a person-centered care approach support the clinical significance of this distinction [3].

The absence of an independent association between empathy and an exclusionary attitude suggests that an exclusionary attitude may not simply be the opposite of a supportive or accepting attitude. Dementia-related stigma is associated with multiple factors, including lack of knowledge, stereotypes, social distance, the nature of contact with PwD, and cultural context [4, 17].

Sociodemographic factors

The literature reports mixed findings on the relationships between attitudes toward dementia and factors such as age, marital status, parental status, and living arrangements [18–26]. In this study, advanced age, being married, having children, and living with a spouse and/or children were associated with less exclusionary attitudes in bivariate analyses. This finding regarding advanced age is partially consistent with studies reporting a link between age and more positive attitudes toward dementia

across various samples of healthcare professionals [23, 24]. However, in the final models, marital status, parental status, and living arrangements showed no independent association with any attitude dimension.

Participants with a first-degree relative with dementia showed less exclusionary attitudes in bivariate analyses, consistent with a possible role of personal familiarity. A study among nursing students in Türkiye by Korkmaz Aslan et al. similarly reported that a family history of dementia and prior experience may be associated with certain attitude dimensions [25]. The Flanders study by Creten and Heynderickx, which included health professionals, family caregivers, and community samples, found that dementia literacy and familiarity with dementia may be linked to societal attitudes [27]. However, in our study, the association with having a family member with dementia did not persist in the final models. This finding should therefore be interpreted not as evidence of an independent effect of family contact, but as an exploratory result that may be influenced by related factors such as age, family structure, education, or experience with dementia.

Professional factors

The finding that participants with prior dementia training had higher total attitude scores in bivariate analyses is generally consistent with previous studies and educational interventions [25, 26, 28–30]. However, the relationship between training and attitudes is inconsistent in the literature; studies conducted in Türkiye with family medicine residents, public health physicians, and nurses have revealed that prior training experience does not always show a significant association with attitudes [19, 23]. In the present study's multivariate analyses, prior dementia training was independently associated only with less exclusionary attitudes. Similarly, studies involving nursing and gerontology students in Türkiye have shown that participants who received dementia training exhibited more supportive and accepting attitudes, as well as less exclusionary ones [25, 29].

Because we assessed prior dementia training solely on a yes/no basis and through self-report, we could not examine the training's content, duration, timing, experiential components, or translation into clinical practice. Systematic reviews indicate that dementia training programs should be based on person-centered care principles, tailored to the target group's needs, incorporate experiential or simulation-based learning, and link theoretical knowledge with clinical practice [31]. Furthermore, healthcare professionals' interest in dementia care [32] and their willingness to improve dementia management skills [19] are individual factors that may be associated with attitudes. Training, knowledge, confidence, and attitudes may also be interrelated among health and social care workers [18]. However, the study's cross-sectional design and limited measurement of training preclude causal inference that a specific training program reduces exclusionary attitudes.

Daily patient volume was independently associated with both higher total DAS scores and less exclusionary attitudes in the final models. This finding aligns with previous research reporting an association between patient volume and more positive attitudes toward dementia [21]. However, daily patient volume does not directly reflect encounter frequency, consultation duration, patient complexity, administrative workload, or team support. Although the number of PwD registered at the unit and the proportion of the population over age 65 were associated with certain attitude scores in bivariate analyses, they could not be included in the final models due to missing data, so their independent associations could not be evaluated. Previous studies also indicate that attitudes may be associated not only with care experience but also with factors requiring active engagement, such as a willingness to conduct cognitive assessments and pursue early diagnosis [19, 21–23]. Therefore, the finding regarding daily patient volume should be interpreted within the framework of potential mechanisms related to clinical exposure and the work context, rather than implying that seeing more patients directly leads to positive attitudes.

Working in the city center was not statistically significantly associated with the total DAS score in the final model, nor was it independently associated with a supportive attitude. Dementia care in rural and urban contexts can differ in access to specialist services, team structure, care coordination, and local resources [33–35]. However, evidence on rural–urban differences is not consistent across all dimensions of care [35]. Because our study did not evaluate continuity of care, the quality of the patient–physician relationship, team structure, referral options, or local service resources, we could not clearly assess the relationship between the work environment and attitudes.

Strengths and limitations

The study's strengths include its separate examination of general, supportive, accepting, and exclusionary attitudes toward PwD, as well as its evaluation of empathy alongside sociodemographic and professional variables within a single analytical framework.

The cross-sectional design limits causal inference. Non-probability sampling based on voluntary participation, the inability to calculate a participation rate, and reliance on self-report measures may have introduced selection, recall, and social desirability biases. The content and quality of dementia training were not assessed; certain professional variables were excluded from the final analyses due to missing data, and age was omitted due to model specification. The binary coding of living arrangements may have reduced detail. Furthermore, the limited explanatory power of the exclusionary attitude model, in particular, suggests the potential influence of unmeasured factors.

Conclusions

In this study, higher levels of empathy were associated with more positive general, supportive, and accepting attitudes toward dementia, but not with exclusionary attitudes. A higher daily patient caseload was linked to more positive general attitudes and fewer exclusionary attitudes, while prior dementia training was associated with fewer exclusionary attitudes. These findings support a multidimensional assessment of attitudes toward dementia and advocate for longitudinal and interventional studies to examine the impact of training programs that incorporate empathy and person-centered communication.

Abbreviations

DAS: Dementia Attitudes Scale; EQ: Empathy Quotient; PwD: People with dementia; FPs: Family Physicians; STROBE: Strengthening the Reporting of Observational Studies in Epidemiology.

Declarations

Ethics approval and consent to participate

The study was approved by the Health Sciences Ethics Committee of Manisa Celal Bayar University Faculty of Medicine (12.04.2023; Decision No: 20.478.486/1792). We obtained written informed consent from all participants before enrollment. The study followed the principles of the Declaration of Helsinki.

Consent for publication

Not applicable.

Availability of data and materials

The dataset analyzed during this study is not publicly available because it contains potentially identifiable professional and demographic information. The de-identified dataset is available from the corresponding author upon reasonable request, subject to ethical and institutional approvals.

Competing interests

The authors declare no competing interests.

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Authors' contributions

SEY, FÖ, and HE contributed to the study's conception and design. SEY conducted the data collection process. SEY and HE analyzed and interpreted the data. SEY prepared the first draft of the manuscript. FÖ and HE critically reviewed the manuscript for important scientific content. All authors read and approved the final manuscript.

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Figures

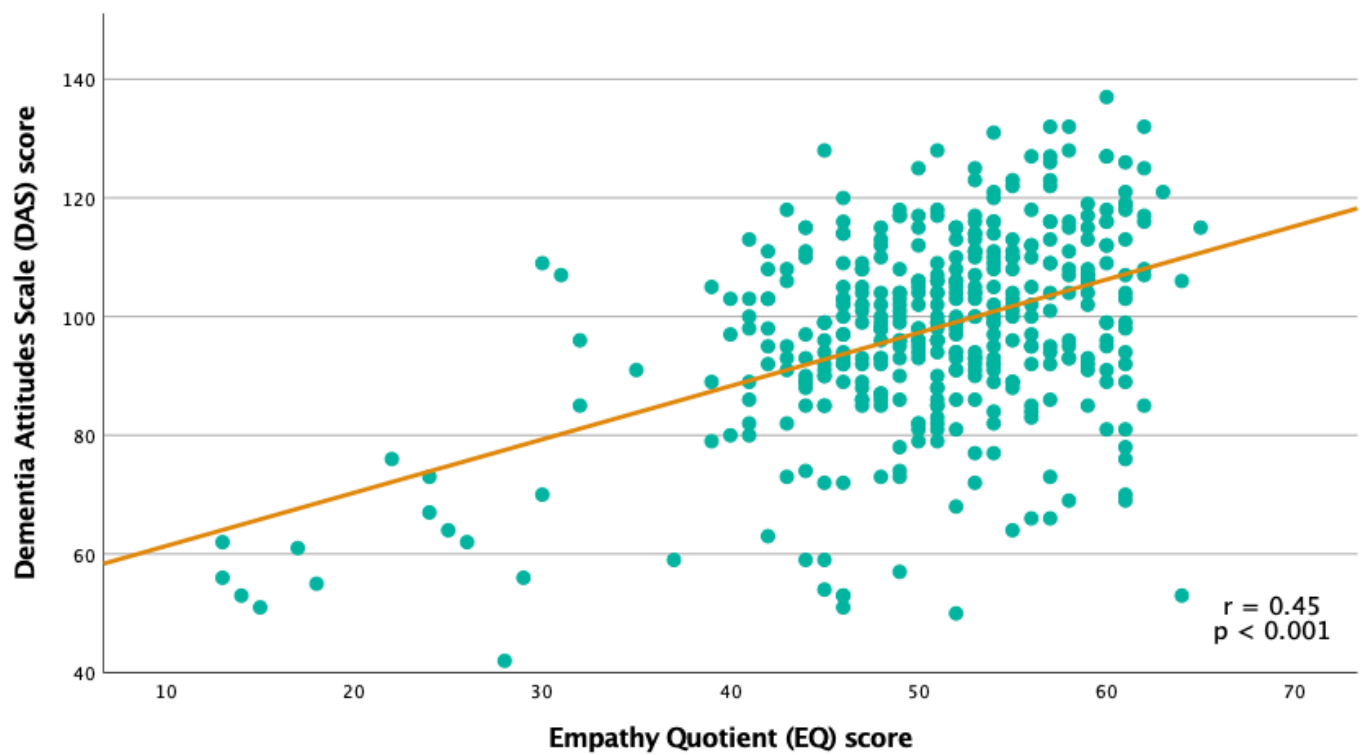


Figure 1

Association between total Empathy Quotient score and total Dementia Attitudes Scale score