Predictors of the Unmet Healthcare Needs of Roma with Chronic Diseases in Jordan

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Abstract

Objective: The study goal is to investigate the factors of unmet healthcare demands among Jordan's Roma community with chronic illnesses. Study design and Methods: A cross – sectional descriptive survey was conducted; data collection was carried out through in-person interviews (N=347 Jordanian Roma) using a structured questionnaire based on the Canadian Community Health Survey. Results: The majority (89.1%) of participants were married and nearly all (99.7%) self-identified as Illiterate. More than half of study sample did not have health insurance (55.0%). Almost all (99.7%) participants reported at least one unmet healthcare needs during the past 12 months. The following variables were significantly associated with unmet healthcare needs; being divorced/widowed, not having health insurance, residence, duration of chronic diseases, self-perception of mental health, food insecurity, and satisfaction with the healthcare services. A closer look at each individual predictor revealed that just (9) of the (21) variables found by the Anderson model were significant. These are the following: [Marriage status (Divorced/widowed) against (Single): (β = -.15, p =.02]. Categories for health insurance (No, Yes); (β = -.13, p .00). Compared to Almafraq, the number of residents living at home was lower in Madaba (β = -.19, p .000), Irbid (β =.17, p .000), and Amman (β = -.16, p =.02). Chronic disease duration (Years); (β = -.13, p =.01). Health care services satisfaction (Continuous: 0–10) (β = -.10, p =.03). Self-perception of mental health (poor/fair/good/very good), (β = -.16, p =.000). Score for food insecurity (Continuous: 0–16) (β =.36, p 0.00) Seven of the nine major factors previously identified have an inverse relationship with unmet healthcare requirements. Consequently, as these factors rise, unmet healthcare requirements decline.Conclusion. The high prevalence of unmet healthcare requirements among Jordanian Roma makes them more susceptible to other ailments. To increase this community's access to and use of healthcare services, extensive initiatives should be put into place. Additionally, to take steps to raise their social standing and incorporate them into society.

Keywords: Predictors; Jordan ; Roma; Unmet Healthcare needs

1. Introduction

The name "Jordanian Roma," also known as "An-Nuar," and self-identifying as "Turkman," is used to refer to Roma minorities who have long resided in Jordan. This population is regarded as substantial and has roots in Jordan that go back to the time before the Kingdom was founded in 1921. They continue to practice their rituals and traditions and have created a unique language for communication. (1)

Nearly 70,000 Roma are thought to reside in Jordan; the majority of them have Jordanian passports and National IDs, and they are able to use all of their constitutional rights. (2) They are primarily found in the four governorates of Amman, Irbid, Madaba, and Almafaraq, where they live in encampments of tents on the outskirts of the towns, frequently adjacent to industrial areas, maybe to gather and sell scraps. Others are peddling near traffic lights, others are picking up fruits and vegetables, some are pegging in the traffic lights, and their children are not attending school, which accounts for their nearly 100% illiteracy rate. (1)

The Jordanian healthcare system is regarded as cutting-edge and of the highest caliber, and it employs nurses, doctors, and other professionals who are highly qualified. (3) The majority of Jordanian Roma who had chronic conditions reported having trouble obtaining the care required for a diagnosis, treatment, or consultation. (1)

Unmet healthcare needs may result in early death, a significant negative impact on people's quality of life, and significant negative economic consequences for individuals, communities, and nations. Fortunately, improving healthcare utilization, identifying factors associated with unmet healthcare needs, and removing modifiable barriers to treatment can improve these conditions.

The factors that affect Jordanian Roma with chronic diseases' unmet healthcare requirements have not been thoroughly studied. This study's objective was to investigate the unmet healthcare requirements and associated factors among Jordan's Roma community with chronic diseases.

Framework

The selection of independent variables is based on the proposed conceptual Anderson framework. This model aims to direct the analysis of the various factors that affect the use of health services. The basic structure of the model describes how environmental variables (health care system and external environment), population

characteristics (predisposing characteristics, enabling resources, and need), and health behavior (personal health practices and use of health services) effect several outcome variables

Predisposing factors which are factors that predispose a person to use health services; and are socio-cultural characteristics of individuals that exist before to their illness. Enabling factors are individual and community factors or conditions that encourage a person to act on his or her own desire. Need factors which are indicators of health status that are usually connected to the use of health care services and include self-reported health status, health and Outcome variables which is the person's overall "Satisfaction with the healthcare services" (55)

2. Methods

Study Design

A descriptive cross-sectional survey design was used. To get a clear picture of the scope of unmet healthcare needs and associated factors among Jordanian Roma with chronic diseases, data were gathered at one point in time.

Study Population

The study's target demographic was Jordanian Roma with chronic illnesses who had used any of the country's official public or private healthcare facilities.

Participants in the study had to be Roma patients with self-reported chronic illnesses, aged 12 or older, diagnosed at least a year prior, and who had visited an outpatient clinic run by a public or private hospital in the year prior. Those with serious mental health concerns, such as schizophrenia, dementia, or late-stage Alzheimer's disease, were not included in the study since it was difficult to obtain information directly from them.

Sample Size Calculation

To identify the required sample size, a priori power analysis was conducted using G*power 3.1, two tailed correlational test with small to medium effect size r=0.2, a statistical power 80% and significant alpha of 0.05, the desired sample size was 319 (12). To cover the non-respondents, the total sample size was determined to be 350 participants.

Sample and Sampling Method

Convenience sampling was used to find participants after the University of Jordan Institutional Review Board ethical approvals. To help in reaching out to the settlement's leaders and designating a facilitator and interpreter in each of the four district locations—Amman, Madaba, Irbid, and Almafraq—the leader of the Jordanian Roma was first approached. This made it socially acceptable to visit their settlements and conduct interviews with the residents. Before formal recruitment, consent forms were signed and secured, and participants were advised that the survey would take them 15 to 20 minutes to complete. A master's degree nursing student collected the data, and before he began, the primary investigator gave him a thorough

explanation for each and every question. A translator/facilitator was also supplied so that they could travel together. Participants were informed about the purposes of the study. They were provided with the questionnaire along with a cover letter.

Instrument

A structured interview employing a questionnaire from the Canadian Community Health Study (CCHS), a cross-sectional survey of people's health status, unmet medical needs, use of healthcare, and health factors that was conducted by Statistics Canada and is frequently used in health care research (13 – 19).

For the determining characteristics that affect unmet healthcare needs among Roma population with chronic diseases in Jordan, a multiple linear regression technique was used. The all over unmet healthcare needs construct, which represent the total scores of the participants difficulty with accessing healthcare; this new variable is considered as the Dependent variable. The total barriers range from 0 to 40; the lower the scores mean less unmet healthcare needs.

Unmet healthcare needs are conceptually defined as "Difference between healthcare services deemed necessary to deal with a particular health problem and the actual services received (21)," and it was operationalized by asking the participants "During the past 12 months, was there ever a time when you felt that you needed healthcare, but you didn't receive it?" which is measured by "Unmet healthcare needs scale" which adopted from the Canadian Community Health Survey, in which a Likert scale was used [Never = 0, Rarely = 1, Sometimes = 2, Most of the times = 3, and Always = 4] (22).

Moreover, The Predisposing factors which are include five factors which are: 1) Age, 2) Gender, 3) Marital status, 4) Educational level, and 5) Job category. Enabling factors are individual and community factors or conditions that encourage a person to act on his or her own desire and include seven factors which are: 1) Family size, 2) Resident home which four nominal categories: AlMafraq, Madaba, Irbid and Amman. 3) Perceive distance to the healthcare services, 4) Satisfaction of the waiting time to get healthcare services, 5) Poverty status, 6) the health insurance and 7) Food insecurity. Need factors which are indicators of health status that are usually connected to the use of health care services and include self-reported health status; represented by three domains: 1) Number of chronic diseases the participant has, 2) Self-perception of stress in life, 3) Duration of chronic diseases, 4) Self-perception of physical health, 5) Self-perception of mental health and.

Outcome variables which is the person's overall "Satisfaction with the healthcare services" and it was measured using a scale of 0 to 10, where 0 means "Very dissatisfied" and 10 means "Very satisfied".

Further, a panel of three academic nursing experts with doctoral degrees served as content specialists to translate all surveys from English to Arabic and back for the purpose of content validity.

Ethical Considerations

The participants had full disclosure about the risks

and benefits of the study. They were assured there was no risk. They were also assured that participation was voluntary and they could withdraw from the study at any time without any penalty. In addition, they were assured that all the information obtained would be anonymous by assigning numbers to participant's questionnaire, keeping it in locked place and deleting the data completely once the study was concluded. Completing and returning the questionnaire at the end of the class implied the participant's consent to participate in the study.

3. Data Analysis

Data was collected, codded and screened for completeness before entering the computer program. The analysis was performed using the Statistical Package for Social Science (SPSS) software application (version 20). Alpha level of 0.05 was considered for statistical significance. Descriptive statistics used to estimate frequencies, percentages, and mean (standard deviation). Linear regression analysis was to predict the effect of independent variables on unmet needs.

4. Results

A total of 350 questionnaires were distributed among the Jordanian Roma. The response rate was 100%. Three questionnaires were excluded because of the missing data totaling more than 20%. Therefore, the total number of participants was 347. Data was entered into SPSS, coded and organized. As shown in Table 1, the proportion of male and female respondents were the same, (53.3 %, n=185) and (46.7%, n=162), respectively. The ages of the participants range between 12 and 91 years, with a mean age of 47.8 years and a Standard Deviation (SD) of 13.2 years. The majority of respondents were between of 41 and 60 years old (59.7%). The majority of participants (89.1%, n=303) were married, and over half of the sample (53.9 percent, n=187) lived in Amman. The average family size was 6.79 members, with an SD of 3.5, and the majority of family size ranged between 5 and 8 members (45.8%). As many as (99.7%) were illiterate, unable to read or write, and (82%, n=265) reported not working.

Table 1. Socio – Demographics Characteristics of the Sampled Roma with Chronic Diseases in Jordan, N = 347		
Socio – Demographics characteristics	n	%
Gender		
Male	185	53.3
Female	162	46.7
Age category in years (Mean = 47.8, SD = 13.2)		
12 - 20	14	4
21 - 40	82	23.6
41 – 60	207	59.7
> 60	44	12.7
Marital Status (Includes those aged 18 or over) n = 340		
Single	18	5.3
Married	303	89.1
Divorced	6	1.8
Widowed	13	3.8
Resident home		
Almafraq	64	18.4
Madaba	38	11.0
Irbid	58	16.7
Amman	187	53.9
Family size (Mean = 6.79, SD = 3.5)		
< 5	84	24.2
5 - 8	159	45.8
> 8	104	30.0
Educational level		
Illiterate (Cannot read nor write)	346	99.7
Secondary School	1	0.3
Employment Status (Includes those aged 18 to 65) n = 323		
Currently working	58	18
Not working	265	82
The zero-order correlations are Pearson's correlations between the IV's and the DV. ¥ Using a scale of 0 to 10, where 0 means "Very dissatisfied" and 10 means "Very satisfied", how satisfied were you with the healthcare services that you receive? Min = 0; Max = 10. £ Using a scale of 0 to 16, where 0 means "Very secure" and 16 means "Very insecure. Min = 0; Max = 16. SE B: Unstandardized beta, this value is like to the standard deviation for a mean. The higher the number, the greater spread out away from the regression line, the higher spread out the numbers are, the less likely that significance will be found.		

Moreover, as seen in Table 2. Standard multiple linear regression was performed that is, all the predictor variables are entered into the analysis in one step to investigate whether predisposing factors, enabling characteristics and need variables could significantly predict participants' unmet healthcare needs. The results of the regression show that the model explained ($R^2 = 47.7\%$) of the variance and that the model was a significant predictor of unmet healthcare needs, F (21, 330) = 13.411, p < .000. The individual predictors were examined further and out of (21) variables were

identified according to Anderson model, only (9) were significant; which are: [Marital status (Divorced/widowed) compared to (Single): (β = -.15, p = .02). Health insurance categories (No, Yes); (β = -.13, p < .00). Resident home compared to Almafraq; resident in Madaba (β = -.19, p < .000), Irbid (β =.17, p < .000) and in Amman (β = -.16, p = .02). Duration of chronic diseases (Years); (β = -.13, p = .01). Satisfaction with the healthcare services (Continuous: 0 – 10) (β = -.10, p = .03). Self-perception of mental health (Poor / fair, Good / very good / excellent), (β = -.16, p = < .000). Food insecurity score (Continuous: 0 – 16) (β = .36, p < 0.00)].

Of the nine previously significant mentioned predictors, seven are inversely associated; with the unmet healthcare needs, this means that once these variables increase, unmet healthcare needs decrease. Moreover; it seems that Resident home compared to Almafraq; resident in Madaba (β = -.19, p < .000) and (B = -3.61, p < .000) variable had the strongest negative predictive relationship to the dependent variable, this means that the participants who are living in Madaba have 3.61 units unmet healthcare needs lower than who are living in Almafarq, while the "Satisfaction with healthcare services" (β = -.10, p = .03) and (B = -.471, p = .03) variables had the weakest negative predictive relationship to the dependent variable, this means that for every additional one year of chronic diseases the participant has, there is a .10 units decrease in the level of unmet healthcare needs.

Table 2. Predictors of the Roma with Chronic Diseases Unmet healthcare needs Using Standard Multiple Linear Regression						
Predictors	B	SE B	Beta	t	P. value	Zero-ordered
Constant	27.484	11.648		2.359	.019	
Predisposing characteristics						
Age group (years) < 40 (Reference) 40 – 59 = > 60	.537 1.024	.752 1.051	.044 .071	.714 .974	.476 .331	.093 -.044
Gender Male (Reference) Female	-.697	.583	-.057	-1.194	.233	-.201
Marital status Single (Reference) Married Divorced/widowed	-1.541 -3.969	1.275 1.638	-.081 -.148	-1.209 -2.423	.228 .016	.023 -.117
Job category Not Working (Reference) Currently working	-.038	.764	-.002	-.049	.961	.011
Enabling variables						
Health Insurance No (Reference) Yes	-1.532	.534	-.125	-2.867	.004	-.106
Family size (n)	-.752	.415	-.103	-1.812	.071	-.133
Resident home Al-Mafraq (Reference) Madaba Irbid Amman	-3.611 2.689 -1.934	1.086 .895 .799	-.189 .166 -.158	-3.327 3.004 -2.421	.001 .003 .016	-.171 .402 -.321
Perceive distance to the healthcare services Near / too near (Reference) Far / too far	.158	.607	.012	.260	.795	.126
Satisfaction of the waiting time to get healthcare services Unsatisfied / strongly unsatisfied (Reference) Neutral Satisfied / strongly satisfied	.169 .259	.581 .887	.014 .014	.292 .292	.771 .770	-.084 -.029
Food insecurity score £	.895	.119	.362	7.548	.000	.509
Need factors						
Number of chronic diseases the participant has (n)	.531	.428	.060	1.241	.216	.163
Self-perception of stress in life Not at all very stressful / Not very stressful / A bit stressful (Reference) Quite a bit stressful / Extremely stressful	.164	.652	.011	.252	.801	.076
Duration of chronic diseases (years)	-.174	.061	-.132	-2.838	.005	-.217
Self-perception of physical health Poor / Fair (Reference) Good / Very Good / Excellent	-.420	.806	-.024	-.521	.603	.138
Self-perception of mental health Poor / Fair (Reference) Good / Very Good / Excellent	-2.025	.555	-.162	-3.646	.000	-.113
Outcome variable						
Satisfaction with the healthcare services ¥	.895	.119	.362	7.548	.000	.509

5. Discussion

The study goal is to investigate the factors of unmet healthcare demands among Jordan's Roma community with chronic illnesses. There is no previous research carried out to explore unmet healthcare needs among Jordanian Roma, therefore this study can be used to assess the current unmet healthcare needs of the Jordanian Roma and a benchmark to evaluate the efficiency of health programs directed to this population in the future. Almost all of Jordanian Roma with chronic diseases

stated that they had at least one unmet healthcare needs during the past 12 months (99.7%), this result is consistent with earlier study among this population which reported that (98.8%) of the participants said that they had difficulties in getting the needed specialist care for a diagnosis or consultation (1). Difficulty in accessing health care can lead to a high degree of unmet healthcare needs. (8, 23 – 29)

This finding of high unmet healthcare needs, could be originally attributed to the participants' poor health outcomes, such as increased morbidity and mortality, as well as a worsening of their health status, particularly when they live in poor living conditions, and experienced low social determinants of health, which have been documented among Roma in many European countries (28, 30 – 33)

Andersen's conceptual model was used as the framework to identify the factors that determine unmet healthcare needs among Roma population with chronic diseases in Jordan. The two main variables that alter on utilization of healthcare services directly as specified by this model are population characteristics and outcomes. Predisposing factors, enabling resources, and needs make up the population attributes, while participant satisfaction with healthcare services reflects the results.

According to the previously specified findings, the only significant socio-demographic attribute in this study that affect unmet among Jordanian Romas is being (Divorced or Widowed), compared to singles, in which being (Divorced or Widowed) demonstrates a significant less unmet healthcare needs compared to (Singles); however other studies shows no statistical difference (Shakeel et al., 2020), further studies found that (Divorced/Widowed) are significant higher unmet healthcare needs, but compared to (married) (43, 44), it seems that the Jordanian Roma (Divorced/Widowed) are much aware to meet their healthcare needs compared to singles.

Regarding enabling variables, and its role in unmet healthcare needs among Jordanian Roma to healthcare services, the results showed that participants who are health insured are significantly more likely to meet his/her healthcare needs, this result also agreed with a previous study that indicates the Jordanian Roma who are not health insured shows less utilization of healthcare services, and more accessibility difficulties (1), this is expected, since presence of health insurance improve accessibility and utilization of healthcare services.

In reference to the resident location, Roma who are living in Amman and in Madaba showed significant less unmet healthcare needs compared to living in Almafraq, this might indicate that Roma living in Almafaraq are facing the worse unmet healthcare needs in Jordan, this finding also agreed with a previous study that indicates the Jordanian Roma living in Almafraq shows less utilization of healthcare services, and more accessibility difficulties, therefore future research are needed to discern the reasons (1). Also there is a direct significant correlation between Food insecurity scores and the level of unmet healthcare needs; this finding is compatible with other studies , this result also agreed with a previous study that indicates the Jordanian Roma experienced high food insecurity score shows more accessibility difficulties toward health care, unfortunately; this may intensify the effect of their diseases (1, 45 – 48).

As for the needs factors, the results showed that both duration of chronic diseases and self-perception of mental health are negatively predictors for unmet healthcare needs, for the first variable "duration of chronic diseases", it looks that this result is reversed with other studies (49), which determine that, the more duration of the patients with chronic diseases; the more level of unmet healthcare needs; this propose for additional qualitative studies to detect the reasons, while for the second variable "self-perception of mental health"; is similarly significant reverse association with the unmet healthcare needs and, is consistent with other studies (50, 51).

Finally, regarding the outcome variables, the results implied that the better participants "Satisfaction with the healthcare services" the significant less unmet healthcare needs (1, 52, 53), maybe the reason for this straight association is that patients with high satisfaction levels are greater to involve in the ongoing and utilization of healthcare services, thus enhanced clinical outcomes, Beside patients who are satisfied are more willing to keep using health-care facilities, stick to medical treatment, maintain an engagement with a particular health-care provider, and suggest the service to others.

6. Conclusion

Almost all the participants are illiterate, they cannot read nor write, and most of them reported unmet healthcare care needs at least once in the last 12 months, the predictors of unmet healthcare needs are: lack of health insurance, living in Almafaraq, low levels of satisfaction with the healthcare services, low levels of Food insecurity, low duration of chronic diseases. The decision makers are needed to be notified to excretes more efforts to improve accessibility and utilization of healthcare services for this community, also to take measures to improve their social status and integrate them in the general community.

7. Recommendations

1. Take appropriate steps to guarantee that Roma are treated equally in terms of improving meeting their healthcare needs, also by strengthen the primary healthcare services by providing mobile healthcare clinics, and easily connected to effective free secondary and tertiary healthcare system. Furthermore, actions must be taken to increase their health insurance coverage.
2. Initiatives to improve the living conditions of Roma who are socially disadvantaged, through taking effective multidimensional policy steps that ensure they get fair treatment and respect of their essential rights, including equal access to education, jobs, healthcare, housing and interventions to decrease

the magnitude of household food insecurity in order to promote Roma full equity in practice. In addition to implementing services for social security and wellbeing and funding for programs with a social emphasis should be increased.

3.   Take concrete steps to guarantee full access to standard, mainstream education for Roma's children, as well as ensuring that all Roma students complete at least compulsory education, also to encourage them to complete secondary and tertiary education. Furthermore, providing for them vocational training that are tailored to the needs of the labor market, as well as expanding access to second-chance education and adult learning.

4.   Additional studies are required taking into account the abovementioned constraints will be needed to have a better understanding of the equitable implications of unmet healthcare needs. More data on the quality, amount, and kind of healthcare services might be useful in delving deeper into the plethora of factors linked to unmet health-care needs, not only using quantitative approach, but also qualitative one in order to get fully understand their situation.

Limitation of the study

This research has a few drawbacks. The first is that it was constructed using a cross-sectional method. This study used a self-reported home sample, which might have caused recall bias and influenced the survey results' accuracy.

Strength of the study

This study is considered as the first in Jordan, and the region to address the Roma's unmet healthcare needs, and looked at a variety of factors that could influence Jordanian Roma with chronic diseases unmet healthcare needs. These findings may help researchers better determine which areas of healthcare systems or initiatives should be prioritized in order to enhance Roma equitable healthcare services. Moreover; most constructs were described using unique psychometric scales with proven reliability and validity in diverse populations, which is a particular strength of this research. This study also used powerful instrument tool (CCHS) that was used for long time ago and proved its accuracy not only in Canada, but also elsewhere. Moreover, this study uses strong conceptual model (Anderson behavioral model), that is been used frequently in predicting the healthcare utilization, accessibility and unmet healthcare needs worldwide.

Furthermore, the study sample was taken from four different Jordanian provinces, which enhance the representativeness and generalizability of the results of the whole Roma population in Jordan. The findings of this study can be used as a basis information for officials, legislators, and decision-makers to draw on.

References

1. Abudari M, Al-Hussami M. Accessibility difficulties, and utilization of healthcare services among Jordanian Roma with chronic diseases. Current Pediatric Research. 2021;25(4):481 - 496.

2. Khatatbeh S. Jordanian Gypsies muster in bid for Parliament. Ammon news. 2010;.

3. The National Strategy for Health Sector in Jordan 2016-2020 [Internet]. Jordan: The Hashemite Kingdom of Jordan High Health Council; [cited 2022 Sep 17]. Available from: https://extranet.who.int/countryplanningcycles/sites/defau lt/files/planning_cycle_repository/jordan/national_strategy _for_health_sector_2016-2020_jordan.pdf.

8. Földes M, Covaci A. Research on Roma health and access to healthcare: state of the art and future challenges. International Journal of Public Health. 2011;57(1):37-39.

12. Faul F, Erdfelder E, Buchner A, Lang A. Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. Behavior Research Methods. 2009;41(4):1149-1160.

13. Broemeling A, Watson D, Prebtani F. Population Patterns of Chronic Health Conditions, Co-morbidity and Healthcare Use in Canada: Implications for Policy and Practice. Healthcare Quarterly. 2008;11(3):70-76.

14. Csupak B, Sommer J, Jacobsohn E, El-Gabalawy R. A population-based examination of the co-occurrence and functional correlates of chronic pain and generalized anxiety disorder. Journal of Anxiety Disorders. 2018;56:74-80.

15. Guo E, Sweetman A, Guindon G. Socioeconomic differences in prescription drug supplemental coverage in Canada: A repeated cross-sectional study. Health Policy. 2020;124(3):252-260.

16. Lee D, Chiu M, Manuel D, Tu K, Wang X, Austin P et al. Trends in risk factors for cardiovascular disease in Canada: temporal, socio-demographic and geographic factors. Canadian Medical Association Journal. 2009;181(3-4):E55-E66.

17. Urbanoski K, Inglis D, Veldhuizen S. Service Use and Unmet Needs for Substance Use and Mental Disorders in Canada. The Canadian Journal of Psychiatry. 2017;62(8):551-559.

18. Wister AV, Levasseur M, Griffith LE, Fyffe I. Estimating multiple morbidity disease burden among older persons: a convergent construct validity study to discriminate among six chronic illness measures, CCHS 2008/09. BMC Geriatrics. 2015 Feb 21;15(1).

19. Yang J, Hirsch L, Osland S, Martino D, Jette N, Roberts JI, et al. Health status, health related behaviours and chronic health indicators in people with Tourette Syndrome: A Canadian population-based study. Psychiatry Research. 2017 Apr;250:228–33.

21. San Martin C, Gendron F, Berthelot J, Murphy K. Access to Health Care Services in Canada. Statistics Canada; 2004

22. Canadian Community Health Survey - Annual Component (CCHS). Surveys and statistical programs [Internet]. Canada: Government of Canada; 2019 [cited 2022 Sep 20]. Available from: https://publications.gc.ca/Collection/Statcan/82-575-X/82-575-XIE2006002.pdf

23. Arora VS, Kühlbrandt C, McKee M. An examination of unmet health needs as perceived by

Roma in Central and Eastern Europe. The European Journal of Public Health. 2016 Mar 2;26(5):737–42.

24. Balázs P, Rákóczi I, Grenczer A, Foley KL. Birth-Weight Differences of Roma and Non-Roma Neonates - Public Health Implications from a Population-Based Study in Hungary. Central European Journal of Public Health. 2014 Mar 1;22(1):24–8.

25. Kolvek G, Rosicova K, Rosenberger J, Podracka L, Stewart RE, Nagyova I, et al. End-stage renal disease among Roma and non-Roma: Roma are at risk. International Journal of Public Health. 2012 May 3;57(4):751–4.

26. Kósa Z, Moravcsik-Kornyicki Á, Diószegi J, Roberts B, Szabó Z, Sándor J, et al. Prevalence of metabolic syndrome among Roma: a comparative health examination survey in Hungary. European Journal of Public Health. 2014 Sep 16;25(2):299–304.

27. Sándor J, Nagy A, Földvári A, Szabó E, Csenteri O, Vincze F, et al. Delivery of cardio-metabolic preventive services to Hungarian Roma of different socio-economic strata. Family Practice [Internet]. 2017 Feb 1 [cited 2022 Apr 2];34(1):83–9. Available from: https://pubmed.ncbi.nlm.nih.gov/27650307/

28. Sudzinova A, Nagyova I, Studencan M, Rosenberger J, Skodova Z, Vargova H, et al. Roma coronary heart disease patients have more medical risk factors and greater severity of coronary heart disease than non-Roma. International Journal of Public Health. 2013 Mar 31;58(3):409–15.

29. Sudzinova A, Nagyova I, Rosenberger J, Studencan M, Vargova H, Middel B, van Dijk JP, Reijneveld SA. Seven years' mortality in Roma and non-Roma patients after coronary angiography. The European Journal of Public Health. 2015 Oct 1;25(5):765-9.

30. Cook B, Wayne GF, Valentine A, Lessios A, Yeh E. Revisiting the evidence on health and health care disparities among the Roma: a systematic review 2003–2012. International Journal of Public Health. 2013 Oct 5;58(6):885–911.

31. Hajduchová H, Urban D. Social determinants of health in the Romani population. Kontakt. 2014 Mar 21;16(1):e39–43.

32. Hajioff S. The health of the Roma people: a review of the published literature. Journal of Epidemiology & Community Health. 2000 Nov 1;54(11):864–9.

33. Parry G, Van Cleemput P, Peters J, Walters S, Thomas K, Cooper C. Health status of Gypsies and Travellers in England. Journal of Epidemiology & Community Health [Internet]. 2007 Mar 1;61(3):198–204.

43. Kuuire VZ, Tenkorang EY, Amegbor PM, Rosenberg M. Understanding unmet health-care need among older Ghanaians: a gendered analysis. Ageing and Society. 2020 Jan 28;1–22.

44. Popovic N, Terzic-Supic Z, Simic S, Mladenovic B. Predictors of unmet health care needs in Serbia; Analysis based on EU-SILC data. Puebla I, editor. PLOS ONE. 2017 Nov 8;12(11):e0187866.

45. Melo A, Matias MA, Dias SS, Gregório MJ, Rodrigues AM, Sousa RD de, et al. Is food insecurity related to health-care use, access and absenteeism? Public Health Nutrition. 2019 Dec 1;22(17):3211–9.

46. Ross CE, Hill TD. Reconceptualizing the Association between Food Insufficiency and Body Weight: Distinguishing Hunger from Economic Hardship. Sociological Perspectives. 2013 Dec;56(4):547–67.

47. Trenouth L, Colbourn T, Fenn B, Pietzsch S, Myatt M, Puett C. The cost of preventing undernutrition: cost, cost-efficiency and cost-effectiveness of three cash-based interventions on nutrition outcomes in Dadu, Pakistan. Health Policy and Planning. 2018 Jun 15;33(6):743–54.

48. Tarasuk V, Cheng J, Gundersen C, de Oliveira C, Kurdyak P. The Relation between Food Insecurity and Mental Health Care Service Utilization in Ontario. The Canadian Journal of Psychiatry [Internet]. 2018 Jan 7;63(8):557–69.

49. Moon S, Choi M. The Effect of Usual Source of Care on the Association of Annual Healthcare Expenditure with Patients' Age and Chronic Disease Duration. International Journal of Environmental Research and Public Health. 2018 Aug 27;15(9):1844.

50. Jang Y, Yoon H, Chiriboga DA, Molinari V, Powers DA. Bridging the Gap Between Common Mental Disorders and Service Use: The Role of Self-Rated Mental Health Among African Americans. The American Journal of Geriatric Psychiatry [Internet]. 2015 Jul 1;23(7):658–65.

51. Kim G, Jang Y, Chiriboga DA, Ma GX, Schonfeld L. Factors associated with mental health service use in Latino and Asian immigrant elders. Aging & Mental Health. 2010 May 20;14(5):535–42.

52. Hekkert KD, Cihangir S, Kleefstra SM, van den Berg B, Kool RB. Patient satisfaction revisited: A multilevel approach. Social Science & Medicine. 2009 Jul;69(1):68–75.

53. Macinko J, Lima Costa MF. Access to, use of and satisfaction with health services among adults enrolled in Brazil's Family Health Strategy: evidence from the 2008 National Household Survey. Tropical Medicine & International Health. 2011 Aug 21;17(1):36–42.

55. Andersen RM. Revisiting the behavioral model and access to medical care: Does it matter? J Health Soc Behav 1995;36:1–10