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Roma People Perception of Public Health System and a Classification into Homogeneous Groups Using K-Means Cluster Analysis

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Abstract

This article presents perceptions, feelings and beliefs of Roma towards public health system. Participants were 361 Romani, living in central Greece. Shamer Scale, Experience of Shame Scale, State/Trait Anxiety Inventory (STAI), Family Environment Scale (FES), Symptom Check List 90 (SCL-90-R) and PBQ were used. Respondents exhibit higher levels of anxiety both trait and state. Feelings of abandonment and social discrimination corresponded to higher scores of shame. The inability to understand medical instructions and the need to be surrounded by relatives are correlated with psychopathology and shame whereas strong family structure corresponds to improved perceptions towards public health system. A cluster analysis was applied and a three group solution is proposed. Lack of education and harder living condition characterize the cluster with the most negative feelings towards public health system. The results of this paper may be useful in policy makers and persons looking to create interventions in this minority.

Keywords: ROMA, PERCEPTION, PUBLIC HEALTH, Shamer Scale, Experience of Shame Scale, State/Trait Anxiety Inventory (STAI), Family Environment Scale (FES), Symptom Check List 90 (SCL-90-R)

Introduction

The history of Roma in Greece goes back to the 15th century. Due to their nomadic nature, they are not concentrated in a specific geographical area, but are dispersed all over Greece. The majority of the Greek Roma are Orthodox Christians who speak the Romani language in addition to Greek. They largely maintain their own customs and traditions. Nomads at the settlements often differentiate themselves from the rest of the population. They number 200,000 according to the Greek government. As a result of neglect by the state, among other factors, the Romani communities in Greece face several problems include high instances of child labor and abuse, low school attendance, police discrimination and drug trafficking.

The improvement of our understanding of how Roma perceive public health system will provide insight in the motivation of that people to behave in a way that complicates communication with nurses and stuff in health facilities enhancing this way the ability of the managers to make targeted interventions in order to achieve better management of that behavioral problems.

- Existing research knowledge relating to the specific research question: inadequate information for the perceptions, feelings and beliefs of Roma people towards public health system and the interconnection of those perceptions with their psychological profile.

- New knowledge added by this study: the Roma minority in Greece face discrimination in housing, education, healthcare, employment, and law enforcement. And this is why these people reduce their commitment and trust to public services.

Perceptions, feelings and beliefs of Roma people towards public health facilities were recorded using the PBQ questionnaire that was designed and administered for first time in this study. The PBQ questionnaire consists of 14 questions that were selected as appropriate to represent the perceptions, the beliefs and the feelings that may predispose persons towards negative behaviors in the case of illness when resorting in public health facilities.

Age and gender are studied as factors that possibly correlate with perceptions and beliefs towards public health system. In order to provide a socioeconomic and psychological characterization of Roma people in terms of their responses in PBQ questionnaire we applied k-cluster analysis and we suggest a three cluster grouping of the respondents into homogeneous groups according to their perceptions as represented in the responses in the questionnaire. We describe the profile of these groups, a result that may help policy makers to make targeted interventions in order to improve present situation.

Method

Participants and study design

The data collection was carried out between January 2010 and December 2012. Five hundred Roma people was initially communicated from the researcher and 361 finally responded, 236 women (65.4%) and 125 men (34.6%), aged 14 to 73 (Mm= 35.3, SD 12.8; Mw= 33.3, SD 12.7, ns). The majority of the respondents were

living in the geographic region of Thessaly (230 respondents, 63.7%), while 128 (35.5%) did not declare their permanent residence. Two hundred seventy one were married (75.1%), whereas 62 (17.2%) were single and 28 (6.8%) in other marital status (divorced, widowed etc). Although, the precise level of representatively of this sample for the entire population of Roma people in Greece cannot be estimated, the consistency and accuracy of data is ensured by the relatively large size of the sample (361 respondents).

Instruments and measures

Additionally to perceptions, beliefs and feelings questionnaire (PBQ) a socio-demographic questionnaire was used in order to record gender, family status, place of living, home facilities and various socio-economic data. To study further the respondent's psychological profile, the following instruments were used:

		Totally disappointed /disagree						Totally satisfied/ agree
1	Satisfaction with service at hospital	-3	-2	-1	0	1	2	3
2	Satisfaction with service from doctor	-3	-2	-1	0	1	2	3
3	Satisfaction with service from nurses	-3	-2	-1	0	1	2	3
4	Discrimination in Romani people	-3	-2	-1	0	1	2	3
5	No service is interested in me and my relatives	-3	-2	-1	0	1	2	3
6	I cannot follow the instructions	-3	-2	-1	0	1	2	3
7	I am embarrassed to use health services	-3	-2	-1	0	1	2	3
8	Rely more on medicine Romani	-3	-2	-1	0	1	2	3
9	I feel different from other local people	-3	-2	-1	0	1	2	3
10	Problems due to living conditions	-3	-2	-1	0	1	2	3
11	When I have a health problem then I am addressing to the leader	-3	-2	-1	0	1	2	3
12	Gift to the doctor	-3	-2	-1	0	1	2	3
13	Need to have my relatives next to me in the hospital	-3	-2	-1	0	1	2	3
14	I feel shame when I get sick	-3	-2	-1	0	1	2	3

Table 1: Perceptions and behaviors questionnaire (PBQ)

Others as Shamer (OAS; Goss et al., 1994) [1]

This 18 items scale measures external shame (global judgements of how people think that others view them). Respondents rate on a 5-point Likert scale (0–4) the frequency of their feelings and experiences in items such as 'I feel other people see me as not quite good enough' and 'I think that other people look down on me'. Higher scores on this scale reveal high external shame. The Greek version of OAS questionnaire - has been validated by Gouva et al- and found to have an excellent internal consistency (Cronbach's α = 0.944).

Experience of Shame Scale (ESS; Andrews et al., 2002)[2]

ESS is a 25-item scale assessing feelings of shame around three key domains of self: character (personal habits, manner with others, what sort of person you are and personal ability), behaviour (shame about doing something wrong, saying something stupid and failure in competitive situations) and body (feeling ashamed of one's body or parts of it). Each item indicates the frequency of experiencing, thinking and avoiding any of the three areas of shame in the past year and is rated on a 4-point Likert scale (1–4). The Greek version of ESS questionnaire have been translated and validated into Greek by members of the research team Gouva et al., in 2013. In the present study, ESS scale showed an excellent internal consistency (Cronbach's α = 0.935).

Symptom Check List 90 (SCL-90-R) (Derogatis,1983)

The SCL-90-R was used to assess mental well-being. This widely used screening tool, which can be used for screening against putative cases of psychiatric/psychological illness, contains 90 items with a 5-point scale (0 = not at all, 4 = extremely), and assesses symptomatology in nine areas (Somatisation - SM, Obsessive–Compulsive - OC, Interpersonal Sensitivity - IS, Depression - DR, Anxiety - AN, Aggression - AG, Phobia - PH, Paranoid Ideation - PI, Psychoticism - PS). The average score of all 90 items yields the global severity index (GSI), which represents the overall level of distress. GSI t scores ≥63 identify cases with possible mental disorder (SCL cases). In addition, the Positive Symptom Distress Index (PSDI) is calculated which indicates the intensity of distress. Higher scores on the scales of the SCL-90-R indicate higher distress; it should be noted that individual scales cannot be interpreted in diagnostic categories. In the present study, SCL-90-R scale showed an excellent internal consistency (Cronbach's α = 0.977)

The State/Trait Anxiety Inventory (STAI)

It consists of 40 items (each scale containing 20 items), is summarized by a score ranging from 20 to 90 and assesses how the subject usually feels in terms of severity ("not at all" to "very much so") [3]. The cut-off score for high anxiety in Greek population is 43.2 (State Anxiety), 42.8 (Trait Anxiety). The STAI has been translated and validated in Greek [4]. In the present study, STAI scale showed an excellent internal consistency (Cronbach's α = 0.833).

The Family Environment Scale (FES)

It is used to measure the social-environmental characteristics of family. The scale is a 90-item inventory that has a 10 subscales (cohesion (COH), expressiveness (EXPR), conflict (CON), independence (IND), achievement orientation (ACH), intellectual-cultural orientation (ICO), active-recreational orientation (ARO), moral-religious emphasis (MRE), organization (ORG) and control (CNR)) measuring interpersonal Relationship dimension (3 subscales), personal growth (5 subscales), and the system maintenance (2 subscales). The FES has been translated and validated in Greek [5]. In the present study, FES scale showed an excellent internal consistency (Cronbach's α = 0.855)

Statistical Analysis

All data were analysed using predictive analytics software (SPSS), version 20 (SPSS Inc., Chicago, IL, USA). The OAS, ESS – 25, FES, SCL-90-R, STAI scales were scored and analysed according to the published guidelines using appropriate compute and transform commands on SPSS application. The chi-square test of independence was performed to examine the relation between pairs of nominal or ordinal variables whereas Fisher exact test was applied when the necessary assumptions for chi square was not met (expected counts less that 5). Independent samples t test and analysis of variation (ANOVA) were conducted to explore whether there are differences between the groups defined by discrete variables for all scales that were computed from our data. In every replication of the method Levene test was used to test whether homogeneity is assumed and Welch's test was applied instead when this assumption was not met. Tamhane's post hoc multiple comparisons was chosen as appropriate for our data since variances were not equal between groups. For the reader's convenience when a group has larger (corr. lower) score from all the other groups that defined from the grouping variable the (L) figure (corr. (S)) appear next to the score. A 0.05 level of significance was set for all statistical tests. The hierarchical cluster analysis using Ward's method and Euclidean distance was applied in order to detect the optimal splitting of our sample in homogeneous subsets according to the similarity of responses in the 14 item PBQ questionnaire. K-Means clustering algorithm was applied in order to divide respondents in three groups which appearing to be a solution both combining simplicity and clarity. Standard descriptive statistics and tests were subsequently applied to describe the main characteristics of those groups.

Results

The responses of the participants about their satisfaction from the hospital, the doctors and the nurses were highly positive correlated indicating this way that these three pillars of public health are not encountered in a different way from Roma people that participated in this study. Further, negative feelings about self in case of illness and the belief that no service is interested in them are correlated with embarrassment when use public health facilities (Table 2). A respondent was characterized by higher scores in state, and trait anxiety as well higher than general population shame and psychopathology indexes. Global severity index (GSI), total shame (both OAS and ESS) and anxiety (STAI) were positively correlated with the inability to understand medical instructions, the feeling of being different and the need to surrounded by relatives while in the hospital (Table 3). On the other hand, family environment as represented in FES total score was negatively correlated with the answers in all questions indicating negative feelings and experiences. Furthermore, although the respondents of this study took a negative position against traditional Roma medicine a significant negative correlation of anxiety with the response in this answer was observed. Finally, feelings of abandonment and social discrimination were positively correlated with shame (both OAS and ESS). Gender was not associated with significant differences in perceptions and beliefs with two exceptions. First, women was showed to be more likely to feel shame when they get sick (Mw = -0.11, Mm = -0.66, t (359) = 2.34, p = .02) while in that case it is also more likely for them to seek help at the community leader (Mw = -0.47, vs Mm = -1.06, t (280.9) = 2.625, p = .012). Age was significantly positively correlated with the belief that Roma people are abandoned from the society (question 5, r (N = 361) = 0.136) whereas analogous positive correlation was recorded about the inability to understand medical instructions (question 6, r (N = 361) = 0.258). Older Roma seems to recognize that their problems are due to living conditions (question 10, r (N = 361) = 0.175) whereas they tend to consider a necessity to give a present to the doctor (question 12, r (N = 361) = 0.158).

	q2	q3	q4	q5	q6	q7	q8	q9	q10	q11	q12	q13	q14
q1	,823(**)	,757(**)	-,415(**)	-,271(**)	,101	-,028	-,110(*)	-,061	,072	-,045	,177(**)	,189(**)	-0,066
q2		,767(**)	-,392(**)	-,267(**)	,061	-,057	-,190(**)	-,091	,036	-,102	,125(*)	,162(**)	-0,097
q3			-,366(**)	-,217(**)	,126(*)	-,189(**)	-,204(**)	-,109(*)	,053	-,164(**)	,165(**)	,260(**)	-,177(**)
q4				,462(**)	,118(*)	,161(**)	,163(**)	,209(**)	,068	,103	-,024	-,066	,234(**)
q5					,057	,286(**)	,250(**)	,184(**)	,187(**)	,264(**)	,062	,007	,308(**)
q6						,072	,073	,135(*)	,254(**)	,076	,069	,190(**)	,132(*)
q7							,303(**)	,281(**)	,206(**)	,297(**)	,094	-,158(**)	,717(**)
q8								,006	-,034	,413(**)	-,140(**)	-,201(**)	,263(**)
q9									,267(**)	,069	,039	-,091	,358(**)
q10										,079	,188(**)	,092	,287(**)

q11										,05	-,167(**)	,356(**)
q12											,199(**)	,192(**)
q13												-,114(*)

Table 2: Spearman correlation coefficients of PBQ questions (N = 361) (**) Correlation is significant at the 0.01 level (2-tailed), (*) Correlation is significant at the 0.05 level (2-tailed).

	Question	M ± SD(1)	Spearman correlation coefficient						
			GSI	ESS	OAS	FES	State	Trait	Age(2)
1	Satisfaction with service at hospital	1.42 ± 1.33	0.041	-0.058	-0.065	.108(*)	0.041	0.067	0.05
2	Satisfaction with service from doctor	1.55 ± 1.18	0.074	-0.039	-0.087	0.068	0.075	0.089	0.047
3	Satisfaction with service from nurses	1.66 ± 1.13	0.073	-0.036	-0.057	.,122(*)	0.067	.106(*)	0.089
4	Discrimination in Romani people	0.46 ± 1.98	0.041	.116(*)	.238(**)	-.157(**)	0.034	-0.062	0.046
5	No service is interested in me and my relatives	0.00 ± 1.84	.140(**)	.270(**)	.381(**)	-.187(**)	0.046	-0.023	.136(*)
6	I cannot follow the instructions	-0.30 ± 2.06	.296(**)	.173(**)	.165(**)	-.205(**)	.251(**)	.276(**)	.258(**)
7	I am embarrassed to use health services	-0.34 ± 2.11	.076	.266(**)	.302(**)	-.221(**)	.106(*)	0.06	0.067
8	Rely more on medicine Romani	-0.84 ± 1.98	-.165(**)	0.033	.262(**)	-0.079	-.267(**)	-.386(**)	-0.005
9	I feel different from other local people	0.48 ± 1.85	.130(*)	.105(*)	.157(**)	-.124(*)	.182(**)	.218(**)	0.074
10	Problems due to living conditions	0.24 ± 2.02	.389(**)	.261(**)	.306(**)	-.185(**)	.329(**)	.370(**)	.175(*)
11	When I have a health problem then I am addressing to the leader	-0.67 ± 2.13	-.076	0.065	.176(**)	-.245(**)	-.129(*)	-.160(**)	-0.055
12	Gift to the doctor	0.69 ± 1.91	.221(**)	.295(**)	.220(**)	-0.07	.167(**)	.218(**)	.158(*)
13	Need to have my relatives next to me in the hospital	2.41 ± 0.78	.252(**)	.166(**)	.134(*)	.118(*)	.139(**)	.206(**)	0.013
14	I feel shame when I get sick	-0.30 ± 2.11	.122(*)	.285(**)	.342(**)	-.228(**)	.151(**)	0.074	0.091

Table 3: Perceptions and behaviors questionnaire (responses and correlations), (1) Responces are in scale -3 to +3 (-3: Strongly disagree, +3: Strongly agree), (2) Spearman correlation coefficient of the responses with the age category, (**) Correlation is significant at the 0.01 level (2-tailed), (*) Correlation is significant at the 0.05 level (2-tailed).
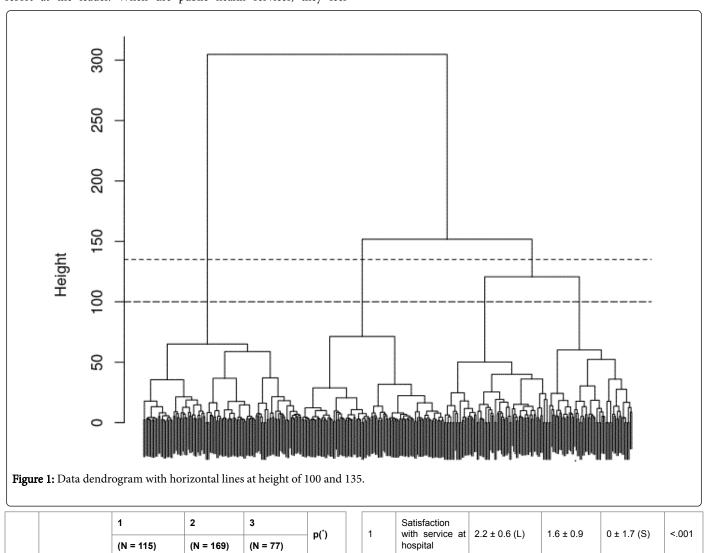
Clustering

From a subject-matter standpoint, we assumed that it make sense to group the respondents in at least three but no more than six clusters since a more analytic approach would become cumbersome and for limited usefulness for any practical reason. The dendrogram generated from the hierarchical cluster analysis (Figure 1) suggested three or four clusters, and three clusters solution was chosen as the option combining both simplicity and discriminative power between groups,

while provided the most insight into our data and could be described most effectively. Then, K-Means clustering algorithm classified each respondent in the three groups according to their responses in PBPH questionnaire (Table 4). According to their responses on satisfaction towards public health system and their position towards society we named this clusters as "Satisfied and integrated", "Satisfied, deprived and passive", "Alienate and not satisfied". The clusters were not statistically different in gender and age (Table 5,6). The first cluster

(115 respondents, 31.9%) consists of the less illiterate respondents (42 graduate from elementary of secondary education). They are more probable to live in the city of Larissa, have some kind of employment, and have a psychosomatic illness in a member of their family. They are satisfied from the public health system whereas they do not feel discriminated of abandoned from the social structures. They do not rely on Roma medicine whereas they disagree with the statement that they are different from the other people. They are characterized by statistically lower aggression and shame, both external (OAS) and internal (ESS) than the other two groups. In contrary they show statistically larger scores from the other two groups in FES subscales that corresponds to the expression of their feelings in the family, while they possess statistically larger emphasis on ethical and religious issues and values than the other two groups. The second cluster was predominant (169 respondents, 46.8%) and consisted of the most deprived part of the respondents with larger families, more children and siblings, lower income and more likely to not possess cooking and sanitary facilities than the respondents of the other groups. They feel alienated from the society that surrounds them and they trust traditional Roma medicine more than the other two groups. They tend to feel shame when they get sick and when that happen they tend to resort at the leader. When use public health services, they feel embarrassed and they also tend to express their gratitude to the doctor by giving him a present. They are characterized by statistically larger scores in paranoid ideation from the other two groups, a fact that is possibly connected to the overall feeling of isolation that characterize this group. Further, they have statistically larger scores in interpersonal sensitivity, an indicator of the appropriateness of perceptions judgments and responses they have with respect to one another and large values in shame both external (OAS) and internal (ESS). Finally, they show low level of interest in political, intellectual, and cultural activities, low participation in social and recreational activities as well as low emphasis on ethical and religious issues and values. The participants of the third cluster (77 respondents, 21.3%) do not express satisfaction of the public health services and they do not feel like giving a present to the doctor. They mostly live in detached houses (67.5%) with better living conditions comparing to respondents of the other two groups, they are more probable to have reading and writing abilities, it is more likely for them to have some kind of chronic illness as well as a member of their family. They have statistically lower score than the other two groups in achievement orientation subscale which is usually connected to lack of activities that cast into an achievement oriented or competitive framework.

Figure 1: Data dendrogram with horizontal lines at height of 100 and 135.

		1	2	3	p(*)						
		(N = 115)	(N = 169)	(N = 77)		1	Satisfaction with service at hospital	2.2 ± 0.6 (L)	1.6 ± 0.9	0 ± 1.7 (S)	<.001

2	Satisfaction with service from doctor	2.2 ± 0.6 (L)	1.7 ± 0.8	0.4 ± 1.6 (S)	<.001
3	Satisfaction with service from nurses	2.3 ± 0.7 (L)	1.7 ± 0.7	0.7 ± 1.6 (S)	<.001
4	Discrimination in Romani people	-1.3 ± 1.8 (S)	1 ± 1.6	1.8 ± 1.2	<.001
5	No service is interested in me and my relatives	-1.5 ± 1.5 (S)	0.8 ± 1.6	0.5 ± 1.5	<.001
6	I cannot follow the instructions	-0.7 ± 2	-0.2 ± 1.9	0.2 ± 2.3	0.017
7	I am embarrassed to use health services	-1.8 ± 1.5	1.3 ± 1.2 (L)	-1.8 ± 1.6	<.001
8	Rely more on medicine Romani	-1.7 ± 1.5 (S)	-0.2 ± 2 (L)	-0.9 ± 2	<.001
9	I feel different from other local people	-0.5 ± 2 (S)	1.2 ± 1.3 (L)	0.4 ± 1.9	<.001
10	Problems due to living conditions	-0.4 ± 2.2	0.9 ± 1.7 (L)	-0.4 ± 2.1	<.001
11	When I have a health problem then I am addressing to the leader	-1.7 ± 1.7	0.4 ± 2 (L)	-1.5 ± 1.9	<.001
12	Gift to the doctor	0.6 ± 2	1.3 ± 1.4 (L)	-0.4 ± 2.1 (S)	<.001
13	Need to have my relatives next to me in the hospital	2.5 ± 0.8	2.3 ± 0.8	2.5 ± 0.6	0.057
14	I feel shame when I get sick	-2 ± 1.3	1.5 ± 1.2 (L)	-1.6 ± 1.5	<.001

Table 4: Clusters centers towards perceptions and behaviors questionnaire [1], (*) Welch test was used instead of ANOVA since there was a significant deviation from homogeneity, (**) Tamhane post hoc multiple comparisons was chosen as appropriate for our data since variances were not equal between groups, (L), (S): Tamhane test suggest that the group score is statistically larger (corr. smaller) than other two groups.

	Total	Group 1 (N = 115)	Group 2 (N = 169)	Group 3 (N = 77)	p
Age, mean ± SD	34.0 ± 12.8	33.4 ± 13.3	35 ± 13	32.5 ± 11.5	0.314
Marital status, N (%)					0.027
Single	62 (17.2%)	22 (19.1%)	22 (13%)	18 (23.4%)	
Married	271 (75.1%)	80 (69.6%)	139 (82.2%)	52 (67.5.4%)	
Divorced	14 (3.9%)	4 (3.5%)	7 (4.1%)	3 (3.9%)	
Widowed	10 (2.8%)	7 (6.1%)	1 (0.6%)	2 (2.6%)	
Separated	4 (1.1%)	2 (1.7%)	0 (0%)	2 (2.6%)	
No of children, mean ± SD	3.4 ± 1.8	3.3 ± 1.8	3.7 ± 1.8 (L)	3.1 ± 1.8	0.029
No of siblings, mean ± SD	5.5 ± 2.4	5.2 ± 2.5	5.8 ± 2.2	5.3 ± 2.4	0.078
Unemployed, N (%)	138 (38.2%)	32 (27.8.2%)	83 (49.1%) (L)	23 (29.9%)	<.001
Insurance, N (%)	339 (93.9%)	112 (97.4%)	156 (92.3%)	71 (92.2%)	0.358
Use of health services, N (%)	229 (63.4%)	229 (63.4%)	161 (68.2%) (L)	68 (54.4%)	<.001
No of subjects with chronic illness, N (%)	122 (33.8%)	122 (33.8%)	84 (35.6%) (L)	38 (30.4%) (S)	0.037
Education, N (%)					<.001
None	266 (73.7%)	73 (63.5%)	144 (85.2%)	49 (63.6%)	
Primary	83 (23%)	39 (33.9%)	24 (14.2%)	20 (26%)	

Secondary	12 (3.3%)	3 (2.6%)	1 (0.6%)	8 (10.4%)	
Housing, N (%)					0.001
Apartment	85 (23.5%)	25 (21.7%)	48 (28.4%)	12 (15.6%)	
Detach house	192 (53.2%)	67 (58.3%)	73 (43.2%)	52 (67.5%)	
Camp	44 (12.2%)	16 (13.9%)	18 (10.7%)	10 (13%)	
Other	39 (10.8%)	7 (6.1%)	29 (17.2%)	3 (3.9%)	
Housing details					
Ownership, N (%)	241 (66.8%)	70 (60.9%)	120 (71.0%) (L)	51 (66.2%)	<.001
Residents, mean ± SD	7.0 ± 3.3	7.3 ± 4.3 (L)	6.9 ± 2.3	6.7 ± 3.2	0.353
Rooms, mean ± SD	2.6 ± 1.4	2.7 ± 1.2	2.3 ± 1.5 (S)	2.9 ± 1.3 (L)	0.004
Residents / Rooms ± SD	3 ± 2	3 ± 2	3 ± 1.8	2.9 ± 2.5	0.917
Cooking facilities, N (%)	281 (77.8%)	96 (83.5%)	118 (69.8%)	67 (87%) (L)	0.002
Sanitation facilities, N (%)	272 (75.3%)	93 (80.9%) (L)	117 (69.2%)	62 (80.5%)	0.041

Table 5: Demographic and clinical characteristics of the respondents, (*) Statistical significance of the corresponding test (Independent samples t –test or Chi square), (L): Group with larger value.

Scale		Total	1 (N = 115)	2 (N = 169)	3 (N = 77)	p(*)
SCL - 90						
	Somatization	1 ± 0.8	1 ± 0.8	1.1 ± 0.9	1 ± 0.8	0.52
	Obsessive-compulsive	1.2 ± 0.8	1.1 ± 0.7	1.3 ± 0.8	1.3 ± 0.8	0.123
	Interpersonal sensitivity	1.3 ± 0.7	1 ± 0.6	1.5 ± 0.7 (L)	1.1 ± 0.7	0
	Depression	1.1 ± 0.9	1 ± 0.7	1.1 ± 1	1.1 ± 0.8	0.453
	Anxiety	0.9 ± 0.9	0.9 ± 0.8	1 ± 0.9	0.9 ± 0.8	0.489
	Aggression	1 ± 0.8	0.9 ± 0.7 (S)	1.1 ± 0.8	1.1 ± 0.9	0.016
	Phobia	0.7 ± 0.8	0.6 ± 0.6	0.8 ± 0.9	0.7 ± 0.7	0.068
	Paranoid ideation	1.8 ± 0.7	1.6 ± 0.7	2 ± 0.7 (L)	1.7 ± 0.7	0
	Psychoticism	0.6 ± 0.6	0.5 ± 0.5	0.7 ± 0.6	0.6 ± 0.6	0.051
	Additional items	0.9 ± 0.8	0.9 ± 0.7	0.8 ± 0.8	1 ± 0.7	0.314
	Hardiness	94.4 ± 58.8	85.2 ± 48.9	101.1 ± 64.8	93.5 ± 57.1	0.068
	GSI	1 ± 0.7	0.9 ± 0.5	1.1 ± 0.7	1 ± 0.6	0.051
	Symptom free	1.2 ± 0.4	1.1 ± 0.3	1.2 ± 0.4	1.1 ± 0.3	0.092
OAS						
	Inferior	12.2 ± 6.4	8.9 ± 5.8 (S)	14.9 ± 5.6 (L)	11.3 ± 6.4	0
	Empty	5.4 ± 3.8	4 ± 3.1 (S)	6.5 ± 3.7 (L)	4.8 ± 4.2	0
	Mistakes	10.1 ± 5.3	8 ± 4.8 (S)	11.9 ± 5 (L)	9.2 ± 5.4	0

	Total OAS	29.2 ± 15.1	21.8 ± 13 (S)	35.2 ± 13.9 (L)	26.8 ± 15.1	0
ESS						
	Characterological shame	21.1 ± 7.6	18.8 ± 6.9 (S)	23.1 ± 7.9 (L)	20.3 ± 6.9	0
	Behavioral shame	19.8 ± 6.1	18.4 ± 6.3 (S)	21.8 ± 5.6 (L)	17.5 ± 5.4	0
	Bodily shame	7 ± 3.1	6.2 ± 2.9 (S)	7.8 ± 3.1 (L)	6.7 ± 3	0
	Total ESS	47.9 ± 14.1	43.4 ± 12.8 (S)	52.6 ± 14.2 (L)	44.4 ± 12.8	0
FES						
	Cohesion	6.3 ± 1.6	6.5 ± 1.3	6.1 ± 1.9	6.4 ± 1.3	0.174
	Expressiveness	4.7 ± 1.5	5.3 ± 1.1 (L)	4.5 ± 1.6	4.6 ± 1.6	0
	Conflict	4.2 ± 2.1	3.6 ± 1.9	4.4 ± 2.2	4.5 ± 2	0.002
	Independence	4.5 ± 1.6	5 ± 1.3	4.3 ± 1.7	4.4 ± 1.6	0
	Achievement Orientation	6.3 ± 1.6	6.5 ± 1.5	6.4 ± 1.7	5.8 ± 1.5 (S)	0.016
	Intellect.- Cultural Orientation	2.8 ± 1.7	3.2 ± 1.8	2.4 ± 1.6 (S)	2.9 ± 1.7	0.002
	Active-Recreat. Orientation	2.1 ± 1.7	2.6 ± 1.9	1.6 ± 1.4 (S)	2.4 ± 1.6	0
	Moral-Religious Emphasis	5.4 ± 2.3	5.9 ± 2.2 (L)	5.1 ± 2.3 (S)	5.5 ± 2.2	0.008
	Organization	6 ± 1.6	6 ± 1.6	6.2 ± 1.7	5.7 ± 1.3	0.068
	Control	6 ± 1.4	5.9 ± 1.2	6.1 ± 1.6	6 ± 1.3	0.793
	Total FES	48.4 ± 6.6	50.5 ± 6.5 (L)	47 ± 6.5	48.2 ± 6.3	0
STAI						
	State Anxiety	51.9 ± 13.1	51.2 ± 12.7	52.3 ± 14.1	52.3 ± 11.2	0.749
	Trait Anxiety	46.4 ± 13	46.9 ± 11.7	46.2 ± 14.9	46.3 ± 10.2	0.905

Table 6: Psychological characteristics of groups, (L), (S): Tamhane test suggest that the group score is statistically larger (corr. smaller) than both other groups, (*) Welch test was used instead of ANOVA since there was a significant deviation from homogeneity

Discussion

Racial discrimination, xenophobia and intolerance are characteristics of societies at times of crisis and today this seems to be the case in Greek society. In particular, the Roma minority face discrimination in housing, education, healthcare, employment, and law enforcement. This reality generates to this people negative feelings about social structures which in turns reduce their commitment and trust to public services something that reduce their opportunities to evolve to a better future, a vicious circle that is hard to break. The community itself, with its habits and lifestyles, is also responsible for its own health. They are prone in bad habits as smoking (60% of Greek Rom are regular smokers). Only 28% of the Roma population consumes fruits and fresh vegetables every day. Moreover, 18% of the Roma population never eats fish. In contrast, 36% of the populations consumes sweets every day [6,7].

It was shown that Roma traditional medicine does not consist a well grounded alternative for that people. However, when they resort to the public health structures, as the unique reasonable choice, the problem that emerges is their inability to understand the medical instructions which was shown to be the major difficulty in communication, a situation that either generates anxiety, shame and corresponds to larger psychopathology scores, or generates feelings of alienation. On the other hand a young Roma person which is less likely to be illiterate was shown to have a better psychological profile with less extreme scores and less feelings of alienation. The last fact makes education emerge as the critical factor that differentiates behaviors in Roma population. Results of cluster analysis, although descriptive in nature, supports further the last remarks, and consist a jumping off point for additional, confirmatory research. The part of the sample that expressed the most negative psychic feelings towards public health facilities are also most likely to be illiterate (cluster 2). On the other hand the most educated part of the respondents tend to express their satisfaction about the services they get while they do not feel different from the other people.

In light of the above results, significant efforts are necessary to develop better education for Roma minority. Further, priority action is suggested in order to facilitate access to and use of health-care services among the poor Roma population and those living in rural areas and segregated neighborhoods. Acquisition of better health habits by the Roma population should be highlighted, with interventions targeting the promotion of healthy eating habits, the prevention of drug use by young people and actions designed to reduce the smoking among men.

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