Protocol Article

Community health assessment: Knowledge, attitude and practice of women regarding water-pipe smoking in Bandar Abbas

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\textbf{A B S T R A C T}

Based on the results of seventh round of community health assessment (CHA) in suburban areas of Bandar Abbas, ”water-pipe smoking in women” was one of the major concerns of community members. Therefore, the present study designed to assess the knowledge, attitude and practice of women towards water-pipe smoking and related factors. High consumption of water-pipe among women was ranked as a prioritized health problem. To diagnose the problem, for creating action plan, the present cross-sectional study was conducted on 205 women aged over 18 randomly selected from Green-Tree region in suburb of Bandar Abbas city. All statistical analyses were performed using SPSS 24 software with 5% as the significant level. 205 women with a mean age of 36.9 (standard deviation: 12.86) years, and a water-pipe prevalence of 15.1% were analyzed. The significant predictors of knowledge were educational level (\(\beta=0.182, \ p\text{-value}=0.037\)), and being water-pipe smoker (\(\beta=-0.251, \ p\text{-value}<0.001\)); while for attitude they were educational level (\(\beta=0.221, \ p\text{-value}=0.002\)), family size (\(\beta=0.152, \ p\text{-value}=0.023\)), and subjective social status (\(\beta=0.149, \ p\text{-value}=0.035\)); and for practice they was smoking waterpipe in parents (\(\beta=-0.276, \ p\text{-value}<0.001\)). The development action plans based on “CHA” could improve public health and enhance the performance of the community through improved education, policies and health interventions.

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Specifications Table

Subject area: Epidemiology
More specific subject area: Community Health Assessment
Protocol name: Application of Community Health Assessment: Knowledge, Attitude and Practice of women regarding water-pipe smoking
Reagents/tools: The current study is taken form the 7th Community Health Assessment conducted in the marginalized regions in Bandar Abbas, in Block 6 of the Green Tree neighborhood.
Experimental design: To diagnose the problem, for creating action plan, the present cross sectional study was conducted on 205 women aged over 18 randomly selected from Green-tree region in suburb of Bandar Abbas city
Trial registration: No applicable
Ethics: No applicable

Protocol data

- Community health assessment with public participation can provide better understanding the needs of society, researchers and health professionals [1–5].
- The assessment results showed that community health concerns and priorities of the community members may be different from what health systems report.
- Operational plans based on diagnostic problems in the community, for education, policy and health interventions could improve public health and enhance the performance of people.
- The implementation of the public health assessment process, leading to increased participation of people in their health and prevention programs are guaranteed to run properly.

Description of protocol

Materials and methods

This study is conducted in the form of a community evaluation project in Block 6 of Green Tree neighborhood in the north eastern part of Bandar Abbas City, Hormozgan Province. The model used in this study is based on the community evaluation pattern used in the School of Public Health, Tehran University of Medical Sciences [6,7], to evaluate different communities based on the localized pattern [8] of Evaluation of the North Carolina Health Administration Society [9–11].

According to this pattern, community evaluation consists of eight phases, in which phases one to seven contribute to problem identification and prioritization, and phase eight deals with developing an operational plan to solve the problems. In phase one, the community evaluation team, consisted of one epidemiologist as the guide, one person responsible for coordinating with the administrations and residents in the region, and two secretaries for interview meetings. The primary data were collected in the second phase during group focused discussion sessions, brain storming and individual interviewing in Shahid Takhty's Health Center, the schools and mosques in the neighborhood, teachers, residents and trustees in the region.
Table 1
The problems extracted from the attitudes of different groups, Takht Green Tree neighborhood community, during society evaluation in 2016.

| No. | Health Authorities | People in the Neighborhood | Final Prioritization |
|-----|--------------------|-----------------------------|----------------------|
| 1   | Water and Wastewater | Youth unemployment | Youth unemployment |
| 2   | Lack of proper waste collection and lack of trash bin | Addiction | Presence of mice and rodents |
| 3   | Youth unemployment | Lack of proper waste collection and lack of trash bin | High prevalence of addiction and men selling drugs |
| 4   | Domestic violence | Outbreak of head lice | Economic and cultural poverty and divorce |
| 5   | Easy access to drugs and addiction | High consumption of water-pipe in women | Outbreak of head lice |
| 6   | High prevalence of vitamin D deficiency | High consumption of water-pipe in women | Alcohol consumption and abuse |
| 7   | Divorce | Presence of mice and rodents | Problems in waste collection |
| 8   | Economic and cultural poverty | High prevalence of anxiety | Mothers’ low knowledge about the use of supplements for their children |
| 9   | Rusty houses | Low knowledge about the use of supplements | Lack of suitable sports space |
| 10  | High immigration | Easy access to drugs | Water-pipe abuse in women |

Data gathering, summarizing and interpreting the primary and secondary data obtained from other organizations was done in the third phase. Analyzing the data obtained from phases two and three, aiming to acquire a fundamental understanding of the demographic features, major health risks and the existing problems was done in the fourth phase, and totally 67 problems were extracted as a result. Oral and written report of the evaluation process of the beneficiaries in society was done in the fifth phase to involving more people in the evaluation process. In the sixth phase, prioritizing the problems identified in the previous phases was done in a collaborative meeting, in presence of the evaluation team, health professionals, the mosque liturgist, board of trustees, and the trustees in the neighborhood, using Hanlon method [12].

Scoring the problems listed based on health importance, the extent and feasibility of addressing the problem was done by assigning 1–10 to each problem, and the first 10 problems, having the highest score, were selected as the high priority problems in the community under study (Table 1).

Finally, the problem "high prevalence of water-pipe in women" was selected among the list, which had operational, educational, and intervention feasibility. The current field study, aiming to identify this problem in Block 6 of Green Tree neighborhood in Bandar Abbas was conducted by developing a proposal entitled "Investigating the knowledge, attitude, and practices of over 18-years old women

Table 2
Some knowledge, attitude, and practices questions about water-pipe consumption in over 18-years old women in Bandar Abbas.

| Scope of knowledge                                                                 | Correct Answer | Frequency | Percent |
|-----------------------------------------------------------------------------------|----------------|-----------|---------|
| Does water-pipe contains a lot of poisonous materials?                             | 178            | 86.6      |
| Does Water-pipe induce less addiction compared to cigarette?                      | 46             | 22.4      |
| Does smoking water-pipe lead to cardiovascular problems?                          | 192            | 93.7      |
| Scope of attitude                                                                 |                |           |         |
| In my opinion, addiction to water-pipe has no danger                              | 94             | 45.9      |
| In my opinion, passing the water-pipe smoke through water removes its toxic materials. | 55             | 26.8      |
| In my opinion, water-pipe consumption is more approved in the society compared to cigarettes. | 22             | 10.7      |
| In my opinion, water-pipe consumption decreases anxiety.                          | 44             | 21.5      |
| Scope of practices                                                                |                |           |         |
| I have the experience of giving up water-pipe consumption.                        | 25             | 12.2      |
| I gave up water-pipe because of my parents’ opposition.                           | 185            | 90.2      |
| I have personal water-pipe.                                                        | 21             | 10.2      |
| Access to water-pipe is easy for me.                                              | 24             | 11.7      |
| I consulted on the dangers of water-pipe consumption.                             | 190            | 92.7      |
## Table 3
The relationship between knowledge, attitude, and practices of the people under study about water-pipe consumption in over 18-years old women and their background variables.

| Variable name | Variable levels | Frequency of people higher than mean value | Percent of people higher than mean value | Statistical test | Frequency of people higher than mean value | Percent of people higher than mean value | Statistical test | Frequency of people higher than mean value | Percent of people higher than mean value | Statistical test |
|---------------|-----------------|-------------------------------------------|----------------------------------------|------------------|-------------------------------------------|----------------------------------------|------------------|-------------------------------------------|----------------------------------------|------------------|
| Age           | > 36            | 120                                       | 85                                     | 70.8             | $\chi^2 = 0.68$                           | 71                                     | 59.2             | $\chi^2 = 1.48$                           | 102                     | 85                            | $\chi^2 = 0.003$ |
| Marital Status| Single          | 22                                        | 17                                     | 77.3             | $\chi^2 = 3.07$                           | 8                                      | 36.4             | $\chi^2 = 13.2$                          | 17                       | 77.3                           | $\chi^2 = 1.43$ |
|               | Married         | 165                                       | 111                                    | 67.3             | $\chi^2 = 0.38$                           | 101                                    | 61.2             | $\chi^2 = 0.004$                         | 142                      | 86.1                           | $\chi^2 = 0.69$ |
|               | Widow           | 17                                        | 9                                      | 52.9             |                                           | 4                                      | 23.5             |                                           | 14                       | 82.4                           | $\chi^2 = 1.00$ |
| The last academic degree earned | Illiterate | 29                                        | 16                                     | 55.2             | $\chi^2 = 8.98$                           | 10                                     | 34.5             | $\chi^2 = 8.42$                          | 24                       | 82.8                           | $\chi^2 = 0.85$ |
|               | Primary school  | 54                                        | 33                                     | 61.1             | $\chi^2 = 0.061$                          | 28                                     | 51.9             | $\chi^2 = 0.07$                          | 46                       | 85.2                           | $\chi^2 = 0.93$ |
| Occupational status | Secondary school | 37                                      | 27                                     | 73               |                                           | 21                                     | 56.8             |                                           | 30                       | 81.1                           | $\chi^2 = 1.00$ |
|               | Diploma         | 68                                        | 46                                     | 67.6             |                                           | 44                                     | 64.7             |                                           | 59                       | 86.8                           | $\chi^2 = 0.00$ |
|               | University      | 17                                        | 16                                     | 94.1             |                                           | 11                                     | 64.7             |                                           | 15                       | 88.2                           | $\chi^2 = 0.00$ |
| Occupation    | Housewife       | 169                                       | 111                                    | 65.7             | $\chi^2 = 7.71$                           | 96                                     | 56.8             | $\chi^2 = 0.94$                          | 144                      | 85.2                           | $\chi^2 = 11.95$ |
|               | Employee        | 3                                         | 3                                      | 100              | $\chi^2 = 0.155$                          | 1                                      | 33.3             | $\chi^2 = 0.96$                          | 1                        | 33.3                           | $\chi^2 = 0.03$ |
|               | Worker          | 4                                         | 1                                      | 25               |                                           | 2                                      | 50               |                                           | 2                        | 50                             | $\chi^2 = 0.00$ |
|               | Self-employed   | 21                                        | 16                                     | 76.2             |                                           | 11                                     | 52.4             |                                           | 19                       | 90                             | $\chi^2 = 0.00$ |
|               | Others          | 4                                         | 3                                      | 75               |                                           | 2                                      | 50               |                                           | 4                        | 100                            | $\chi^2 = 0.00$ |
| Family        | > 4             | 82                                        | 60                                     | 73.2             | $\chi^2 = 2.12$                           | 45                                     | 54.9             | $\chi^2 = 0.03$                          | 69                       | 84.1                           | $\chi^2 = 0.03$ |
|               | < 4             | 123                                       | 78                                     | 63.4             | $\chi^2 = 0.095$                          | 69                                     | 56.1             | $\chi^2 = 0.86$                          | 105                      | 85.4                           | $\chi^2 = 0.86$ |
| Family financial status | Poor | 41                                        | 25                                     | 61               | $\chi^2 = 1.44$                           | 17                                     | 41.5             | $\chi^2 = 6.16$                          | 33                       | 80.5                           | $\chi^2 = 0.93$ |
|               | Moderate        | 129                                       | 88                                     | 68.2             | $\chi^2 = 0.073$                          | 73                                     | 56.6             | $\chi^2 = 0.10$                          | 111                      | 86                             | $\chi^2 = 0.81$ |
|               | Good            | 34                                        | 24                                     | 70               |                                           | 23                                     | 67.6             |                                           | 29                       | 85.3                           | $\chi^2 = 0.00$ |
|               | Rich            | 1                                         | 1                                      | 100              |                                           | 1                                      | 100               |                                           | 1                        | 100                            | $\chi^2 = 0.00$ |
| Individual health status | Very bad | 3                                         | 3                                      | 100              | $\chi^2 = 6.06$                           | 0                                      | 0                | $\chi^2 = 6.81$                          | 2                        | 66.7                           | $\chi^2 = 1.00$ |
|               | Bad             | 11                                        | 8                                      | 72.7             | $\chi^2 = 0.191$                          | 4                                      | 36.4             | $\chi^2 = 0.14$                          | 9                        | 81.8                           | $\chi^2 = 0.90$ |
|               | Moderate        | 61                                        | 36                                     | 59               |                                           | 34                                     | 55.7             |                                           | 52                       | 85.2                           | $\chi^2 = 0.00$ |
|               | Good            | 125                                       | 86                                     | 68.8             |                                           | 72                                     | 57.6             |                                           | 107                      | 85.6                           | $\chi^2 = 0.00$ |
|               | Very Good       | 5                                         | 5                                      | 100              | $\leq$                                     | 4                                      | 80               |                                           | 4                        | 80                             | $\chi^2 = 0.00$ |
| Parents       | No              | 156                                       | 109                                    | 69.9             | $\chi^2 = 1.93$                           | 91                                     | 58.3             | $\chi^2 = 1.96$                          | 140                      | 89.7                           | $\chi^2 = 12.03$ |
|               | Yes             | 49                                        | 29                                     | 59.2             | $\chi^2 = 0.221$                          | 23                                     | 46.9             | $\chi^2 = 0.16$                          | 34                       | 69.4                           | $\chi^2 = 0.001$ |
living in Block 6 of Green Tree neighborhood about using water-pipe and the factors affecting it, aiming to develop an operational plan in 2016’.

Documentary report on the evaluation process, along with all findings, to the society members is done in the seventh phase, which, in turn, results in developing an operational plan for the society in the eighth phase for high priority problems. To run this cross-sectional study, 206 women over 18-years old, residing in Block 6 of Green Tree neighborhood, were selected randomly (Table 2).

The study used the researcher-made survey questionnaire as a principal tool for gathering data. The questionnaire included 5 sections: demographic information, knowledge, attitude, practices, and life satisfaction questions [13,14]. The questioners completed the questionnaire. The content validity of the questionnaire was verified using the experts’ attitude, and the questions’ reliability in each field was verified using the primary studies (Cronbach’s alpha = 0.79).

The data analysis was performed in two descriptive and analytical parts. Mean value, standard deviation, and relative frequency indices were used in the descriptive part, while Chi-square test and linear regression models were used in the analytical part. The outcome variables in this study (knowledge, attitude, and practices) were divided from the mean value to two parts: higher than mean and lower than mean (Table 3); two-state variables were used as outcome for further analysis. Statistical analyses were done using SPSS software, version 24.

Conflicts of interest

Authors have no conflicts of interest.

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References

[1] M. Ghaderpoori, M. Paydar, A. Zarei, H. Alidadi, A.A. Najafpoor, A.H. Gohary, M. Shams, Health risk assessment of fluoride in water distribution network of Mashhad, Iran, Hum. Ecol. Risk Assess.: Int. J. (2018) 1–12.
[2] M. Qasemi, M. Afsharnia, A. Zarei, M. Farhang, M. Allahadadi, Non-carcinogenic risk assessment to human health due to intake of fluoride in the groundwater in rural areas of Gonabad and Bajestan, Iran: a case study, Hum. Ecol. Risk Assess.: Int. J. (2018) 1–12.
[3] M. Qasemi, M. Shams, S.A. Sajjadi, M. Farhang, S. Erfanpoor, M. Yousefi, A. Zarei, M. Afsharnia, Cadmium in groundwater consumed in the rural areas of Gonabad and Bajestan, Iran: occurrence and health risk assessment, Biol. Trace Elem. Res. (2019) 1–10.
[4] M. Yousefi, H.N. Saleh, M. Yaseri, M. Jalilzadeh, A.A. Mohammadi, Association of consumption of excess hard water, body mass index and waist circumference with risk of hypertension in individuals living in hard and soft water areas, Environ. Geochem. Health (2018) 1–9.
[5] M. Yousefi, A.A. Mohammadi, M. Yaseri, A.H. Mahvi, Epidemiology of drinking water fluoride and its contribution to fertility, infertility, and abortion: an ecological study in West Azerbaijan Province, Poldasht County, Iran, Fluoride 50 (2017) 343–353.
[6] K.H. Naieni, A. Ahmadvand, E. Ahmadnezhad, A. Alami, A community assessment model appropriate for the Iranian community, Iran. J. Public Health 43 (2014) 323.
[7] M. Saeed Firoozabadi, R. Tahmasbei, A. Noroozi, Predicting factors on continued intention of waterpipe smoking among women in Bushehr using the theory of planned behavior, Iran. J. Health Educ. Health Promotion 2 (2015) 260–269.
[8] Health(DPH) NCDoP, Community Health Assessment Guide Book Retrieved November 9, from, (2015) .
[9] M.C. Kegler, A. Steckler, K. Mcleroy, S.H. Malek, Factors that contribute to effective community health promotion coalitions: a study of 10 Project ASSIST coalitions in North Carolina, Health Educ. Behav. 25 (1998) 338–353.
[10] K.R. Mcleroy, D. Bibeau, A. Steckler, K. Glanz, An ecological perspective on health promotion programs, Health Educ. Q. 15 (1988) 351–377.
[11] S.D. Smith, K.G. Matney, J.J. Reel, N.P. Miner, R.R. Cottrell, C.J. Hardy, M.K. Surles, Building the plane while flying it: lessons learned in the development of the North Carolina local performance site for the HRSA Region IV Public Health Training Center, Pedagogy Health Promot. 3 (2017) 175–205.
[12] S. Njadat, Is self-rated health a good indicator for assessment of population health? A review article, Iran. J. Epidemiol. 10 (2015) 89–96.
[13] M.H. Dehghani, M. Rahmatinia, Dataset on the knowledge, attitude, and practices of biomedical waste management among Tehran hospital’s healthcare personnel, Data Brief 20 (2018) 219–225.
[14] M. Alimohammadi, M. Yousefi, F.A. Mayvan, V. Taghavimanesh, H. Navai, A.A. Mohammadi, Dataset on the knowledge, attitude and practices of biomedical wastes management among Neyshabur hospital’s healthcare personnel, Data Brief 17 (2018) 1015–1019.