The Impact of "Each Home as a Health Post" Program on Community Self-care Based on a Knowledge, Attitudes, and Practice Survey: A Study Protocol

Farid Gharibi [1], Parviz Kokhaei [2], Sayed Saeed Kassaeian [1], Mehdi Kahouei [1] and Esmaeil Moshiri [1, *]

[1] Social Determinants of Health Research Center, Semnan University of Medical Sciences, Semnan, Iran
[2] Cancer Research Center, Semnan University of Medical Sciences, Semnan, Iran

Corresponding author: Social Determinants of Health Research Center, Semnan University of Medical Sciences, Semnan, Iran. Email: moshirimn@gmail.com

Abstract

Today, self-care is referred to as a fundamental and irreplaceable principle for achieving optimal health outcomes. Undoubtedly, developing and implementing targeted and effective education programs is necessary to achieve adequate self-care in society concerning various diseases. Judging the effectiveness of health education and promotion programs is impossible without effective evaluation mechanisms that can measure the achievements at the levels of knowledge, attitudes, skills, and behavior with the desired accuracy and objectivity. Recently, a national program entitled "Each Home as a Health Post" (HAHP) was launched in Iran to improve the self-care capability among community members in high priority health issues. Hence, it is essential to establish a comprehensive and ongoing evaluation mechanism for the program, as well as to implement corrective and promotional interventions based on the evaluation results. Accordingly, this Knowledge, Attitudes, and Practice (KAP) survey aimed to assess the impact of HAHP program on self-care among the community in the form of a study protocol.

Keywords: Public Health, Primary Health Care, Self-care, Health Education

1. Background

All health systems around the world are committed to encouraging and empowering citizens for self-care. Achieving this goal depends on implementing programs that can increase citizens' health literacy to make the right health decisions (1). Self-care is a critical element in successful disease prevention and treatment. Investigating the prevalence of health risk factors revealed that health systems have failed to improve the health literacy of citizens and their ability and desire for self-care in many cases (2). The most critical risky behaviors include excessive consumption of alcohol, cigarettes, sugar, and salt; low consumption of fruits, vegetables, and dairy products; the rise of obesity due to a sedentary lifestyle; high-risk sexual behaviors; and unfavorable level of personal hygiene (2).

According to the evidence, the levels of knowledge, attitudes, and especially health performance of people in a wide range of health issues, such as type 2 diabetes (3), hypertension (4), oral health (5), proper nutrition (6) especially nutritional behaviors related to breast cancer prevention (7), acquired immunodeficiency syndrome (AIDS) and human immunodeficiency virus (HIV) (8), and personal hygiene (9) are not optimal. In such circumstances, the design and implementation of Knowledge, Attitudes, and Practice (KAP)-based interventions can be effective because the available data in areas such as nutrition in the prevention of breast cancer (10), proper use of drugs (10), tuberculosis (11), epilepsy (12), hepatitis B (13), rabies (14), maternal and child health (15), and hand hygiene (16) confirm this claim. The KAP surveys can also address whether citizens in a community are aware of the appropriate health behaviors concerning a particular health issue; they also assess people's attitudes and practices (17).

Despite the relative impact on changing the health awareness and attitude of the community in some health issues, the health communicators program has not been able to prove its effectiveness in terms of a positive impact on community health behavior, and it seems that the program encountered a severe recession in practice and even declined (18). Furthermore, limited studies have shown the relative impact of the health communicators program on community health behavior in certain circumstances, and it would not be possible to expand the provision of such conditions on a large scale. A small-scale study, the use

of skilled health promotion teams, the application of new health education methods, and the utilization of relevant research and executive budgets are among these requirements. Therefore, creating a more practical and effective mechanism to promote community self-care is necessary (18).

Due to the importance of promoting self-care capacity among the community (19) and the inefficiency of the health communicators program in Iran (18), the "Each Home as a Health Post" (HAHP) program has been launched to educate all households on priority health issues. In this program, a person from each household is selected as a "health ambassador" and receives essential and practical health education from health centers and transmits the knowledge to his/her family members.

The research team hypothesized that this program with proper design and implementation could enhance the health knowledge, attitude, and practice of Iranian people in important health areas, including disaster management, oral health, physical activity, healthy nutrition, smoking, diabetic food, depression, falling in older people, and first aids. We also hypothesized that this program could enhance the self-care status among the community, subsequently improving the community health status based on a significant reduction in direct and indirect health costs and lower morbidity and mortality rates. With HAHP, the geographical distance from the target community would be removed (an issue that is present when the health communicators are in charge). Besides, the health ambassadors have stronger inner motivations in performing the assigned tasks for the health benefits of their family members. Therefore, this article, as a study protocol presents the evaluation of HAHP program on self-care among the community through a KAP survey.

2. Objectives

2.1. Specific Objectives

The main objectives of this study included the following: (1) assessing the knowledge, attitudes, and health performance of citizens in Semnan, Iran before implementing the HAHP program; (2) evaluating the effectiveness of the HAHP program through comparing the outcomes before and after the implementation of the HAHP program; (3) investigating the effects of demographic and contextual variables on the levels of knowledge, attitudes, and health performance of citizens before and after the implementation of the HAHP.

2.2. Practical Aims

The present study can improve the HAHP program, and consequently increase the level of health and community

satisfaction by determining the level of effectiveness of educational interventions, providing practical suggestions based on the identified shortcomings, as well as prioritizing them.

3. Methods

3.1. Type of Study

The present study is a quasi-experimental intervention.

3.2. Participants and Sample Size

The population to run this study will be all households in Semnan, Iran with an active ambassador covered by the comprehensive health service centers. According to the framework defined by the Iranian Ministry of Health and Medical Education (MOHME), the applicant for a family health ambassador is an intelligent member of the family (preferably a woman) with the following characteristics: married or over 18 years old; holding at least a degree from middle-school; receiving educational courses (face-to-face such as workshops and virtual including the routine and available social media such as WhatsApp) in three general areas of health prevention, primary care, and rehabilitation measures; and accountability for the health care of the family.

To determine the sample size, the Morgan table (20) will be applied. In this table, a constant statistical population according to the coverage by each center with 95% confidence level and 5% margin of error could be detected.

3.3. Morgan Table

3.3.1. Randomization

The sampling method will be randomized, and the number of questionnaires required for each "comprehensive health service center" will be determined by the share of the population covered by that center from the total population. Next, the required number of samples will be selected from the households covered by each center using a random number table.

3.4. Data Collection

3.4.1 Data Collection Steps

For data collection, the door-to-door method will be used in two stages before and after implementing the educational interventions. The health ambassadors will collaborate with the research team in all data collection steps.

3.4.2. Data Collection Tools

The data collection tool will be a researcher-made questionnaire to run the KAP survey and is made according to the number of educational packages defined in the program.

Initially, interviews are conducted with program managers to gain sufficient knowledge about the HAHP program and its objectives. Then, the defined educational packages will be assessed to extract preliminary items the program aimed to deliver to the community. After that, the primary questions and the questionnaire dimensions will be made based on extracted items and their categorization. We will collect such demographic information as gender, age, relationship with a health ambassador, level of education, type of education, job status, and income. To assess and approve the primary questions, the content validity would be determined based on experts' opinions which will include health managers and health education experts (at least ten people) who are polled via sending emails, and finally the use of statistical methods. Also, the face validity of questions will be assessed by experts' opinions qualitatively regarding the writing style and language grammar.

To continue, the reliability and internal consistency of the questionnaire will be measured via test-retest based on Cronbach's alpha (approved if larger than 0.60) ([Figure 1](#)).

In determining content validity of study tools, all questions will be reviewed by the experts based on four indicators of necessity, relevance, transparency, and simplicity in a four-item range, and the final judgment on the content validity of the questionnaire items will be made by calculating the content validity ratio (CVR) and content validity index (CVI). Furthermore, the face validity of the questionnaire will be assessed by providing qualitative expert judgments and how the questions are embedded in the questionnaire ([21](#)). To assess the content validity of the questionnaire by examining the scores obtained in the criterion of necessity (with a range of necessary, relatively necessary, valuable but unnecessary, and unnecessary), first, the CVR will be investigated if the question is confirmed. Then, the CVI will be calculated based on the obtained scores by the other three evaluation criteria, namely relevance (with a range of fully related, related, relatively relevant, and unrelated), transparency (with a range of completely transparent, transparent, relatively transparent, and opaque), and simplicity (with a range of elementary, simple, relatively simple, and non-simple). The formula for calculating these two indexes will be:

$$CVR = \frac{nE - \frac{N}{2}}{\frac{N}{2}}$$

Where nE is the number of experts who choose between two positive spectrum alternatives, and N is the total number of experts. Obviously, due to the participation of ten experts in this stage, the acceptance score of 62% will be the basis for including the questions in the questionnaire ([21](#)).

3.5. Intervention

The HAHP program seeks to enhance self-care capabilities among the community in some of the priority health areas, including oral health, musculoskeletal problems, physical activity, nutrition, falls in the elderly, healthy aging, crisis management, depression, chest pain, cardiopulmonary resuscitation, diarrhea and vomiting, external bleeding, diabetic foot care, headache, trauma, medical emergency, and COVID-19.

We will provide an educational package which includes essential data regarding the nature of the mentioned health areas, their epidemiological and financial importance in Iran, the necessity of the self-care, the required practical self-care hints, and the necessary skills. The content of the HAHP program will be written and delivered to the ambassadors as books, brochures, and pamphlets. When the training courses are over, the KAP survey will be repeated to assess the probable changes after the intervention. Next, they will pass on the training they received to their family members. Interventions will be based on the practical and continuous transfer of the trainings.

3.6. Evaluating the Effectiveness of Interventions

To evaluate the effectiveness of HAHP program, the researchers will distribute the prepared questionnaires among the ambassadors and their families in two stages before and after the implementation of the program to assess their KAP. Then, the KAP changes are assessed carefully by comparing the answers before and after implementing the interventions. The questionnaires will be filled out by interviewing health ambassadors and their family members. The participants in both the pre- and post-intervention phases will be the same individuals. Furthermore, to improve the validity and reduce the confounding factors in the implementation process, the study will be conducted as a quasi-experimental intervention (without a control group).

3.7. Statistics

At this phase, the KAP level of respondents will be calculated. The results of descriptive studies will be calculated and reported as frequency (percentage) for qualitative variables and as average (standard deviation) for quantitative variables. In addition, the significance of changes in the subjects' KAP levels will be evaluated using the t-test
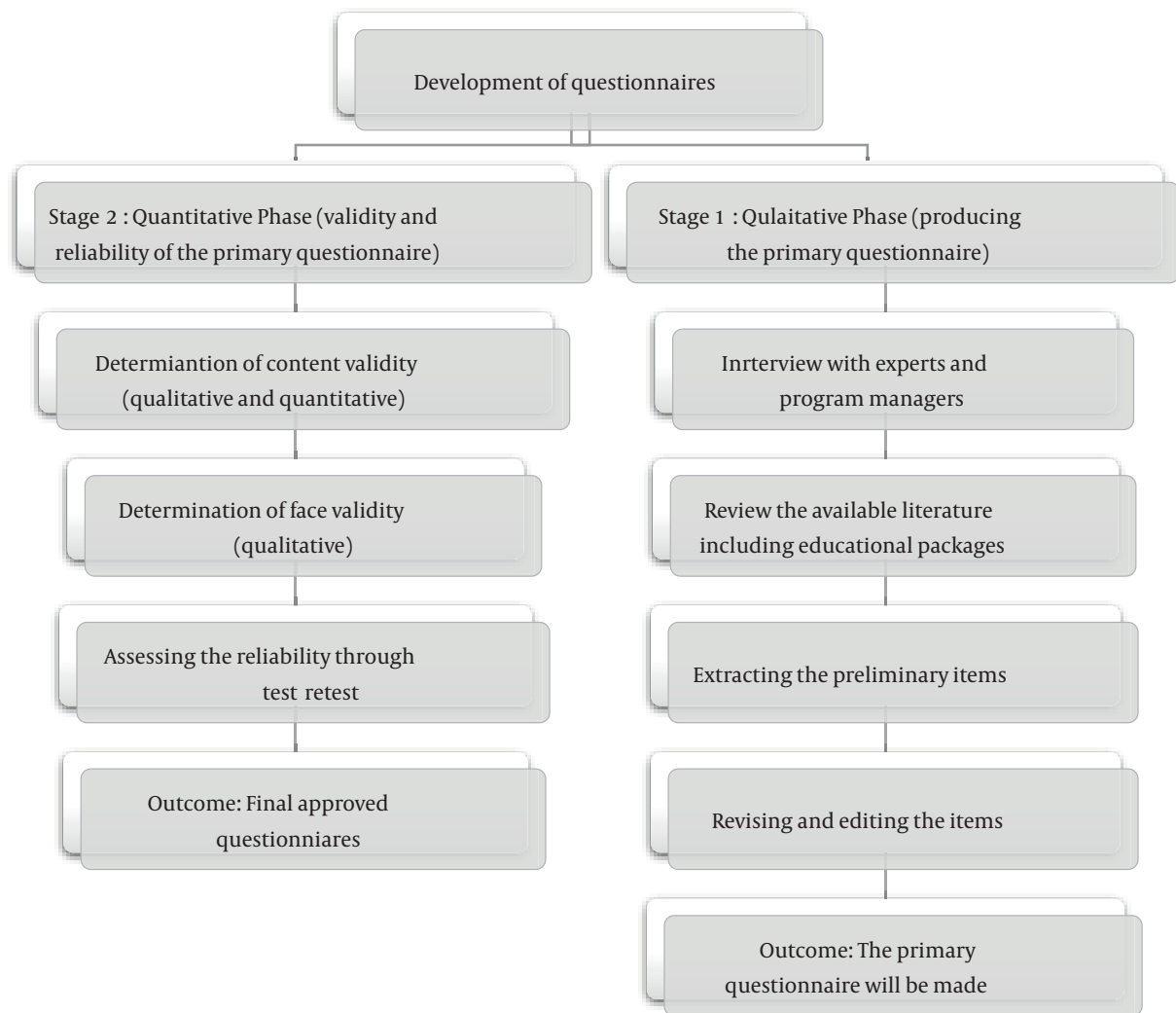
Figure 1. The development process of the study questionnaires

(or Mann-Whitney) for independent groups and the paired t-test (or Wilcoxon) for dependent groups. Analysis of variance (ANOVA) and Tukey's post hoc test (in secondary studies) will also be used for evaluation. The logistic regression will be used for the analytical phase, and $P < 0.05$ will be considered as statistically significant.

3.8. Blinding

To eliminate researcher bias, a double-blinding method will be used. Hence, the data collection phase and initial data analysis will be done by external evaluators (not members of the research team).

3.9. Ethical Considerations

The researchers will follow all the ethical considerations, as follows: (1) obtaining permission from the ethics committee of medical universities; (2) freedom of all experts to participate in the study or withdraw at any stage of the study; (3) obtaining an informed consent from all participants prior to the study; (4) ensuring the confidentiality of the experts' opinions; (5) ensuring the privacy of the information of all participants; (6) using the data and results only for study objectives; (7) not causing any kind of harm to the participants; (8) respecting the dignity of participants; (9) ensuring an adequate level of confidentiality of the research data; (10) avoiding any deception or exaggeration about the aims and objectives of the research; (11) declaring the affiliations, sources of funding, and any pos-

sible conflicts of interests; (12) ensuring the honesty and transparency of data; (13) avoiding any type of misleading information and representation of findings in a biased way.

4. Expected Results

After analyzing and interpreting the findings, the results of the study will be released in different papers. The following are some of the expected results: (1) evaluating the current (basic) KAP level among the community; (2) evaluating the effect of implementing educational programs on promoting the KAP levels of the community; (3) investigating the effect of demographic and background variables on the effectiveness of HAHP program packages; (4) identifying the existing deficiencies in the implementation of HAHP program; (5) providing corrective suggestions based on the shortcomings identified in the program.

5. Conclusion

This article presents a study protocol that is designed and implemented to evaluate the HAHP program in Iran and examine the changes in the KAP levels of the community. It is hoped that the results could lead to continuous improvement of the program and promote the health status of Iranian society.

Acknowledgments

Footnotes

References

1. Hersh L, Salzman B, Snyderman D. Health Literacy in Primary Care Practice. *Am Fam Physician*. 2015;**92**(2):118–24. [PubMed: 26176370].

2. Fleary SA, Joseph P, Pappagianopoulos JE. Adolescent health literacy and health behaviors: A systematic review. *J Adolesc*. 2018;**62**:116–27. doi: 10.1016/j.adolescence.2017.11.010. [PubMed: 29179126].

3. Niroomand M, Ghasemi SN, Karimi-Sari H, Kazempour-Ardebili S, Amiri P, Khosravi MH. Diabetes knowledge, attitude and practice (KAP) study among Iranian in-patients with type-2 diabetes: A cross-sectional study. *Diabetes Metab Syndr*. 2016;**10**(1 Suppl 1):S114–9. doi: 10.1016/j.dsx.2015.10.006. [PubMed: 26610404].

4. Rashidi Y, Manaflouyan H, Pournaghi Azar F, Nikniaz Z, Nikniaz L, Ghaffari S. Knowledge, attitude and practice of Iranian hypertensive patients regarding hypertension. *J Cardiovasc Thorac Res*. 2018;**10**(1):14–9. doi: 10.15171/jcvtr.2018.02. [PubMed: 29707172]. [PubMed Central: PMC5913687].

5. Rad M, Shahravan A, Haghdoost AA. Oral health knowledge, attitude, and practice in 12-year-old schoolchildren in Iran. *J Int Soc Prev Community Dent*. 2015;**5**(5):419–24. doi: 10.4103/2231-0762.165926. [PubMed: 26539396]. [PubMed Central: PMC4606608].

6. Heshmat R, Abdollahi Z, Ghotbabadi FS, Rostami M, Shafiee G, Qorbani M, et al. Nutritional knowledge, attitude and practice toward micronutrients among Iranian households: the NUTRI-KAP survey. *J Diabetes Metab Disord*. 2015;**15**:42. doi: 10.1186/s40200-016-0260-8. [PubMed: 27709106]. [PubMed Central: PMC5050604].

7. Raji Lahiji M, Dehdari T, Shokouhi Shoormasti R, Hosseini AF, Navaei M, Zarrati M. Nutrition knowledge, attitudes, and practice towards breast cancer prevention among the female population of Iran University of medical science students. *Nutr Cancer*. 2019;**71**(8):1355–64. doi: 10.1080/01635581.2019.1607410. [PubMed: 31058553].

8. Shamsipour M, Khajehkazemi R, Haghdoost AA, Setayesh H, KarimanMajd S, Mostafavi E. Knowledge, Attitude, and Practice of Clerical Students with Respect to HIV/AIDS in Iran, 2011. *J Relig Health*. 2016;**55**(1):26–37. doi: 10.1007/s10943-014-9964-6. [PubMed: 25344879].

9. Tabatabaei A, Mortazavi SM, Shamspour N, Shushtarizadeh N. Health knowledge, attitude and practice among Iranian pilgrims. *Iran Red Crescent Med J*. 2015;**17**(2). e12863. doi: 10.5812/ircmj.12863. [PubMed: 25838929]. [PubMed Central: PMC4376984].

10. Jha N, Bajracharya O, Shankar PR. Knowledge, attitude and practice towards medicines among school teachers in Lalitpur district, Nepal before and after an educational intervention. *BMC Public Health*. 2013;**13**:652. doi: 10.1186/1471-2458-13-652. [PubMed: 23849402]. [PubMed Central: PMC3744160].

11. Thapa B, Prasad BM, Chadha SS, Tonsing J. Serial survey shows community intervention may contribute to increase in knowledge of Tuberculosis in 30 districts of India. *BMC Public Health*. 2016;**16**(1):1155. doi: 10.1186/s12889-016-3807-1. [PubMed: 27835999]. [PubMed Central: PMC5106771].

12. Wang W, Zhao D, Wu J, Wang T, Dai X, Ma G, et al. Changes in knowledge, attitude, and practice of people with epilepsy and their families after an intervention in rural China. *Epilepsy Behav*. 2009;**16**(1):76–9. doi: 10.1016/j.yebeh.2009.06.027. [PubMed: 19635685].

13. Al-Thaqafy MS, Balkhy HH, Memish Z, Makhdom YM, Ibrahim A, Al-Amri A, et al. Improvement of the low knowledge, attitude and practice of hepatitis B virus infection among Saudi national guard personnel after educational intervention. *BMC Res Notes*. 2012;**5**:597. doi: 10.1186/1756-0500-5-597. [PubMed: 23111118]. [PubMed Central: PMC3532195].

14. Wu H, Chen J, Zou L, Zheng L, Zhang W, Meng Z, et al. Community-based interventions to enhance knowledge, protective attitudes and behaviors towards canine rabies: results from a health communication intervention study in Guangxi, China. *BMC Infect Dis*. 2016;**16**(1):701. doi: 10.1186/s12879-016-2037-6. [PubMed: 27884124]. [PubMed Central: PMC5121978].

15. Melo ET, Maia P, Valente EP, Vezzini F, Tamburlini G. Effectiveness of an action-oriented educational intervention in ensuring long term improvement of knowledge, attitudes and practices of community health workers in maternal and infant health: a randomized controlled study. *BMC Med Educ*. 2018;**18**(1):224. doi: 10.1186/s12909-018-1332-x. [PubMed: 30261868]. [PubMed Central: PMC6161430].

16. Laskar AM, R D, Bhat P, Pottakkat B, Narayan S, Sastry AS, et al. A multimodal intervention to improve hand hygiene compliance in a tertiary care center. *Am J Infect Control*. 2018;**46**(7):775–80. doi: 10.1016/j.ajic.2017.12.017. [PubMed: 29753498].

17. ul Haq N, Hassali MA, Shafie AA, Saleem F, Farooqui M, Haseeb A, et al. A cross-sectional assessment of knowledge, attitude and practice among Hepatitis-B patients in Quetta, Pakistan. *BMC Public Health*. 2013;**13**:448. doi: 10.1186/1471-2458-13-448. [PubMed: 23641704]. [PubMed Central: PMC3648389].

18. Gharibi F, Kassaeian SS, Kahouei M, Vailnezhadi A. [Effectiveness of health communicators program in promoting of community knowledge, attitude and practice in Iran through educational interventions: A systematic review]. *Koomesh J*. 2020;**22**(4):563–73. Persian. doi: 10.29252/koomesh.22.4.563.

19. Dehvan F, Qasim Nasif F, Dalvand S, Ausili D, Hasanpour Dehkordi A, Ghanei Gheshlagh R. Self-care in Iranian patients with diabetes: A systematic review and meta-analysis. *Prim Care Diabetes*. 2021;**15**(1):80–7. doi: 10.1016/j.pcd.2020.08.013. [PubMed: 32921619].

20. Krejcie RV, Morgan DW. Determining Sample Size for Research Activities. *Educ Psychol Meas*. 2016;**30**(3):607–10. doi: 10.1177/001316447003000308.

21. Gharibi F, Imani A, Dalal K. The catastrophic out-of-pocket health expenditure of multiple sclerosis patients in Iran. *BMC Health Serv Res*. 2021;**21**(1):257. doi: 10.1186/s12913-021-06251-4. [PubMed: 33743679]. [PubMed Central: PMC7981983].