

Iranian rural health workers (*behvarz*) and risk factors of childhood injury

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خلاصة: للمهنيين الصحيين دور ملحوظ في اجتناب إصابات الأطفال. وقد هدفت هذه الدراسة إلى تقييم معارف عمال الصحة الريفية ومواقفهم تجاه وبائيات إصابات الأطفال والرعاية عنها. فأرسل استبيان شخصي إلى 210 من بينهم تم اختيارهم عشوائياً من المناطق الريفية في محافظة خوزستان. وتبين من الإجابات أن الكثيرين منهم لم يكونوا يعرفون شيئاً عن وبائيات إصابات الطفولة. غير أن مواقفهم كانت إيجابية تجاه سائر أنشطة الوقاية من الحوادث. وكان هناك ارتباط إيجابي بين معارفهم وبين درجات مواقفهم ($P < 0.01$). وخلاصة القول إن برامج الوقاية من إصابات الطفولة ينبغي أن تدخل ضمن تدريب عمال الصحة الريفية، وأن تشملها كذلك برامج الرعاية الصحية الأولية في جمهورية إيران الإسلامية.

ABSTRACT The role of health professionals in childhood injury prevention has been recognized. This study aimed to assess the knowledge of and attitudes to childhood injury epidemiology and prevention of *behvarz* (rural health workers). A self-administered questionnaire was sent to 210 *behvarz*, randomly selected from rural areas of Khuzestan province. Many *behvarz* were not aware of the epidemiology of childhood injuries. However, they had positive attitudes towards all injury prevention activities. There was a positive correlation between their knowledge and attitude scores ($P < 0.01$). Childhood injury prevention programmes should be included in the training of *behvarz* and covered by primary health care programmes in the Islamic Republic of Iran.

Les agents de santé ruraux iraniens (*behvarz*) et les facteurs de risque de blessures chez les enfants

RESUME Le rôle des professionnels de la santé dans la prévention des blessures chez les enfants a été reconnu. Le but de cette étude était d'évaluer les connaissances et les attitudes des *behvarz* (agents de santé ruraux) en ce qui concerne l'épidémiologie et la prévention des blessures chez les enfants. Un questionnaire à remplir soi-même a été envoyé à 210 *behvarz*, choisis au hasard dans les zones rurales de la province de Khuzestan. Beaucoup d'entre eux ne connaissaient pas l'épidémiologie des blessures chez les enfants. Toutefois, ils avaient une attitude positive à l'égard de toutes les activités de prévention des blessures. Il y avait une corrélation positive entre le score concernant leurs connaissances et celui concernant leur attitude ($p < 0,01$). Les programmes de prévention des blessures chez les enfants devraient être inclus dans la formation des *behvarz* et compris dans les programmes de soins de santé primaires en République islamique d'Iran.

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Introduction

A high proportion of childhood deaths occur in rural areas of the Islamic Republic of Iran, with 16.6% from unintentional injuries [1]. Childhood injuries are also the most important cause of hospital admissions and emergency department attendance, and the direct cost to the national health service of accidental injuries is estimated to be a high proportion of the total budget each year [2]. The role of health services in the prevention of childhood injuries has received increasing attention and injury prevention is recognized as a key area in the health of nations [3].

Behvarz are trained native health workers and their main function is to offer primary health care services to rural areas. Some of their responsibilities include: educating the public about health matters, providing simple treatments and family planning services, caring for children's growth and development, carrying out health activities and recording health information [4]. However, their activities do not include injury control and prevention, and there is no training in such activities in their educational programmes. The aim of this study was to assess the knowledge of and attitudes towards injury prevention of the *behvarz*.

Methods

This was a cross-sectional study. A self-administered questionnaire, including knowledge of childhood injury epidemiology and attitudes towards injury prevention, was designed and tested by a group of health professionals. It consisted of three sections: personal characteristics of the *behvarz*, knowledge questions and attitudinal

statements concerning injury prevention activities. The study area consisted of 13 district health centres in Khuzestan province which varied in their number of *behvarz*. The total study population included 680 female *behvarz* during 1998–99, and 32% working in each district health centre were randomly selected. Thus, 210 female *behvarz* were randomly selected from the rural health houses. Each health house serves about 1500 people and is staffed by one or two *behvarz*; they have no educational background regarding childhood injury prevention.

Data were entered and analysed using *SPSS* (version 6.0). A knowledge score was computed by totalling all correct answers to five knowledge questions and an additional question concerning risk factors for childhood injury. Those who had the correct answer to each question scored two points, and those with incorrect answers scored one point. Possible scores ranged from 11 to 22. An attitude score was computed by totalling all "agree" or "strongly agree" responses to nine positive statements and all "disagree" or "strongly disagree" responses to three negative statements. Those who considered a positive statement as "strongly agree" or "agree" or considered a negative statement as "strongly disagree" or "disagree" scored one point, otherwise they scored no points. An aggregate score for all 12 statements was determined to evaluate the attitudes of the *behvarz*. Possible scores ranged from 0–12. The Mann–Whitney U test was used to compare knowledge and attitude scores with personal characteristics. Correlation between knowledge and attitude scores was assessed using the Spearman rank correlation coefficient test.

Results

Of the 210 questionnaires, 186 (88.5%) were returned. Table 1 shows the characteristics of the responders. The average age and number of years working (\pm standard deviation) were 28.2 ± 7.1 years and 7 ± 5.3 years respectively. Those with children of their own numbered 135, and 69% had experience working at the emergency department where 13% of hospital admissions are due to accidental injury. Only 5.4% of the *behvarz* stated that they sometimes educated mothers about childhood injury prevention.

Table 2 shows the knowledge of the *behvarz* of the epidemiology of childhood injuries. More than 80% stated that accidental injuries are the most important cause of death among children over 1 year. The majority (86.6%) stated that for children younger than 1 year, most accidents occur inside the home. They recognized that mother's illiteracy (96.8%), family deprivation (91.4%), family overcrowding (83.9%), young mothers (77.4%), previous injury to children (75.8%) and living with one parent (69.9%) were risk factors for accidental injury. The maximum score

Table 1 Characteristics of *behvarz*

Age (years)	No.	%	Years spent working	No.	%
<20	45	24.3	<1	41	22.2
20-29	70	37.8	1-5	49	26.5
30-39	49	26.5	6-10	39	21.1
40-49	20	10.8	11-15	36	19.5
>50	1	0.5	>15	20	10.8
Total	185	100*	Total	185	100*

*One missing response

Table 2 *Behvarz* knowledge of the epidemiology of childhood injury ($n = 186$)

Question	Correct answers	
	No.	%
What is the most important cause of death among children:		
< 1 years	37	19.9
1-4 years	157	84.4
5-15 years?	149	80.1
Has there been an increase in children's injuries in the Islamic Republic of Iran over the past 20 years?	23	12.4
What is the most common cause of childhood accidental injury in children aged:		
<1 year	52	28.0
1-4 years	33	17.7
5-15 years?	105	56.5
When do most fatal injuries occur in children:		
<1 year	161	86.6
1-4 years	50	26.4
5-15 years?	120	64.5
Do boys have more accidental injuries than girls?	117	62.9
Which of the following are risk factors for childhood injury:		
Mother's illiteracy	180	96.8
Economic deprivation of the family	170	91.4
Family size	156	83.9
Young mother	144	77.4
Injury experience of the child	141	75.8
Single parenthood?	130	69.9

obtained for their knowledge was 22 (mean = 13.6, standard deviation = 3.4, median or mode = 13). The Mann-Whitney U test showed no significant association between any characteristics of the responders and their knowledge score.

Table 3 *Behvarz* attitudes to childhood injury prevention ($n = 186$)

Statement	Strongly agree/ agree		Unsure		Strongly disagree/ disagree	
	No.	%	No.	%	No.	%
Injury prevention must be taught to all	180	96.7	5	2.7	0	0.0
Injury prevention programmes should be identified as a regular health service in rural health centres	180	96.7	3	1.6	1	0.5
<i>Behvarz</i> can be effective in childhood injury prevention	170	91.4	15	8.1	0	0.0
Use of posters and pamphlets is effective in childhood injury prevention	167	89.8	17	9.1	1	0.5
Most accidents are preventable	164	88.2	20	10.8	0	0.0
A national programme on childhood injury prevention should be implemented	164	88.2	16	8.6	4	2.1
Injury prevention must be taught to mothers with young children	144	77.4	30	16.1	8	4.3
Free safety devices should be given to all families with children	132	71.0	50	26.9	2	1.1
Children's homes should be checked for hazards	49	26.3	62	33.3	71	38.1
Childhood injury is not a priority compared to other diseases	16	8.6	10	5.4	159	85.5
Only doctors have responsibility for childhood injury prevention	8	4.3	23	12.4	154	82.8
Children's injuries in rural areas are not very important	0	0	46	24.7	139	74.7

Total numbers less than 186 have missing responses.

Table 3 shows attitudes of *behvarz* to childhood injury prevention, which was, overall, positive. More than 88% believed most accidents were preventable and that they could be effective in injury prevention (89.8%). Most (96.7%) believed injury prevention programmes should be identified as a regular health service in rural health centres and must be taught to mothers with young children. The maximum score obtained was 12 (mean = 9.8, standard deviation = 1.7, median = 9.8, mode = 11). There

was no significant association between any characteristics of the responders and their knowledge score. However, the Spearman rank correlation coefficient test showed a significant positive correlation between their knowledge and their attitude scores ($r = 0.25, P < 0.01$).

Discussion

Many *behvarz* were not aware of the epidemiology of childhood injuries. However,

some of their perceptions of the pattern of childhood injuries and their awareness of the risk factors for accidental injuries may be based solely on their personal experience. As a group, they had a positive attitude towards injury prevention. The majority responded "strongly agree" or "agree" that most accidents were preventable, that they could be effective in preventing childhood injuries, and that injury prevention programmes should be a regular health service in rural health centres and must be taught to mothers with young children. The positive attitudes of the *behvarz* in this study suggest that there may be opportunities for policy-makers to increase work on injury prevention and raise the awareness of *behvarz* of childhood injury epidemiology.

This is the first study on the knowledge and attitudes of rural health workers of the Islamic Republic of Iran. We obtained an 88.5% response rate, higher than similar studies in other countries [5-7]. The role of health professionals in the prevention of childhood accidents has been demonstrated by other studies [5-7]. This study showed that only 5.4% of rural health workers sometimes had educational programmes for mothers on childhood injury prevention. This may reflect a lack of training or a lack of time during their work. Previous studies have shown a strong relationship between parents' awareness (which can be increased by professional advice) with children's injury prevention [8,9].

For many of the activities addressed in the questionnaire, most *behvarz* believed they should undertake these activities, although fewer actually regularly undertook them. The gap between their knowledge and attitudes suggests that *behvarz* may experience more children's injuries in their everyday work.

Some previous studies examining the performance of health visitors towards injury prevention have shown that many health visitors feel inadequately prepared to educate people about injury prevention, although many of them undertake such activities [5,10]. They have suggested that it might be because of a negative attitude towards childhood injury prevention in particular, or due to a lack of time, resources and training. The positive attitudes of the rural health workers assessed in this study may result in better performance in our country. *Behvarz* in rural areas have an intimate relationship with the village in which the health house is stationed. They can have an important role in the prevention of children's accidents because of their frequent contact with children and their parents. They access families' homes easily and may recognize indoor and outdoor environmental hazards, and may advise parents on making the place safer for children.

Conclusions

Many *behvarz* have positive attitudes about participating in childhood injury prevention programmes. Their incorporation into these activities needs systematic support. The World Health Organization has recommended that one body responsible for injury prevention should be established at the national level [11]. It is wrongly believed by some that accidents are problems of industrialized countries or of urban areas. In rural areas of the Islamic Republic of Iran, accidents are just as common and the death rates are often higher than for diseases [1]. Lack of training courses for rural health workers and neglect of childhood accidents by health services in the past may be responsible for some accidental deaths. Safety devices inside and outside rural

homes need to be considered, and childhood injury prevention should be seen as a priority health problem in the Islamic Republic of Iran and should be covered by the primary health care programmes in rural health centres.

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