

RESEARCH ARTICLE

Perceived Autism Knowledge, Attitudes, and Preparedness Among Public Service Personnel: A Cross-Sectional Training Needs Assessment

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ABSTRACT

Public service personnel are a primary point of contact for autistic citizens seeking public services, yet they remain largely unexamined in the Turkish literature. This cross-sectional study surveyed 115 public personnel in İzmir, Türkiye (response rate = 31.9%; mean age = 35.06 years; 68.7% male) using a researcher-developed self-report questionnaire assessing self-perceived ASD knowledge across six domains, four single-item affective and readiness indicators, and training preferences. Self-perceived knowledge was uniformly low (study-specific composite $M = 1.85$, $SD = 0.91$ on a 5-point scale), lowest for legal rights, where 78.3% rated themselves in the bottom two categories. Self-rated empathy ($M = 3.42$) and attitude ($M = 3.34$) were higher, while only 25.2% reported feeling prepared to work with autistic individuals. Contact frequency was associated with self-perceived knowledge ($p = .52$) but not with self-rated empathy or attitude. In a hierarchical regression, attitude ($\beta = .50$) and awareness of difficulties ($\beta = .28$) were independently associated with self-perceived preparedness, whereas self-perceived knowledge was not ($\beta = .07$, $p = .439$); because all measures were self-reported concurrently, these associations are not causal. Participants most often endorsed behavior management (72.2%) and diagnostic processes (70.4%) as priorities, preferred visual (73.9%) and applied (73.0%) methods, and favored short formats (43.5%). Findings indicate favorable self-rated attitudes alongside low self-perceived knowledge and preparedness, suggesting that practical, scenario-based elements may usefully complement informational and attitudinal components in future training.

Keywords: autism spectrum disorder; needs assessment; public service personnel; in-service training; disability-inclusive public services

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1. Introduction

Autism spectrum disorder (ASD) is a lifelong neurodevelopmental condition characterized by persistent differences in social communication and interaction alongside restricted and repetitive patterns of behavior (American Psychiatric Association [APA], 2022). Prevalence estimates have risen substantially over the past two decades. In the 2022 U.S. Autism and Developmental Disabilities Monitoring (ADDM) Network surveillance data, ASD was identified in 32.2 per 1,000 children aged 8 years—approximately 1 in 31—across 16 surveillance sites (Shaw et al., 2025), up from earlier ADDM estimates, although differences in participating sites, populations, data access, and ascertainment across surveillance years mean these figures are not directly comparable over time. While this increase reflects broadened diagnostic criteria, improved case ascertainment, and heightened public awareness as much as any true change in incidence (Arvidsson et al., 2018; Lundström et al., 2015), its practical implication is unambiguous: autistic individuals are present across every segment of society, and encounters between autistic people and public institutions are now an ordinary feature of service delivery rather than an exceptional one.

Public service personnel occupy a distinctive position within this landscape, and three features justify treating them as a target group in their own right. First, the service relationship is compulsory. In domains such as healthcare, civil registration, municipal services, and policing, citizens have few or no alternative providers; an autistic person cannot simply opt out of a service encounter that is going badly. Second, public personnel exercise discretionary authority. Decisions about whether a person is granted priority access, whether an unusual behavior is treated as a support need or a compliance problem, and whether a procedure is adapted or applied rigidly rest substantially with frontline staff. Personnel knowledge therefore functions less as an individual competency and more as a structural determinant of rights access. Third, public service environments—crowded waiting halls, brightly lit corridors, and noisy security checkpoints, impose considerable sensory demands on individuals with atypical sensory processing (Robertson & Baron-Cohen, 2017), raising the likelihood of acute stress responses that untrained staff are poorly equipped to anticipate or de-escalate.

Existing evidence indicates that this preparedness is frequently absent. Studies of public-facing and criminal justice personnel report a recurring pattern in which autistic communication differences are misread as rudeness, sensory-driven behavior is interpreted as deliberate noncompliance, and support needs are reframed as disciplinary matters (Crane et al., 2016; Gardner et al., 2019). Chown (2010) documented that police officers in the United Kingdom had received little targeted preparation for interactions with autistic individuals, and further observed that officers' self-appraisals of competence may exceed their actual capability—a finding with direct measurement implications for any study relying on self-report. The downstream consequences extend beyond the individual encounter: misdirected service pathways, prolonged procedures, and avoidable crises impose additional burden on families, and family members frequently report increased caregiving stress in relation to service encounters, though the specific dynamics of public-service encounters remain under-examined (Karst & Van Hecke, 2012).

These concerns intersect with binding policy commitments. The United Nations Convention on the Rights of Persons with Disabilities (United Nations, 2006), ratified by Türkiye, establishes

accessibility of public services as a state obligation, and national legislation—Law No. 5378 on Persons with Disabilities (2005)—prohibits disability-based discrimination, requires measures to provide reasonable accommodation, and establishes accessibility obligations, including the accessibility of information services and information and communication technologies. Yet accessibility frameworks have historically privileged physical and architectural adaptation, whereas the literature increasingly identifies staff awareness as an equally constitutive component of genuine access (Krahn et al., 2015). Physical compliance without personnel awareness may produce institutions that are physically enterable yet functionally difficult to navigate.

Against this background, the Turkish literature reveals a clear gap. Research on ASD awareness in Türkiye has expanded considerably in recent years (Çağlar & Özkan, 2021), but has concentrated on parents, teachers and preservice teachers, health professionals, and general population samples (Hıdıroğlu et al., 2020; Rakap et al., 2018; Rakap et al., 2022; Tölük et al., 2021). Public service personnel—arguably the first point of contact for many autistic citizens seeking to exercise their rights—have rarely been examined as an independent target group (Karavuş et al., 2021; Rakap et al., 2022). Equally important, the majority of these studies are descriptive and cross-sectional; systematic needs assessments conducted as a precondition for program design remain scarce. This matters because adult learners engage most effectively with content that is concrete and transferable to their own experience (Knowles, 1980). In-service training content, format, and duration are therefore best derived from the expressed requirements of the target group rather than imposed by curriculum designers.

The present study addresses this gap by conducting a training needs assessment with public service personnel in Türkiye. Rather than assuming what such personnel need to know, it documents their self-appraised knowledge, affective orientation, and preparedness, and elicits their own preferences regarding training design. The following research questions guided the study:

1. What are the levels of self-perceived ASD knowledge, empathy, attitude, difficulty awareness, and preparedness reported by public service personnel?
2. Do these levels differ according to prior ASD training, gender, educational attainment, and frequency of professional contact with autistic individuals?
3. How are these dimensions interrelated, and which of them predict self-perceived preparedness for serving autistic individuals?
4. Which content areas, instructional methods, instructional materials, and training durations do personnel prioritize for a prospective in-service training program?

2. Method

2.1. Research Design

This study employed a cross-sectional descriptive survey design conducted as a training needs assessment. In the present study, needs assessment refers to the systematic documentation of personnel's self-reported knowledge, preparedness, perceived training needs, and training preferences to inform future program development. Competence was not directly assessed; all

indicators are self-appraisals. The design was selected because the study's purpose was to characterize an existing state of affairs across a heterogeneous occupational population at a single point in time, and to generate empirically grounded parameters for instructional design, rather than to test the effect of an intervention.

2.2. Participants

Participants were public service personnel employed in various public institutions in İzmir, Türkiye. Convenience sampling was used, a non-probability approach in which data are collected from accessible individuals who consent to participate (Etikan et al., 2016). Recruitment deliberately targeted a range of public service domains in order to represent the diversity of settings in which encounters with autistic citizens may occur. Collapsed into broad categories, the sample comprised general civil servants ($n = 35$, 30.4%), military personnel ($n = 23$, 20.0%), police officers ($n = 21$, 18.3%), court clerks and secretaries ($n = 13$, 11.3%), teachers and academics ($n = 10$, 8.7%), library staff ($n = 4$, 3.5%), a data entry operator ($n = 1$), and other roles ($n = 8$, 7.0%; e.g., driver, physiotherapist, dentist, financial adviser). Categories were combined at a broad level given the small numbers in several occupations.

Of the 360 personnel invited to participate, 115 provided usable responses, yielding a response rate of 31.9%. Participants ranged in age from 20 to 55 years ($M = 35.06$, $SD = 6.70$), with 76.5% falling between 28 and 42 years. The sample was predominantly male ($n = 79$, 68.7%) and most participants were married ($n = 77$, 67.0%). A large majority reported no prior ASD-related training ($n = 105$, 91.3%), and 79.1% ($n = 91$) reported never or rarely communicating directly with autistic individuals in their professional role. Nine participants (7.8%) reported having a relative or acquaintance with ASD. Prior ASD-related training was assessed using a yes/no item and therefore did not distinguish training experiences according to their content, duration, recency, quality, or intensity. The response rate of 31.9% reflects the proportion of invited personnel who submitted a completed questionnaire; the possibility of non-response bias is considered in the limitations. Full participant characteristics are presented in Table 1.

Table 1 Participant Characteristics ($N = 115$)

Variable	Category	n	%
Gender	Male	79	68.7
	Female	36	31.3
Age group (years)	20–27	14	12.2
	28–34	46	40.0
	35–42	42	36.5
	43–55	13	11.3
Marital status	Married	77	67.0
	Single	38	33.0
Educational attainment	Bachelor's degree	68	59.1
	Associate degree	19	16.5
	Master's degree	15	13.0
	High school	10	8.7
	Doctorate	2	1.7

	Primary education	1	0.9
Prior ASD training	No	105	91.3
	Yes	10	8.7
Professional contact with	Never / very rarely (1)	91	79.1
autistic individuals	Rarely (2)	11	9.6
	Occasionally (3)	6	5.2
	Often (4)	1	0.9
	Very often (5)	6	5.2
Relative/acquaintance	Yes	9	7.8
with ASD	No	106	92.2
Perceived need for training	Yes	101	87.8
	No	14	12.2

Note. Age: $M = 35.06$, $SD = 6.70$, range = 20–55. There were no missing data.

2.3. Instrumentation

Two instruments were used: a personal information form and the Needs Assessment Questionnaire on ASD Awareness Among Public Service Personnel.

Personal information form. Developed by the researchers, this form collected data on age, gender, marital status, educational attainment, occupational role, prior ASD-related training, presence of a relative or acquaintance with ASD, and frequency of professional contact with autistic individuals.

Needs Assessment Questionnaire. The questionnaire was developed by the researchers for the present study and was constructed in two stages. In the first stage, national and international literature on ASD awareness, barriers encountered by autistic individuals in public service settings, and in-service training needs was reviewed to generate an initial item pool (Crane et al., 2016; Dillenburger et al., 2013; Rakap et al., 2022). The pool was organized around the constructs that appear in the final instrument: self-perceived knowledge, affective and readiness indicators (empathy, attitude, awareness of difficulties, preparedness), perceived training need and expected utility, and training preferences (content, materials, methods, and duration). In the second stage, the draft instrument was submitted to three academic experts holding doctoral degrees in special education, who evaluated each item for (a) comprehensibility, (b) clarity of expression, (c) adequacy of representation of the target construct, and (d) content coverage. Items judged ambiguous were simplified and items judged outside scope were removed in accordance with expert feedback. Although the questionnaire underwent expert review, it was not piloted with members of the target population before data collection, which limits conclusions concerning how consistently respondents interpreted the items. The full item wording and response anchors are provided in the Appendix.

The final instrument comprised three sections. The first assessed self-perceived knowledge across six ASD-related domains (general knowledge of ASD, diagnostic processes, characteristic features, areas of difficulty, educational processes, and legal rights and regulations) on a 5-point Likert-type scale ranging from 1 (very low) to 5 (very high). The

second assessed four affective and readiness dimensions (empathy, attitude, awareness of potential difficulties, and felt preparedness), each with a single item on the same 5-point scale, together with a single item on perceived training necessity (yes/no) and one on expected practical utility of training (1–5). Because empathy, attitude, awareness of difficulties, preparedness, and expected utility were each measured with a single item, these indicators do not permit internal-consistency estimation and provide limited construct coverage; this is noted as a limitation. The third section elicited training design preferences through multiple-response items covering content areas (seven options), instructional materials (five options), and instructional methods (six options), and a single-response item on preferred training duration.

Because all knowledge indicators were self-appraisals rather than performance-based measures, they are reported throughout as self-perceived knowledge, and self-appraisals may diverge from demonstrated knowledge (Chown, 2010). A study-specific perceived-knowledge summary index was calculated by averaging the six domain ratings. To examine whether averaging was empirically justified, an exploratory factor analysis of the six items was conducted (see Section 2.5). The index provides a parsimonious summary of participants' self-appraisals but is not presented as a validated unidimensional scale, and the six domain-level ratings are retained as primary throughout the results.

2.4. Procedure

Data were collected between March 29 and November 6, 2025 via an online questionnaire distributed to public institutions in İzmir. Participants received written information about the purpose of the study, the voluntary nature of participation, and the anonymity of responses, and provided informed consent before proceeding. The online form required a response to each item before submission, so submitted questionnaires contained no missing data; only completed submissions entered the dataset. Participants could discontinue participation at any time before submitting the questionnaire. Because submitted responses were anonymous and could not be individually identified, withdrawal was not possible after submission. No incentives were offered.

2.5. Data Analysis

Distributional assumptions were examined through Shapiro–Wilk tests and skewness and kurtosis values; single-item ordinal indicators were analyzed non-parametrically. To assess whether the six perceived-knowledge domains could be summarized as a single index, an exploratory factor analysis (principal-axis extraction) was conducted on the six items, preceded by the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity. Internal consistency of the resulting index was evaluated via Cronbach's α .

Descriptive statistics addressed Research Question 1. Group comparisons for Research Question 2 employed Mann–Whitney U tests for dichotomous grouping variables, with effect sizes reported as $r = Z/\sqrt{N}$, and Kruskal–Wallis H tests for educational attainment, with ϵ^2 as the effect size estimate. Because educational attainment categories were sparsely populated at the extremes, they were collapsed into four groups for inferential comparison: high school or below ($n = 11$), associate ($n = 19$), bachelor's ($n = 68$), and postgraduate ($n = 17$). For Research Question 3, Spearman rank-order correlations were computed among the indicators, followed by a hierarchical multiple regression predicting self-perceived preparedness. Although

preparedness was measured using a five-category response scale, it was treated as approximately continuous in the regression; linearity and homoscedasticity were evaluated by inspection of residual-versus-fitted plots and normality of residuals by the Shapiro–Wilk test, and absence of multicollinearity was confirmed (all $VIF < 5$) before interpretation. The ordinal, single-item nature of the outcome is acknowledged as a limitation. Variables were entered in three steps: demographic variables (age, gender) first as background covariates, followed by experience and perceived-knowledge variables (prior training, contact frequency, perceived-knowledge index), and then affective variables (empathy, attitude, awareness of difficulties), to examine their incremental associations with self-perceived preparedness. Gender was coded with male as the reference category and prior training with “no prior training” as the reference; contact frequency was entered as a numerical score ranging from 1 to 5. For Research Question 4, Cochran’s Q tests examined whether endorsement rates differed across the multiple-response preference options. Statistical significance was set at $\alpha = .05$. Effect sizes are reported for the group-comparison tests where applicable (r for Mann–Whitney U, ε^2 for Kruskal–Wallis). There were no missing data. Analyses beyond the primary domain-level descriptives and the preparedness regression (specifically the subgroup comparisons, correlations, and preference contrasts) are treated as exploratory.

2.6. Ethical Considerations

Ethical approval was granted by the Scientific Research and Publication Ethics Committee for Social and Human Sciences of İzmir Demokrasi University (Protocol No. 2025/01; Decision No. 2025/01-20; January 8, 2025), prior to the commencement of data collection. The study was conducted in accordance with the principles of the Declaration of Helsinki (World Medical Association, 2013) and institutional research ethics guidelines. All participants provided informed consent, and data were anonymized at the point of collection in accordance with Personal Data Protection Law No. 6698. Although autistic individuals were not participants in this study, they constitute its subject matter; accordingly, all instrument wording and reporting language was reviewed to avoid stigmatizing framing and to adopt a rights-based orientation (Casco et al., 2020). Identity-first terminology is used in line with prevailing community preference and current guidance on non-ableist language in autism research (Bottema-Beutel et al., 2021). Raw data are stored on a password-protected institutional server for five years, after which they will be irreversibly deleted.

3. Results

3.1. Perceived Knowledge, Affective Orientation, and Preparedness

The six perceived-knowledge items were suitable for factor analysis ($KMO = .89$; Bartlett’s test, $\chi^2(15) = 750.3$, $p < .001$). Exploratory factor analysis returned a single factor with an eigenvalue above 1 (4.91; next eigenvalue 0.42), accounting for 81.7% of the variance, with loadings from .83 to .95. Internal consistency was high ($\alpha = .955$, 95% $CI [.940, .966]$; corrected item–total correlations .76 to .92). On this basis the six items were averaged into a study-specific perceived-knowledge index, reported alongside the six domain-level ratings, which remain primary. The high α is consistent with a narrow, closely related set of self-appraisals and should not be read as evidence of a validated scale.

Descriptive statistics are presented in Table 2. Perceived knowledge was uniformly low: item means ranged from 1.69 to 2.00 on a 5-point scale, and the composite mean was 1.85 ($SD = 0.91$). Across every domain, the majority of participants rated themselves in the lowest two response categories. The most pronounced deficit concerned legal rights and regulations ($M = 1.69$, $SD = 0.93$), where 78.3% rated their knowledge as low or very low and only 5.2% as high or very high, followed by diagnostic processes ($M = 1.74$; 76.5% low) and educational processes ($M = 1.81$; 74.8% low).

Affective and readiness indicators diverged sharply from this pattern. Empathy toward autistic individuals ($M = 3.42$, $SD = 1.42$) and attitude toward working with them ($M = 3.34$, $SD = 1.27$) were substantially higher, with 53.0% and 41.7% respectively rating themselves in the upper two categories. Preparedness, however, was low ($M = 2.67$, $SD = 1.31$): 46.1% did not feel prepared to work with autistic individuals, while only 25.2% did. Awareness of potential difficulties occupied an intermediate position ($M = 2.82$, $SD = 1.40$). Expectations regarding the practical utility of training were the highest of any indicator ($M = 3.61$, $SD = 1.23$), with 54.8% anticipating high or very high field utility. Consistent with this pattern, 87.8% ($n = 101$) indicated that they needed training on ASD.

Table 2 Descriptive Statistics for Perceived Knowledge and Affective Dimensions ($N = 115$)

Dimension	M	SD	Mdn	Low (1–2) %	High (4–5) %
General knowledge of ASD	1.93	1.05	2.0	67.8	7.0
Diagnostic processes	1.74	0.94	1.0	76.5	5.2
Characteristic features	1.94	1.05	2.0	69.6	7.8
Areas of difficulty	2.00	1.09	2.0	67.8	9.6
Educational processes	1.81	1.00	1.0	74.8	7.0
Legal rights and regulations	1.69	0.93	1.0	78.3	5.2
Perceived knowledge composite	1.85	0.91	1.7	63.5	2.6
Empathy	3.42	1.42	4.0	26.1	53.0
Attitude	3.34	1.27	3.0	22.6	41.7
Awareness of difficulties	2.82	1.40	3.0	44.3	30.4
Preparedness	2.67	1.31	3.0	46.1	25.2
Expected utility of training	3.61	1.23	4.0	18.3	54.8

Note. All items were rated on a 5-point scale from 1 (very low) to 5 (very high).

3.2. Group Differences

Shapiro–Wilk tests indicated departures from normality for all indicators ($p < .001$); non-parametric tests were therefore used.

Prior training. Comparisons involving prior training ($n = 10$), personal acquaintance ($n = 9$), and no perceived training need ($n = 14$) are based on small, unequal groups and are reported as exploratory. Participants with prior ASD training reported higher perceived knowledge than those without ($n = 105$), $Mdn = 3.08$ versus 1.50, $U = 871.0$, $Z = 3.43$, $p < .001$, $r = .32$, along with higher awareness of difficulties ($Z = 2.23$, $p = .023$, $r = .21$) and preparedness ($Z = 2.24$, $p = .022$, $r = .21$). Empathy and attitude did not differ ($ps > .26$).

Professional contact. Professional contact frequency was associated with self-perceived knowledge, $\rho = .52, p < .001$, and more weakly with preparedness ($\rho = .25, p = .006$), awareness of difficulties ($\rho = .22, p = .018$), and expected utility of training ($\rho = .32, p < .001$). It was not significantly associated with empathy ($\rho = .12, p = .223$) or attitude ($\rho = .10, p = .314$). The questionnaire measured contact frequency but not the quality, duration, context, or voluntariness of contact.

Personal acquaintance. Participants reporting a relative or acquaintance with ASD ($n = 9$) reported higher empathy ($Z = 2.41, p = .014, r = .22$) and greater awareness of difficulties ($Z = 2.76, p = .005, r = .26$), but did not differ in perceived knowledge ($p = .704$).

Educational attainment. Educational-attainment groups differed overall in awareness of difficulties, $H(3) = 14.06, p = .003, \epsilon^2 = .100$. Descriptively, the postgraduate group had the highest median ($Mdn = 4.00$) and the associate-degree and lower-education groups the lowest ($Mdn = 2.00$), although pairwise group differences were not tested. Preparedness did not differ significantly by education, $H(3) = 7.56, p = .056$, and neither did perceived knowledge, $H(3) = 3.79, p = .285$.

Gender. No significant gender differences emerged on any indicator (all $ps > .05$).

Perceived need for training. The small subgroup reporting no perceived need for training ($n = 14$) also reported less favorable attitudes ($Mdn = 1.50$ vs. $3.00; Z = 3.24, p < .001, r = .30$) and lower expected utility of training ($Mdn = 2.00$ vs. $4.00; Z = 3.56, p < .001, r = .33$); they did not differ in perceived knowledge ($p = .116$). Given the subgroup size and self-report design, this finding is exploratory and does not establish why these participants reported not needing training.

3.3. Predicting Self-Perceived Preparedness

Spearman correlations (Table 3) indicated that preparedness was most strongly associated with attitude ($\rho = .66, p < .001$), awareness of difficulties ($\rho = .56, p < .001$), and empathy ($\rho = .52, p < .001$), and only moderately with perceived knowledge ($\rho = .38, p < .001$).

Table 3 Spearman Rank-Order Correlations Among Study Variables ($N = 115$)

Variable	1	2	3	4	5	6
1. Perceived knowledge	—					
2. Empathy	.37**	—				
3. Attitude	.15	.38**	—			
4. Awareness of difficulties	.52**	.59**	.28**	—		
5. Preparedness	.38**	.52**	.66**	.56**	—	
6. Expected utility	.23*	.46**	.40**	.22*	.31**	—
7. Contact frequency	.52**	.12	.10	.22*	.25**	.32**

Note. * $p < .05$. ** $p < .01$.

A hierarchical multiple regression was conducted to identify the relative contribution of these dimensions. Assumptions were satisfied: residuals were normally distributed ($W = .983, p = .145$), Durbin–Watson = 1.98, and all VIF values were below 2.1.

Demographic variables entered at Step 1 explained negligible variance, $R^2 = .014$, $F(2, 112) = 0.79$, $p = .457$. Adding prior training, contact frequency, and perceived knowledge at Step 2 produced a significant increment, $\Delta R^2 = .153$, $F(3, 109) = 6.68$, $p < .001$. Adding empathy, attitude, and awareness of difficulties at Step 3 produced a substantially larger increment, $\Delta R^2 = .450$, $F(3, 106) = 41.59$, $p < .001$, yielding a final model accounting for 61.7% of the variance in preparedness, $F(8, 106) = 21.37$, $p < .001$, adjusted $R^2 = .588$.

In the final model, perceived knowledge was not significantly associated with preparedness ($\beta = .07$, $p = .439$). Attitude ($\beta = .50$, $p < .001$) and awareness of difficulties ($\beta = .28$, $p < .001$) were each independently associated with self-perceived preparedness. Empathy was not a significant predictor ($\beta = .15$, $p = .064$), and neither prior training ($\beta = .06$, $p = .411$) nor contact frequency ($\beta = .06$, $p = .432$) was independently associated with preparedness once affective variables were included. Because all predictors and the outcome were self-reported concurrently, these coefficients represent conditional associations rather than evidence that any variable determines preparedness, and the substantial explained variance should be interpreted cautiously given possible conceptual overlap among the self-report constructs.

Table 4 Hierarchical Multiple Regression Predicting Self-Perceived Preparedness ($N = 115$)

Predictor	B	SE	β	p	95% CI
Age	-0.003	0.013	-.02	.811	[-0.028, 0.022]
Gender (female)	-0.172	0.181	-.06	.347	[-0.531, 0.188]
Prior ASD training	0.260	0.314	.06	.411	[-0.364, 0.883]
Contact frequency	0.079	0.101	.06	.432	[-0.120, 0.279]
Perceived knowledge	0.095	0.123	.07	.439	[-0.148, 0.339]
Empathy	0.138	0.074	.15	.064	[-0.008, 0.285]
Attitude	0.512	0.069	.50	< .001	[0.375, 0.649]
Awareness of difficulties	0.258	0.075	.28	< .001	[0.109, 0.406]

Note. $R^2 = .617$, adjusted $R^2 = .588$, $F(8, 106) = 21.37$, $p < .001$. Step 1 (demographics) $R^2 = .014$; Step 2 $\Delta R^2 = .153$, $p < .001$; Step 3 $\Delta R^2 = .450$, $p < .001$.

3.4. Training Design Preferences

Endorsement rates differed across the content options, Cochran's $Q(6) = 98.53$, $p < .001$. Behavior management techniques (72.2%) and diagnostic processes (70.4%) had the highest descriptive endorsement rates, followed by family and environmental support (62.6%); accommodations and modifications had the lowest (25.2%).

For instructional materials, $Q(4) = 45.80$, $p < .001$: training seminars (62.6%) and videos and interactive content (59.1%) predominated over online courses (46.1%), workshops (36.5%), and books and articles (27.0%). For instructional methods, $Q(5) = 123.93$, $p < .001$: visual learning (73.9%) and applied, experiential learning (73.0%) were endorsed by roughly three quarters of participants, substantially exceeding auditory learning (42.6%), group discussion (38.3%), drama and empathy activities (34.8%), and role-play (27.0%).

Regarding duration, 43.5% ($n = 50$) preferred short 1–2 hr sessions, 23.5% ($n = 27$) a multi-week program, 18.3% ($n = 21$) a single comprehensive day, and 13.9% ($n = 16$) a 6–8 hr format;

one respondent selected an “undecided” option (0.9%), so duration percentages are computed over all 115 respondents.

Table 5 *Training Design Preferences (N = 115)*

Preference domain and option	n	%
Content areas		
Behavior management techniques	83	72.2
Diagnostic process of ASD	81	70.4
Family and environmental support	72	62.6
Instructional methods and strategies	57	49.6
Legal rights and regulations	56	48.7
Vocational training and employment	56	48.7
Accommodations and modifications	29	25.2
Instructional materials		
Training seminars	72	62.6
Videos and interactive content	68	59.1
Online courses	53	46.1
Workshops and group activities	42	36.5
Books and articles	31	27.0
Instructional methods		
Visual learning	85	73.9
Applied and experiential learning	84	73.0
Auditory learning	49	42.6
Group discussion and interaction	44	38.3
Drama and empathy activities	40	34.8
Role-play activities	31	27.0
Preferred duration		
Short sessions (1–2 hr)	50	43.5
Long-term program (several weeks)	27	23.5
One full comprehensive day	21	18.3
Medium-length sessions (6–8 hr)	16	13.9
Undecided	1	0.9

Note. Content areas, materials, and methods were multiple-response items; percentages therefore exceed 100 within each domain. Cochran's Q : content $Q(6) = 98.53, p < .001$; materials $Q(4) = 45.80, p < .001$; methods $Q(5) = 123.93, p < .001$. Duration was a single-response item.

4. Discussion

This study examined the ASD-related training needs of public service personnel in Türkiye, a workforce that constitutes a primary point of contact for autistic citizens seeking access to public services yet remains largely unexamined in the national literature. Three findings warrant particular attention: the uniformly low level of perceived knowledge, the marked dissociation between affective orientation and felt preparedness, and the finding that preparedness was predicted by attitudinal rather than knowledge-related variables.

4.1. A Knowledge Floor, Sharpest Where Rights Are at Stake

Perceived knowledge was low across all six domains examined, with the composite mean falling below 2 on a 5-point scale and 91.3% of participants reporting no prior ASD training of any kind. This pattern is consistent with earlier Turkish findings documenting limited ASD knowledge among various occupational groups (Gürbüz Özgür et al., 2019; Rakap et al., 2022) and with international evidence from public safety contexts (Chown, 2010).

The distribution of these self-ratings is more informative than their overall magnitude. Self-appraised knowledge was lowest for legal rights and regulations, where 78.3% of participants rated themselves in the bottom two categories and only 5.2% in the top two. Türkiye's ratification of the Convention on the Rights of Persons with Disabilities (United Nations, 2006) and the provisions of Law No. 5378 (2005) establish entitlements, including procedural accommodation and accessible communication, whose implementation depends in part on frontline personnel being aware that such entitlements exist. Limited self-perceived knowledge of legal rights may create barriers to their consistent implementation, although actual legal knowledge and service practices were not assessed in this study. This pattern is consistent with the argument that staff awareness is a component of accessibility rather than a supplement to physical adaptation (Krahn et al., 2015).

These are self-appraisals rather than demonstrated knowledge, and self-ratings may diverge from performance in either direction (Chown, 2010). We therefore restrict interpretation to what participants reported about themselves. How self-perceived knowledge relates to actual service behavior was not assessed here and would require behavioral or observational data to establish.

4.2. Favorable Attitudes Alongside Low Self-Perceived Knowledge

The second finding concerns the divergence between affective and competence-related indicators. Participants rated their empathy toward autistic individuals ($M = 3.42$) and their attitude toward working with them ($M = 3.34$) substantially higher than their knowledge, and 54.8% anticipated that training would be of high practical utility. Yet only 25.2% felt prepared to work with autistic individuals, and 46.1% explicitly did not.

This configuration, favorable self-rated attitudes alongside low self-perceived knowledge and preparedness, suggests a possible focus for future training. Studies of public-facing personnel have documented misattributions in which autistic communication differences are read as rudeness and sensory-driven behavior as deliberate noncompliance (Crane et al., 2016; Gardner et al., 2019), though whether the present sample would show such patterns in practice was not assessed. To the extent that these participants already report favorable attitudes, future programs for similar groups might place relatively more emphasis on concrete, applicable knowledge than on attitude change, a hypothesis that intervention research could test directly.

From a program design standpoint, this pattern points to a possible focus. Future programmes for similar samples may place greater emphasis on concrete, situationally applicable content while retaining appropriate informational and attitudinal components. The relative effectiveness of these elements was not evaluated in the present study and would need to be established through intervention research.

4.3. Factors Associated with Self-Perceived Preparedness

The hierarchical regression sharpened this picture considerably. Demographic characteristics explained essentially no variance in preparedness. Experience and knowledge variables added a modest increment. Affective variables added a substantial one, producing a final model that accounted for 61.7% of the variance. Within that model, attitude ($\beta = .50$) and awareness of potential difficulties ($\beta = .28$) emerged as significant predictors, while perceived knowledge did not ($\beta = .07, p = .439$).

Two readings of this non-significant association can be distinguished. The first is substantive: self-perceived preparedness may be associated more closely with disposition and with anticipatory understanding of what could go wrong than with declarative knowledge about ASD. On this reading, awareness training built solely around information transmission might be less well targeted than training that also addresses scenario-based anticipation of difficulty; this is a hypothesis for future evaluation rather than a demonstrated result, since the study did not compare training approaches.

The second reading is methodological and equally plausible: self-perceived knowledge in this sample was compressed near the floor of the scale ($M = 1.85, SD = 0.91$, with 63.5% in the bottom two categories), and a predictor with restricted variance may fail to differentiate outcomes regardless of its underlying importance. The cross-sectional design cannot adjudicate between these interpretations. In the final model, attitude and awareness of potential difficulties were the indicators independently associated with self-perceived preparedness; because all constructs were measured concurrently by self-report and attitude and preparedness overlap conceptually (see Section 4.7), these associations should not be read as evidence that attitude or awareness determines preparedness. Whether knowledge would be associated with preparedness in a sample with greater knowledge variance remains an open question.

Awareness of potential difficulties merits separate comment, since it was the only dimension to differ significantly by educational attainment and one of only two to differ by personal acquaintance with an autistic individual. It appears to function as a bridging construct between disposition and competence, an appreciation that the encounter will present specific challenges, without necessarily knowing how to meet them. Its predictive weight suggests it is a productive explicit target for instructional design rather than an incidental byproduct.

4.4. Professional Contact and Self-Rated Attitudes

Professional contact frequency was associated with self-perceived knowledge ($p = .52$) but not with self-rated empathy ($p = .12$) or attitude ($p = .10$). Intergroup contact is generally expected to improve attitudes, and studies in campus and educational settings have reported associations between personal contact and more favorable ASD-related orientations (Dillenburger et al., 2017; Tipton & Blacher, 2014). One possible explanation for the present pattern is that professional and personal contacts differ in their quality or context. However, this study measured contact frequency rather than these characteristics, so this interpretation remains speculative. Differences between professional and personal forms of contact may warrant examination in future research; in the present data, participants with a personal relative or acquaintance with ASD reported higher empathy and difficulty awareness, though not higher knowledge.

Because the study did not manipulate or measure the nature of contact, it cannot establish whether professional exposure contributes to attitudinal change. This question is better addressed by designs that characterize the quality and context of contact directly.

4.5. The Subgroup Reporting No Perceived Training Need

A small subgroup ($n = 14$, 12.2%) reported not needing ASD training. These participants did not differ from the remainder in perceived knowledge but reported less favorable attitudes ($r = .30$) and lower expectations of training utility ($r = .33$). The data show lower attitudes and expected utility in this subgroup; they do not establish disengagement, poorer future service encounters, or a need for mandatory training. One implication worth exploring is that voluntary programs may under-reach personnel with less favorable initial attitudes, though testing this would require follow-up on who enrolls and who benefits.

4.6. Design Preferences and What They Reveal

Preference data yielded clear and statistically differentiated priorities. Participants prioritized behavior management techniques (72.2%) and diagnostic processes (70.4%), preferred visual (73.9%) and applied experiential (73.0%) instructional methods, favored seminars and interactive video content over text-based resources, and predominantly requested short 1–2 hr formats (43.5%). The methodological preferences align closely with adult learning principles, which hold that adult learners engage most effectively with concrete, immediately transferable content (Knowles, 1980).

The content preferences may also be read more cautiously. The high endorsement of behavior management techniques alongside the lower ranking of accommodations and modifications (25.2%) is consistent with a framing in which autistic behavior is seen as something to be managed rather than as communication or as a signal that the environment could be adjusted, though the preference items do not directly establish participants' underlying models. Needs assessment data usefully inform program design without being implemented uncritically: a program could meet the expressed demand for practical behavioral guidance while situating it within an antecedent-focused, environmentally oriented approach.

A comparable tension appears in duration preferences. The strong preference for brief formats reflects the real constraints of shift-based public sector work, but is difficult to reconcile with the low level of self-perceived knowledge reported here. A modular architecture of short, self-contained sessions delivered sequentially offers a reasonable resolution, preserving both feasibility and cumulative depth.

4.7. Limitations

Several limitations qualify these findings. The study employed a cross-sectional convenience sample drawn from a single province, and the results should not be generalized to the national public workforce. The response rate of 31.9% raises the possibility of non-response bias, and it is plausible that personnel with greater interest in ASD were more likely to participate, which would render the present estimates of knowledge and motivation optimistic rather than conservative.

All measures were self-report administered at a single time point; no performance-based assessment of ASD knowledge, behavioral measure, or service-quality outcome was collected,

so the study speaks to self-perceptions rather than demonstrated knowledge or practice, and self-appraisal may diverge from performance (Chown, 2010). Because the design is cross-sectional, all associations reported here are correlational and cannot support causal inference. The affective and readiness dimensions were each measured by a single item, precluding reliability estimation and limiting construct coverage. The perceived-knowledge composite showed very high internal consistency ($\alpha = .955$), which, while satisfying conventional criteria, may indicate item redundancy and a correspondingly narrow construct (Streiner, 2003). Attitude and preparedness were substantially correlated ($p = .66$), and their conceptual overlap means the regression finding should be interpreted as descriptive of shared variance rather than as evidence of causal priority.

Subgroup analyses involving participants with prior training ($n = 10$) and those with a personal acquaintance with ASD ($n = 9$) were underpowered and should be treated as exploratory.

Finally, and most importantly, the needs assessment consulted only service providers. Autistic individuals and their families, who experience the consequences of personnel unpreparedness directly, were not included as informants. A fuller account of what public personnel need to know would require their perspectives, and their absence constitutes a substantive limitation on the validity of the needs profile presented here.

4.8. Conclusion

Public service personnel in this sample reported low self-perceived ASD knowledge, with the lowest self-ratings for legal rights, alongside more favorable self-rated attitudes and expectations of training utility. In the regression, self-perceived preparedness was associated with attitude and awareness of potential difficulties rather than with self-perceived knowledge, an association that is cross-sectional and not causal. These findings suggest that practical and scenario-based elements may usefully complement informational and attitudinal components in future training programs for this population, a possibility that intervention research should test directly. Future work should incorporate performance-based knowledge measures, include autistic individuals and family members as informants, examine the quality as well as the frequency of contact, and evaluate whether specific training designs produce measurable change in service encounters.

Declarations

Author Contributions

Kağan Gümüş (kgngms@icloud.com): conceptualization, data collection, formal analysis, writing – original draft. Emre Ünlü (eskemre@gmail.com): supervision, methodology, formal analysis, writing – review and editing. Both authors read and approved the final version of the manuscript.

Author Note

This article reports the needs assessment phase of a broader master's thesis project conducted by the first author under the supervision of the second author at İzmir Demokrasi University. Findings concerning the effectiveness of the training program developed on the basis of this needs assessment are reported separately.

Ethical Approval

İzmir Demokrasi University, Scientific Research and Publication Ethics Committee for Social and Human Sciences (Protocol No. 2025/01; Decision No. 2025/01-20; January 8, 2025).

Conflict of Interest

The authors declare no conflict of interest.

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Data Availability

The anonymized dataset is available from the corresponding author upon reasonable request.

Use of Artificial Intelligence

The authors used AI-assisted tools for language editing and reference formatting checks. All scientific content, analytic decisions, interpretations, and final wording were determined and verified by the authors, who take full responsibility for every claim in the manuscript. AI tools were not listed as authors and were not used to generate scientific content, participants, or data.

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Appendix. Questionnaire Items and Response Anchors

Items were administered in Turkish; English translations are provided here. Section A (perceived knowledge) and Section B (affective and readiness indicators) used a 5-point response scale; the anchors for the six knowledge items were 1 (very low), 2 (low), 3 (moderate), 4 (high), 5 (very high). Empathy, attitude, awareness of difficulties, preparedness, and expected utility each used a parallel 1 (very low) to 5 (very high) anchor. Perceived training need was a yes/no item. Section C (preferences) used the response options listed in Table 5.

Section A — Self-perceived knowledge (rate your level of knowledge regarding ...): (1) autism spectrum disorder (ASD) in general; (2) the ASD diagnostic process; (3) the characteristic features of individuals with ASD; (4) the areas of difficulty experienced by individuals with ASD; (5) the educational processes of individuals with ASD; (6) the legal rights of individuals with ASD.

Section B — Affective and readiness indicators: (7, empathy) Rate your level of empathy toward individuals with ASD. (8, attitude) Rate your attitude toward working with individuals

with autism. (9, awareness of difficulties) Rate how aware you are of the difficulties you might experience when encountering an individual with ASD. (10, preparedness) How prepared do you feel to work with individuals with ASD? (11, perceived need) Do you think you need training about ASD? [yes/no] (12, expected utility) To what extent do you think training about individuals with autism would be useful to you in the field?

Section C — Training preferences: (13) On which topics about ASD would you like more information? [multiple response] (14) Which training materials or resources would you prefer for learning about ASD? [multiple response] (15) Which instructional methods would you like a training program on ASD to include? [multiple response] (16) What do you think about the duration of the training program? [single response] (17) Please state the reasons for your duration preference. [open-ended] The response options for items 13–16 are reported in Table 5.