



Social Determinants of Health and Psychological Distress Among Female-Headed Households in a Marginalized Urban Population of Zahedan, Iran

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Abstract

Background: Social determinants of health are important correlates of health inequalities, particularly among vulnerable populations such as female-headed households living in marginalized urban communities.

Objectives: To examine associations between selected social determinants of health, access to essential resources, and psychological distress among female-headed households in Zahedan, southeastern Iran.

Methods: This cross-sectional descriptive and analytical study was conducted from September 2025 to March 2026 among 104 women recruited through two local nongovernmental organizations. Data were collected using structured face-to-face interviews. Associations with psychological distress were examined using Pearson's chi-square test or Fisher's exact test, as appropriate. Conventional multivariable logistic regression estimates were not retained because of sparse outcome distributions and complete separation in key exposure categories.

Results: Psychological distress was reported by 90 participants (86.5%). Lack of health insurance and lack of reliable access to sufficient healthy food were associated with distress in exact bivariate analyses (both Fisher's exact $P < 0.001$). Distress was reported by all 72 uninsured participants, compared with 18 of 32 insured participants. Distress was reported by all 86 participants without reliable access to sufficient healthy food, compared with 4 of 18 participants with such access.

Conclusions: Participants experienced substantial socioeconomic disadvantage and a high prevalence of self-reported psychological distress. The observed associations are exploratory and should not be interpreted as causal. Larger studies using methods suited to sparse binary outcomes are needed.

Keywords: Social Determinants of Health, Psychological Distress, Female-headed Households, Food Insecurity

1. Background

Health inequalities are shaped by the unequal distribution of social, economic, and environmental resources. The World Health Organization (WHO) defines social determinants of health (SDH) as the conditions in which people are born, grow, live, work, and age, together with the broader structural forces that shape these conditions (1, 2). These conditions are associated with

physical and mental health outcomes and contribute to disparities across populations.

Urban marginalization is an important public health concern, particularly in low- and middle-income countries undergoing rapid urbanization and socioeconomic change. Residents of marginalized communities may experience poverty, unemployment, food insecurity, inadequate housing, and barriers to healthcare. These circumstances have been associated with poorer health and greater psychological distress (3-5).

Psychological distress may represent one pathway through which social disadvantage is associated with adverse health outcomes. Persistent socioeconomic hardship can be accompanied by chronic stress, reduced coping resources, social isolation, and impaired emotional well-being. Psychological distress may also coexist with somatic symptoms, including musculoskeletal and gastrointestinal complaints (6,7).

Female-headed households may face specific socioeconomic vulnerabilities, including gender-related barriers to employment, limited social support, caregiving responsibilities, and reduced access to social protection. These circumstances may be associated with poorer mental health and other adverse health outcomes (5,7-10).

In Iran, regional inequalities in socioeconomic conditions and access to services remain important public health concerns. Sistan and Baluchestan Province is among the country's most socioeconomically disadvantaged regions, with persistent challenges related to infrastructure and employment opportunities. These conditions may be particularly relevant for female-headed households living in marginalized urban neighborhoods.

Despite growing attention to the social determinants of mental health, evidence regarding female-headed households in southeastern Iran remains limited.

2. Objectives

This study aimed to examine associations between selected social determinants of health, access to essential resources, and psychological distress among female-headed households in marginalized urban areas of Zahedan, Iran.

3. Methods

3.1. Study Design and Setting

This cross-sectional descriptive and analytical study was conducted from September 2025 to March 2026 among female-headed households in marginalized urban areas of Zahedan, southeastern Iran. The study was conducted in collaboration with two local nongovernmental organizations (NGOs), Kosha and Yardokht Zaris, which provide social and welfare services to vulnerable women and families.

3.2. Participants and Sampling

Eligible participants were women aged 18 years or older who identified as the primary head of their household, resided in a marginalized neighborhood of Zahedan, and were registered with one of the participating NGOs. Women who declined participation or were unable to complete an interview because of severe illness were excluded.

A census approach was used to recruit registered women who could be reached during the study period. The two NGOs had a total of 246 registered women: 148 at Kosha and 98 at Yardokht Zaris. Of these, 125 women were contacted and assessed for participation. Twenty-one declined, leaving 104 women who completed the study and were included in the analysis.

3.3. Data Collection and Measures

Trained female interviewers conducted structured face-to-face interviews in private settings. The researcher-developed questionnaire covered four domains: 1) sociodemographic characteristics; 2) social determinants of health and health- or social-protection indicators, including health insurance coverage and possession of a national identification card; 3) access to essential health-related resources, including healthy food, psychological support, and opportunities for physical activity; and 4) self-reported health complaints during the preceding month.

Psychological distress was assessed using the following standardized screening question: "During the past month, have you experienced persistent feelings of severe sadness, anxiety, worthlessness, or psychological distress that interfered with your daily functioning?" Responses were recorded as "Yes" or "No." A "Yes" response was classified as psychological distress, and a "No" response was classified as no psychological distress. Interviewers received standardized instructions and training on administration and coding. This question was intended as a screening measure, not as a clinical psychiatric diagnosis.

A panel of six experts in community medicine and public health evaluated the content validity of the data collection form; the scale-level content validity index was 0.84. Face validity was assessed qualitatively based on feedback from women representative of the target population. A pilot study involving 20 women with similar characteristics was conducted to assess clarity, comprehensibility, and feasibility. Internal consistency was acceptable (Cronbach's $\alpha = 0.76$). Selection of social determinants of health variables was informed by the

WHO framework for monitoring social determinants of health equity.

3.4. Statistical Analysis

Data were analyzed using IBM SPSS Statistics for Windows, version 26.0 (IBM Corp., Armonk, NY, USA). Continuous variables are summarized as means and standard deviations, and categorical variables as frequencies and percentages. Associations between selected social determinants of health and psychological distress were examined using Pearson's chi-square test or Fisher's exact test, as appropriate; Fisher's exact test was used when expected cell counts were small.

Psychological distress was highly prevalent (90/104 participants, 86.5%), and key exposure categories included no non-distressed participants. Conventional logistic regression therefore resulted in sparse-data and complete-separation problems. Previously reported conventional adjusted odds ratios were not retained in the revised analysis. The analyses presented here are exploratory and focus on exact bivariate associations. Future analyses using participant-level data and an appropriate penalized or bias-reduced method may be considered to obtain adjusted estimates.

3.5. Ethical Considerations

The study protocol was approved by the Ethics Committee of Zahedan University of Medical Sciences (Ethics Code: IR.ZAUMS.REC.1405.4519). Written informed consent was obtained before data collection. Participation was voluntary, and confidentiality and anonymity were maintained. Procedures followed the ethical principles of the Declaration of Helsinki and applicable institutional and national requirements.

4. Results

A total of 104 women participated. The mean age was 40.1 ± 13.9 years (range, 19 - 70). Participants experienced substantial socioeconomic disadvantage: 68 (65.4%) were illiterate, 62 (59.6%) were unemployed, 72 (69.2%) lacked health insurance, and 38 (36.5%) did not possess a national identification card. Of 246 women registered with the participating NGOs, 125 were accessible during the study period; 21 declined, and 104 completed the study and were included in the analysis (Table 1).

Table 1. Sociodemographic Characteristics and Social Determinants of Health Among Female-Headed Households (N = 104) ^a

Variables	No. (%)
Marital status	
Married	46 (44.2)
Widowed	12 (11.5)
Single	46 (44.2)
Education	
Illiterate	68 (65.4)
Primary education	36 (34.6)
Employment status	
Unemployed	62 (59.6)
Tailoring	26 (25.0)
Embroidery	16 (15.4)
Health insurance	
Yes	32 (30.8)
No	72 (69.2)
National ID card	
Yes	66 (63.5)
No	38 (36.5)

^a Abbreviation: ID, identification.

Employment categories are presented as originally recorded. Participants classified as unemployed were distinguished from those reporting tailoring or embroidery as income-generating activities. These categories were not combined into an employed/unemployed binary variable for inferential analysis because the available table did not document a validated recoding rule.

Psychological distress was reported by 90 participants (86.5%). Musculoskeletal pain was reported by 78 (75.0%), gynecological complaints by 60 (57.7%), and gastrointestinal complaints by 40 (38.5%). Reliable access to sufficient healthy food was reported by 18 participants (17.3%); 26 (25.0%) reported access to psychological support, and 20 (19.2%) reported regular physical activity (Table 2).

Table 2. Self-reported Health Complaints and Access to Health-Related Resources (N = 104)

Variables	No. (%)
Self-reported health complaints	
Psychological distress	90 (86.5)
Musculoskeletal pain	78 (75.0)
Gynecological complaints	60 (57.7)
Gastrointestinal complaints	40 (38.5)
Access to health-related resources	
Reliable access to sufficient healthy food	18 (17.3)
Access to psychological support	26 (25.0)
Regular physical activity	20 (19.2)

Among ever-married participants (n = 58), the mean age at marriage was 17.9 ± 2.4 years (range, 14 - 23), and the mean number of children was 3.7 ± 1.6 (range, 1 - 8). Sixteen participants (27.6%) reported a history of polygamous marriage (Table 3).

Table 3. Reproductive and Household Characteristics Among Ever-Married Women (N = 58) ^a

Variables	Values
Age at marriage (y)	17.9 ± 2.4; (14 - 23)
Number of children	3.7 ± 1.6; (1 - 8)
Polygamous marriage	16 (27.6)

^a Values are expressed as mean ± SD (range) or No. (%). Abbreviation: SD, standard deviation.

4.1. Bivariate Associations with Psychological Distress

The revised bivariate analysis was based on the participant counts available in the submitted analysis. Fisher's exact test was used where appropriate because several cells contained zero observations. Conventional multivariable logistic regression estimates were not retained because of sparse-data and complete-separation concerns (Table 4).

Table 4. Bivariate Associations Between Psychological Distress and Selected Social Factors ^a

Variables	No Distress	Distress	Total Number	P Value
Physical activity				0.823 ^b
No	11 (13.1)	73 (86.9)	84	
Yes	3 (15.0)	17 (85.0)	20	
Family support				0.987 ^b
Poor	12 (13.5)	77 (86.5)	89	
Moderate	2 (13.3)	13 (86.7)	15	
Health insurance				< 0.001 ^b
No insurance	0 (0.0)	72 (100.0)	72	
Has insurance	14 (43.8)	18 (56.2)	32	
National ID card				0.261
Has ID card	7 (10.6)	59 (89.4)	66	
No ID card	7 (18.4)	31 (81.6)	38	
Literacy status				0.486 ^b
Illiterate	8 (11.8)	60 (88.2)	68	
Literate	6 (16.7)	30 (83.3)	36	
Access to sufficient healthy food				< 0.001 ^b
Yes	14 (77.8)	4 (22.2)	18	
No	0 (0.0)	86 (100.0)	86	

^a Values are expressed as No. (%). Abbreviation: ID, identification. P values are based on the available contingency counts. Marital-status and employment-status cross-tabulations are not included because their category definitions and counts were inconsistent across the submitted tables and could not be reliably reconstructed without participant-level data.

^b Fisher's exact test.

The zero cells for health insurance and access to sufficient healthy food indicate complete or near-complete

separation when psychological distress is modeled as a binary outcome. Therefore, conventional adjusted odds ratios should not be interpreted as reliable adjusted effects. Given the high outcome prevalence, any estimated odds ratios should also not be interpreted as prevalence ratios or risk ratios. The results are therefore presented as exploratory associations rather than adjusted causal estimates.

5. Discussion

This study examined associations between selected social determinants of health and psychological distress among female-headed households in marginalized urban areas of Zahedan, southeastern Iran. Participants experienced substantial socioeconomic disadvantage, limited access to essential resources, and a high proportion of self-reported psychological distress. Lack of health insurance and unreliable access to sufficient healthy food were strongly associated with distress in exact bivariate analyses. These findings require cautious interpretation given the cross-sectional design, the self-reported screening outcome, and sparse data.

The observed combination of low educational attainment, unemployment, and restricted access to basic resources is consistent with the WHO conceptualization of social determinants of health, in which education, income, employment, and structural conditions shape health opportunities and outcomes (1). Previous research has similarly emphasized household composition and gender-related socioeconomic vulnerability in poverty and health inequalities (5, 7). Socioeconomic deprivation may be accompanied by reduced employment opportunities and chronic stress. However, this study cannot establish whether these conditions preceded distress or whether psychological distress contributed to worsening household economic circumstances.

The high proportion screening positive for psychological distress should be interpreted in light of evidence from other Iranian populations. Studies have reported psychological distress among populations facing substantial health or social challenges, including cancer patients and COVID-19 survivors (11, 12). Research involving people living with HIV/AIDS in southeastern Iran has also highlighted the relevance of psychological well-being and social support in vulnerable populations (13). Differences in populations, instruments, and outcome definitions

mean that prevalence estimates cannot be directly compared.

Food access was among the factors most strongly associated with distress: participants without reliable access to sufficient healthy food reported substantially higher distress than those with such access. This pattern is consistent with studies linking food insecurity to psychological distress, anxiety, and depression (14-16), and with research identifying food insecurity as a dimension of vulnerability in female-headed households (6). Financial strain, uncertainty about meeting basic needs, reduced dietary quality, and caregiving-related stress are plausible pathways, but they were not directly measured here. Reverse directionality is also possible: Psychological distress may affect employment, household resources, or the ability to obtain and prepare adequate food. Therefore, this association does not establish that food insecurity causes distress.

Psychological distress was reported by 86.5% of participants. Because the outcome was based on a researcher-developed screening question rather than a validated psychiatric diagnostic instrument, this percentage represents the proportion meeting the study's screening definition, not the prevalence of a confirmed psychiatric disorder. Comparisons with studies using validated diagnostic or screening instruments should be made cautiously. Prior research also underscores the role of social support and context in understanding distress (11, 13).

Health insurance status was also associated with distress: all 72 uninsured participants reported distress, compared with 18 of 32 insured participants. This pattern may reflect broader socioeconomic disadvantage and barriers to healthcare. Evidence from low- and middle-income settings identifies insurance coverage and financial protection as important components of progress toward universal health coverage (17). However, the zero cell among uninsured participants creates complete-separation bias in conventional logistic regression; thus, the magnitude of an adjusted association cannot be estimated reliably from the available aggregate information. Unmeasured socioeconomic differences between insured and uninsured participants may also contribute to the observed pattern.

Barriers to health and mental health services may further compound socioeconomic disadvantage. Qualitative research has described financial, social, and

health-system factors affecting access to mental health services in low- and middle-income settings (18). The association observed here may therefore reflect a broader pattern of interconnected barriers to care, although the cross-sectional data cannot determine the relative contributions of insurance, healthcare access, or other factors.

The findings should also be considered within the broader socioeconomic context of Iran and comparable settings. Regional deprivation, inflationary pressures, and reduced purchasing power may be relevant to household vulnerability and restricted access to essential resources (8, 9, 19-21). National and international economic data provide context for economic pressures and living conditions (8, 9). This study did not directly measure the effects of inflation, regional deprivation, or purchasing power; these remain contextual considerations rather than causal determinants established by the analysis.

From a public health perspective, the findings support consideration of upstream approaches to social determinants alongside individual psychological and medical care. Potentially relevant strategies include improving reliable access to sufficient healthy food, expanding health insurance coverage, increasing employment opportunities, and strengthening social protection (6, 16, 18). These are potential policy implications, not interventions evaluated in this study. Longitudinal and intervention research is needed to determine whether improvements in food security, insurance coverage, employment opportunities, and social protection are followed by reductions in psychological distress.

5.1. Limitations

Several limitations should be considered. First, the cross-sectional design precludes causal inference; reverse directionality between distress and conditions such as employment, food access, and insurance coverage is plausible. Second, recruitment through two NGO registries may have introduced selection bias and limited generalizability to women not connected with these organizations.

Third, the high prevalence of distress (86.5%) and the small number of participants without distress ($n = 14$) resulted in sparse-data and complete-separation concerns for conventional multivariable logistic regression. Conventional adjusted odds ratios were therefore

removed. Larger studies with participant-level data should use penalized-likelihood or other bias-reduced approaches, and prevalence-ratio methods where appropriate. Finally, psychological distress was self-reported using a researcher-developed screening question rather than a validated diagnostic instrument; recall and reporting bias are possible.

5.2. Conclusions

Female-headed households connected to the participating NGOs in marginalized urban areas of Zahedan experienced substantial socioeconomic disadvantage and a high proportion of self-reported psychological distress. Lack of health insurance and unreliable access to sufficient healthy food were strongly associated with distress in exact bivariate analyses. Because the study was cross-sectional, the outcome was researcher-defined, and the data included sparse cells with complete separation, the findings are exploratory and should not be interpreted as causal or as reliable adjusted effect estimates. Prospective studies with larger samples and analytical methods appropriate for sparse binary outcomes are needed to confirm these associations.

Footnotes

AI Use Disclosure: ChatGPT was used for translation at a moderate level in the introduction section.

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Data Availability: The dataset presented in the study is available on request from the corresponding author during submission or after publication.

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References

1. World Health Organization. *World Health Organization*. 2026, [cited 2026 Oct 18]. Social determinants of health. Available from: <https://www.who.int/health-topics/social-determinants-of-health>.
2. World Health Organization. *World Health Organization*. Geneva: World Health Organization; 2024, [cited 2026 Oct 18]. Operational framework for monitoring social determinants of health equity. Available from: <https://iris.who.int/handle/10665/375732>.
3. Rahaman MA, Kalam A, Al-Mamun M. Unplanned urbanization and health risks of Dhaka City in Bangladesh: uncovering the associations between urban environment and public health. *Frontiers in Public Health*. 2023;**11**: 1269362. [PubMed ID: 37927876]. [PubMed Central ID: PMC10620720]. <https://doi.org/10.3389/fpubh.2023.1269362>.
4. Sargolzaei N, Sarhadi S, Zouripour N, Maleki H. The association between non-medical social needs and the 10-year risk of cardiovascular diseases: a population-based study in southeast Iran. *Health Scope*. 2025;**14**(4). <https://doi.org/10.5812/healthscope-164264>.
5. Posel D, Hall K, Goagoses L. Going beyond female-headed households: Household composition and gender differences in poverty. *Development Southern Africa*. 2023;**40**(5):1117-1134. <https://doi.org/10.1080/0376835X.2023.2182760>.
6. Braga C, Costa L. (2022). Time use and food insecurity in female-headed households in Brazil. *Revista Brasileira de Estudos de População*. 39.1 - 23. 10. 2094;**39**:1-23. <https://doi.org/10.20947/S0102-3098a0200>.
7. Zhang M, You S, Yi S, Zhang S, Xiao Y. Vulnerability of Poverty Between Male and Female-Headed Households in China. *Journal of Family and Economic Issues*. 2025;**46**(3):900-918. <https://doi.org/10.1007/s10834-024-09969-5>.
8. World Bank. *World Bank*. 2024, [cited 2026 Oct 18]. Iran economic monitor. Available from: <https://www.worldbank.org/en/country/iran/publication/iran-economic-monitor>.
9. Statistical Center of Iran. *Statistical Center of Iran*. IHSN Survey Catalog; 2019, [cited 2026 Oct 18]. Iran Households Income and Expenditure Survey (HEIS) 2019 [dataset on the Internet]. Available from: <https://catalog.ihsn.org/catalog/10336>.
10. Bleich SN, Koma JW, Jernigan VBB. The worsening problem of food insecurity. *JAMA Health Forum*. 2023;**4**(11):e234974. [PubMed ID: 38032678]. <https://doi.org/10.1001/jamahealthforum.2023.4974>.
11. Sabagh K, Akbarizadeh MR, Siasary A, Mir A, Naderifar M. Daily Spiritual Experiences, Social Support, and Psychological Distress in Women with Breast Cancer in Zahedan: A Correlational Study. *Jundishapur J Chronic Dis Care*. 2026;**15**(2). e167618. <https://doi.org/10.5812/jjcdc-167618>.
12. Ebadi A, Ghadirian F, Shokri F, Imani SS, Saeidi G, Mostafazadeh FZ, et al. Persistent Psychological Distress and Its Associated Determinants

- Among Iranian COVID Survivors: A Cross-Sectional Study. *Middle East J Rehabil Health Stud.* 2024;**11**(4). <https://doi.org/10.5812/mejrh-148680>.
13. Sargolzaei N, Mohebi MD, Hosaini SS, Farzad Z. Psychological well-being and social support in patients with HIV/AIDS in South-East Iran. *Int J High Risk Behav Addict.* 2018;**7**(7). <https://doi.org/10.5812/ijhrba.67472>.
 14. Ciciurkaite G, Brown RL. The link between food insecurity and psychological distress: the role of stress exposure and coping resources. *J Community Psychol.* 2022;**50**(3):1626-1639. [PubMed ID: 34735724]. [PubMed Central ID: PMC8916974]. <https://doi.org/10.1002/jcop.22741>.
 15. Cisneros-Vásquez E, Smith L, Yañez-Sepúlveda R, Olivares-Arancibia J, Gutiérrez-Espinoza H, Yon DK, et al. Beyond hunger: uncovering the link between food insecurity and depression, anxiety, and stress in adolescents. *Curr Dev Nutr.* 2025;**9**(6). 107453. [PubMed ID: 40496645]. [PubMed Central ID: PMC12148393]. <https://doi.org/10.1016/j.cdnut.2025.107453>.
 16. Onyeaka H, Ejiohuo O, Taiwo OR, Nnaji ND, Odeyemi OA, Duan K, et al. The intersection of food security and mental health in the pursuit of sustainable development goals. *Nutrients.* 2024;**16**(13):2036. [PubMed ID: 38999784]. [PubMed Central ID: PMC11243539]. <https://doi.org/10.3390/nu16132036>.
 17. Nungo S, Filippon J, Russo G. Social Health Insurance for Universal Health Coverage in Low and Middle-Income Countries (LMICs): a retrospective policy analysis of attainments, setbacks and equity implications of Kenya's social health insurance model. *BMJ Open.* 2024;**14**(12). e085903. [PubMed ID: 39663163]. [PubMed Central ID: PMC11647346]. <https://doi.org/10.1136/bmjopen-2024-085903>.
 18. Munira L, Liamputtong P, Viwattanakulvanid P. Barriers and facilitators to access mental health services among people with mental disorders in Indonesia: A qualitative study. *Belitung Nurs J.* 2023;**9**(2):110-117. [PubMed ID: 37469586]. [PubMed Central ID: PMC10353611]. <https://doi.org/10.33546/bnj.2521>.
 19. Ragab Mahmoud Ahmed. The Impact of Inflation on Purchasing Power and Living Standards. *Researchgate.* 2025;**Preprint**. <https://doi.org/10.13140/RG.2.2.32616.74241>.
 20. Islamiah N. Macroeconomics and Social Inequality: Examining the Role of Purchasing Power in Affecting Income and Poverty Levels. *Golden Ratio of Data in Summary.* 2024;**5**(1):38-45. <https://doi.org/10.52970/grdis.v5i1.833>.
 21. Bhowmick S, Roy Bardhan A. Analysing Macroeconomic Precarities in the South Asian Neighbourhood. *Journal of Emerging Markets and Management.* 2025;**1**(2):39-53. <https://doi.org/10.63385/jemm.v1i2.105>.