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Exploring Risk Factors for Osteoporosis from Kurdish-Iranian Women's Perceptions

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Abstract

Aim: By understanding women's perceptions of the risk factors for osteoporosis, improved preventive programs can be designed to modify misconceptions and improve understanding of the condition. This study aimed to explore Kurdish-Iranian women's perceptions of the risk factors for osteoporosis.

Methods: Sixteen women with osteoporosis referred to osteoporosis screening units at the private and governmental centers were interviewed through purposeful sampling between January and July 2015. Inclusion criteria included a diagnosis of osteoporosis for at least six months, T-score below -2.5, age 50 years and over, and ability to attend and participate in the study. All focus groups and face-to-face semi-structured interviews were tape-recorded and transcribed verbatim. Data were analyzed using conventional content analysis. To confirm precision of the data, the following criteria were employed: credibility, conformability, dependability and transformability.

Findings: Overall, the perceived risk factors were broadly classified into non-modifiable and modifiable factors. Non-modifiable factors included the sub-themes of genetic factors and hormonal changes. Modifiable factors comprised the sub-themes of limited legal and administrative systems, cultural-environmental and socio-economic factors, lack of understanding the disease and its treatment, and poor health priorities.

Conclusion: The risk factors for osteoporosis from women's perceptions can be classified into non-modifiable and modifiable factors. These results can be useful to design a gender-specific risk assessment tool and develop strategies and intervention programs for preventing osteoporosis in women.

Keywords: Risk factors, Osteoporosis, Women, Content analysis

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Introduction

Osteoporosis, which is the deterioration of bone tissue and its outcome of increased fracture risk, is a major public health problem in older people [1, 2]. These fractures cause a reduced quality of life [3], increased morbidity and mortality [4], and escalating healthcare costs [5].

Osteoporosis is more common in females [6]. Worldwide, approximately one-third of women aged 60-70 years and two-thirds of women aged 80 and older have experienced osteoporosis [2]. The prevalence of osteoporosis is increasing in the Middle East [7]. In Iran, the second largest country in the Middle East, about 22% of women and 11% of men suffer from osteoporosis [8].

Identifying risk factors for osteoporosis in regions with specific cultural differences is necessary for designing local preventive programs. Currently, there is insufficient information on risk factors for osteoporosis in such countries as Iran [9]. Osteoporosis is a multifactorial condition. Non-modifiable risk factors include: age, gender, race, and bone quality. Modifiable risk factors include diet, life-style, geographical region, hormonal status and body mass index (BMI) [10]. These risk factors are affected by cultural, environmental, psychological and socio-economic factors [11]. A better understanding of these factors has been shown to impact on preventive behaviors [11], increasing quality of life [9], and decreasing osteoporosis-related fractures, cost of treatment, disability and mortality [6].

Previous studies have shown risk factors for osteoporosis based on quantitative methods [1, 7, 9]. However, patients' understanding of risk factors for osteoporosis has not previously been explored, particularly in at-risk groups. Kurdish women cover the whole body with a Hijab (a veil that covers the head, neck and chest), and skin exposure is very limited to the exposed areas [12]. Also sex is a main factor in making osteoporosis. Women are much more likely to develop osteoporosis than are men. These increase their risk of developing osteoporosis. Hence, there is a need for exploring all risk factors for osteoporosis among Kurdish-Iranian women with especial culture. The aim of this study was to explore the osteoporotic perceived risk factors among Kurdish-Iranian women using qualitative content analysis. In the field of chronic illnesses, qualitative research has brought to open some of the processes chronically ill patients undergo and what it means living with chronic illnesses.

Methods

Participants

Sixteen women with osteoporosis who were referred to the osteoporosis screening units at the private and governmental centers were

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interviewed through purposeful sampling between January and July 2015. Inclusion criteria included a diagnosis of osteoporosis for at least six months, T-score below -2.5 (bone density test, T-score of −2.5 or lower indicates that person has osteoporosis), and age 50 years and over. The exclusion criteria were lack of ability and not willing to participate in the study. The participants were required to speak Kurdish (the local language) for the purposes of conducting interviews.

Study design

Three focus groups with three participants per group and seven individual semi-structured interviews were conducted. The reason of selecting these small groups was lack of access to women with T-score below -2.5. Focus group interview was used to generate information on common views, and obtain a rich understanding of the participants' experiences [13]. Face- to-face interview was used for those who could not attend the focus group [14].

The main interview question was "Please describe how you got osteoporosis?" Further probing questions as "Please describe your medical experiences with disease" were asked in both focus groups and individual interviews until a saturation point was reached, where no new or relevant information emerged [15]. The first author who had interview skills training performed all the interviews. Data were collected from three osteoporosis screening units in Sanandaj City. The interviews were done at the osteoporosis screening units and/or at the participants' homes. The interviews were tape-recorded and later transcribed verbatim. Duration of the interviews and focus groups was 32 and 53 minutes, respectively.

Ethical consideration

To collect data, permission for recording the interviews and permission of the osteoporosis screening centers were obtained by the researchers. The participants were informed of the study objectives and design, and written informed consent was obtained. The study data were de-identified for analysis.

Data analysis

The participants' perceptions were collected using a qualitative method, known as conventional content analysis. This technique is useful for understanding the perceptions and sense of describing phenomena [16]. To improve the quality of collected data, a combination of individual interviews and focus groups was used [13]. The steps of data analysis were as follows: transcribing and reading the interviews, making brief relevant notes and codes in the margin, classifying and comparing the codes based on their similarities and differences, providing sub-themes, and finally, describing the participants' views in broader

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themes [16]. NVivo version 9 was employed to assist with data analysis. In order to support the validity and rigor of the data, different criteria of dependability (such as audit trail and prolong engagement), credibility (member check; in the process of member checking, each of the research participants reviewed a summary of the data analysis procedure and a summary of the final results of the inquiry, and researcher ability), conformability (external check and expert panel; the research team relied on an independent audit of their research methods by a competent peers), and transferability (maximum variance sampling and external acceptance) were used [17].

Results

Sixteen Kurdish women (mean age 61.81 years [range 45-75]) with osteoporosis were interviewed. The individual and focus group interviews lasted approximately 25-35mins and 60mins, respectively. Demographic characteristics of the participants are displayed in Table 1. Two main themes (non-modifiable and modifiable factors) and seven sub-themes (genetic factors, hormonal changes, lack of understanding about the disease and its treatment, poor health priorities, limited legal and administrative systems, cultural-environmental factors, and socio-economic factors) were emerged. Non-modifiable are factors, which the individual cannot change them vs. modifiable factors, which can be controlled by the individual. An overview of the themes and sub-themes with representative quotes are shown in Table 2.

Non-modifiable factors

This theme consisted of the following sub-themes: "genetic factors" and "hormonal changes". Experiences of the women participating in the study showed that they attributed osteoporosis to non-modifiable factors such as age, family history, and developmental variations, such as smaller bone structure. They stated that they are smaller and relatively weaker as compared to men, and that bone structure is unlikely to be influenced by diet or lifestyle. They also felt the hormonal changes due to certain medications or conditions like corticosteroids or pregnancy were beyond individual control.

Modifiable factors

The sub-themes included "limited legal and administrative systems", "cultural-environment factors", "socio-economic factors", "poor health priorities" and "lack of understanding of the disease and its treatment". An important finding in this study was that the participants experienced inadequate support from their healthcare providers in regard to existing diseases, which left them not seeking prevention or treatment for subsequent

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conditions, particularly osteoporosis. The participants' perceptions about their doctors' knowledge, expertise and communication skills were a key determinant in their decision to participate in the preventive programs. Overall, support from doctors, family and friends was important for the participants to actively seek health information, participate in the prevention programs, and/or be engaged in their treatments. At a healthcare system level, health promotion campaigns delivered by the stakeholders such as the Ministry of Education, social security organizations, and modern media were deemed lacking. Also the participants identified a lack of legislative incentives like free health insurance or disease screening, which when combined with high healthcare costs, was a deterrent to be proactive about health matters. In most circumstances, personal financial constraints were a cause for not participating in disease prevention or treatment. The participants attributed the cultural-environmental factors such as limited exposure to sunlight from the very childhood, traditional clothing and apartment life-styles as having deleterious effects on bone density. Some of the participants ascribed their illness to poor proactive health behaviors such as annual examinations, or a general disinterest in health affairs. An important finding of the study was that the participants had misconceptions about osteoporosis and/or its treatment. Some felt that osteoporosis will resolve spontaneously, and its treatment could potentially cause other chronic diseases. Analysis showed that if the women had better understood their condition, they were more likely to engage in preventive health behaviors such as physical activity and healthy balanced diet.

Table 1: Demographic characteristics of the study participants

Participants	Age	T-score	Duration of illness (months)	Number of children	Frequency of bone density testing	Occupation	Highest education level	Husband's occupation	Husband's highest education level	Family's income
P1	63	-2.6	15	2	2	Retired	Diploma	Employee	Diploma	Average
P2	58	-2.6	26	2	2	Retired	Primary	Retired	Illiterate	Average
P3	72	-2.7	18	3	2	Housekeeper	Diploma	Retired	Diploma	Good
P4	70	-2.5	26	5	2	Housekeeper	Illiterate	Farmer	Illiterate	Bad
P5	55	-2.6	10	3	3	Housekeeper	Diploma	Employee	Illiterate	Average
P6	56	-2.8	16	3	2	Housekeeper	Primary	Employee	Primary	Average
P7	65	-3	18	4	2	Retired	Diploma	Employee	Diploma	Bad
P8	62	-2.8	32	5	3	Housekeeper	Primary	Employee	Diploma	Average
P9	61	-2.7	21	3	2	Housekeeper	Illiterate	Unemployed	Illiterate	Average
P10	73	-2.5	18	1	2	Housekeeper	Primary	Employee	Academy	Average
P11	75	-2.6	38	2	2	Housekeeper	Primary	Unemployed	Primary	Bad
P12	52	-2.6	36	1	2	Housekeeper	Primary	Employee	Diploma	Average
P13	56	-2.5	28	10	3	Housekeeper	Illiterate	Farmer	Primary	Good
P14	73	-3	22	7	2	Retired	Diploma	Driver	Primary	Bad
P15	58	-2.6	29	6	2	Retired	Primary	Employee	Diploma	Average
P16	45	-2.8	23	4	3	Housekeeper	Illiterate	Unemployed	Primary	Bad

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Table 2: The perceived risk factors for osteoporosis by Kurdish-Iranian women

Theme	Sub-theme	Significant units	Quotes
Non-modifiable factors	**Genetic factors**	Family history	P3: "My mother died of the disease 10 years ago. My sister has osteoporosis. I also have terrible problems with this disease".
		Developmental variations	P10: "We have tiny bone structures because we are sick".
	Hormonal changes	Pregnancy	P9: "Physiological changes and pregnancy cause bone loss in mothers".
		Menopause, Medications	P5: "I had early menopause at age 40. I took corticosteroid drugs. I was very worried about it and it made me sick".
Modifiable factors	**Limited legal and administrative systems**	Lack of information delivered by organizations	P6: "Overall, there is a lack of published information about osteoporosis by organizations such as organization of education, organization of social security, and media organizations".
		Lack of legislative incentives	P8: "If there is a law that women are able to be examined freely, and have insurance care, they will do all their check-ups".
	Cultural-environment factors	Weather	P12: "Cold and wet weather can cause osteoporosis".
		Life-style	P14: "Prolonged sitting and hard work can be detrimental to health… I live in an apartment, and I am rather sedentary in my office".
	Socio-economic factors	Economical status	P2: "Cost of a doctor's visit is high. Also food supplements to prevent disease are valuable health maintenance but they are too expensive".
		Role of family	P5: "My family doesn't want me to keep getting check-ups. They do not provide any information about osteoporosis".
		Poor communication with the health-care team	P16: "I find it very difficult to speak with my physicians. I don't understand their conversation, and find information about diseases a bit confusing and contradictory".
	Lack of understanding of the disease and its treatment	Lack of belief in medicine and therapist	P15: "The drugs never did "work", and in retrospect, they made me much worse; in fact, they caused the chronic illness".
		Inappropriate beliefs about the disease	P1: "I believe that everyone should see symptoms of the disease at least once; I did not feel any pain".
		Lack of awareness of the causes of disease	P13: "I did not know anything about osteoporosis, its signs or the problems it caused and its treatment".
	Poor health priorities	Lack of exposure to sunlight	P7: "Exposure to sunlight can help prevent diseases… Some people are lazy and don't use it".
		Lack of exercise	P4: "Women are too busy; they should cook, clean and wash... There isn't any time for exercising".
		Lack of proper nutrition	P11: "I was never interested in dairy products. A low calcium intake, mainly from lack of dairy products, may increase the disease".
		No need for check ups	P2: "If you're not sure about your illness, you don't need to visit doctor**…".**

Discussion

By using qualitative research methods, it was possible to illustrate perceived risk factors for osteoporosis by women. This study was done for the first time in Iran. Through understanding the perception of risk factors, it has the potential to help in developing appropriate preventive programs.

Changing the focus of treatment to osteoporosis prevention should be considered as fundamental change in eradicating osteoporosis in women [11]. Prevention of osteoporosis should begin

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early in life during bone growth and adolescence when the bone mass is at its highest [18] through to middle-age when bone loss occurs. Less than optimal bone growth during childhood and adolescence can result in a failure to reach optimal peak bone mass [19]. Individuals at risk with low bone mass should be identified [10]. Prevention strategies should focus on improved education, which if efficient can enhance the quality of life of affected individuals, promote health of individuals, extend lifespan, and reduce healthcare costs [10]. The majority of non-communicable diseases can be averted through interventions and policies that reduce major risk factors.

The participants demonstrated a lack of understanding about health maintenance. They did not know about the importance of exercise, nutrition and disease awareness on developing osteoporosis. A study showed [20] that certain participants underestimated the benefit of maintaining an adequate daily intake of calcium. These are key areas to focus preventive educational programs. Interventions that combine a range of evidence-based approaches have better results. Comprehensive prevention strategies must emphasize the need for sustained interventions over time.

Lack of social support and financial constraints were also perceived to affect osteoporosis incidence. These findings are consistent with previous studies where lack of social support (especially from family and physicians) was a barrier to preventive actions [5, 21, 22]. These studies did not report upon socio-economic factors. Our data suggest that family, especially husbands, and healthcare providers need to pay more attention to women's health. In addition, improving communication by doctors, building patient trust in physician's knowledge and experience, and essentially fostering a strong doctor-patient relationship can motivate better preventive health behaviors in patients.

An interesting and unexpected finding was that limited legal and administrative systems may contribute to development of osteoporosis. The relationship between health behaviors and legislative incentives has been reported in previous studies [8]. Key barriers include a lack of healthcare insurance, high cost of treatments, and lack of easy-access to screening for at-risk groups.

Conclusions

There are numerous perceived risk factors for the development of osteoporosis in Kurdish-Iranian women. However, almost all participants in the present work attributed an individual lack of health priorities as a main cause for developing osteoporosis. This highlights the need for education and counseling about the condition. Overall, by having an improved understanding of Kurdish women's perceptions for developing

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osteoporosis, it provides healthcare professionals with key areas to focus preventive programs for this at-risk group. The current study had some limitations. One was lack of generalizability of the findings to women in other cultures. Men were excluded in the study. It is possible that perceived risk factors for osteoporosis in men may differ. Each participant was interviewed only once. Follow-up interviews could have provided a richer picture of the participants' perceptions. More researches can be done in different groups to provide a better understanding of the individuals' perspective in the field of risk factors for osteoporosis.

The results of this study can be useful to design a cultural-specific risk assessment tool, develop tools related to treatment adherence among women with osteoporosis, and make prevention programs for osteoporosis in women. The findings also benefit physicians, providers of health services, health specialists and policy makers. To decrease the disease burden from osteoporosis, all health care providers should take an active role in delivering educational programs for pre-menopausal women. They should also be aware of the effect culture plays on the prevalence of osteoporosis.

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Conflict of interest statements

The authors have no conflict of interest statements to declare.

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