PROGRESS IN MEDICAL SCIENCES, 2018
VOL 2, NO. 1, PAGE 1 – 7
DOI: doi.org/10.47363/PMS/2018(2)112

ORIGINAL ARTICLE

Open Access

Knowledge and health beliefs of elderly women toward osteoporosis in Mansoura, Egypt

Ragaa El-Masry[1], Ghada Elkhawaga[1], Abdel-Hady El-Gilany[1], Raefa Refaat Alam[2]

[1]Professor of Public Health, Faculty of Medicine, Mansoura University, Egypt

[2]Assistant Professor of Gerontological Nursing, Faculty of Nursing - Mansoura University

ABSTRACT

Background: Osteoporosis is among the top five conditions causing disability for elder, particularly in women. Unfortunately, Egyptian women were reported to have a lower bone mineral density compared to their Western counterparts. So, this study was conducted to assessed knowledge and beliefs of menopausal women about osteoporosis and their possible associated factors.

Methods: A cross-sectional study was conducted on 208 menopausal women recruited from both rural and urban settings, Mansoura, Egypt. A questionnaire was used to assess socio-demographic characteristics, knowledge, and health beliefs of participants about osteoporosis.

Results: The overall osteoporosis knowledge assessment tool (OKAT) and osteoporosis health beliefs scale mean scores were 10.8 ± 3.52 and 140.9 ± 18.1, respectively. High education was the only significant predictor to OKAT mean score (p = 0.011). Linear regression revealed that understanding the symptom and knowledge of preventive factors is strongly significant ($p \leq 0.001$) independent predictors for women perceptions to the benefit of exercises and susceptibility to osteoporosis (R^2 = 0.205 and 0.167; respectively).

Conclusions: This study reflects the limited knowledge and modest perceptions toward osteoporosis among menopausal women. Knowledge was a significant predictor of women health beliefs towards osteoporosis. Gender-based preventive programs may help to reduce the burden of osteoporosis in the Egyptian community.

ARTICLE HISTORY

Received 28 July 2018
Accepted 22 August 2018
Published 27 August 2018

KEYWORDS

Knowledge; beliefs; menopausal women; osteoporosis

Introduction

Osteoporosis is a general skeletal disorder, characterized by the decrease of bone mass, decline of bone structure, growing bone fragility, and rising fracture risk [1,2].

The disease is a major public health problem affecting both genders, chiefly women [3,4]. It is portrayed as a silent and incurable disease, as many people are not aware of it until complications occur [5]. Furthermore, it is associated with significant morbidity, mortality, and socioeconomic burden [6]. Osteoporosis is among the top five conditions that cause disability and extended hospital stay for senior [7].

A woman's risk of hip fracture due to osteoporosis is equal to her risk of breast, ovarian, and uterine cancers combined [8]. The increase in life expectancy and aging of the population in developing countries has led to an increase in the prevalence of osteoporosis [9]. Unfortunately, the constructed bone mineral density charts showed that Egyptian women, in general, have a lower bone mineral density compared to their Western counterparts [10]. It was reported that 28.4% of Egyptian menopausal women have osteoporosis [11,12].

The risk factors for osteoporosis could be modifiable as lifestyle and non-modifiable as genetics factor [13]. Genetic factors, age, race, family history, and gender are major determinants of peak bone mass [14]. Regular physical activity, healthy eating, and not smoking can prevent and lessen problems associated with age [13]. In addition, from an

Contact Abdel-Hady El-Gilany ahgilany@gmail.com Mansoura University, Mansoura, Egypt.

economic view; the most cost-benefit approach is to focus on primary prevention via education [7,15]. Unfortunately, developing countries continue to have poor literacy rates and lack of awareness of the risk factors and symptoms of osteoporosis [16]. A key component in developing intervention is the understanding of what women know about the disease and to what extent they practice preventive behaviors [17]. To the best of authors' knowledge, there is a dearth of information regarding the knowledge and beliefs of menopausal women about osteoporosis in Mansoura, Egypt. Therefore, this study aims to assess the level of knowledge and beliefs of menopausal women about osteoporosis and their associated factors and also, to find if knowledge predicts their health beliefs.

Methods

Study design

This cross-sectional study was conducted over a period of 2 months (May and June 2018) in Mansoura, Egypt. The study protocol was approved by the Institution Research Board of the Faculty of Medicine, Mansoura University. Informed consent was obtained from all participants in the study. Participated women were informed about the aims of the study, guarantees of anonymity, and confidentiality.

Study participants and locality

The study participants were a convenience sample of 208 menopausal women who were recruited according to their accessibility and proximity to the researchers from both rural and urban areas of Mansoura District. Urban sample was collected from Gazerat El-Ward and El-Saada geriatric clubs which are located in Mansoura city. The rural sample was collected from Meet Badr Khamis Village. Menopausal women were identified and approached by the outreach healthcare workers (Raedat Refiat) affiliated to the rural health center.

The inclusion criteria were aged 60 years or more, able to communicate, and agreed to participate in the study. A total of 244 women were approached and 208 completed the questionnaire (a response rate of 85.2%).

Study tool

Data were collected using three parts interviewing questionnaire. Part I covered the socio-demographic information. Part II and III are the Arabic version of two valid and reliable standardized tools: the osteoporosis knowledge assessment tool (OKAT) and the osteoporosis health belief scale (OHBS), respectively [17].

OKAT is a 20 item questionnaire on four basic themes: the first is the understanding of symptoms and risk of fracture of osteoporosis, the second is the knowledge of risk factors for osteoporosis, the third is the knowledge of preventive factors as physical activity and diet relating to osteoporosis, and the fourth is the treatment availability. Each item of OKAT has true, false, and don't know options. Scoring 1 for a correct response, and 0 for incorrect and don't know response with a range of 0–20 for the total score, with a higher score indicating better knowledge [18].

The OHBS is a 42-item scale which examines the individual's health beliefs about osteoporosis and preventive behaviors. The OHBS consists of two subscales: the osteoporosis health belief calcium scale (OHBCS) and the osteoporosis health belief exercise scale (OHBES). The OHBCS and OHBES share three subscales: perceptions of osteoporosis regarding seriousness, susceptibility, and general health motivation. The participants rate each item on a five-point Likert scale with "1" representing "strongly disagree" and "5" representing "strongly agree." The range of scores for each subscale is 6–30, and the possible range of total scores is 42–210 with a higher score indicating better beliefs [19].

Body weight was measured for the women in light clothing and bare feet using a digital scale to the nearest 0.1 kg. The digital scale was calibrated and checked daily for quality control. Also, height without shoes was measured by a wall-mounted stadiometer and recorded to the nearest 0.5 cm. Body mass index (BMI) was calculated from weight in kilograms divided by the square of the height in meters (kg/m^2). Classification of overweight and obesity was done according to WHO classification [20].

Data analysis

The collected data were coded, processed, and analyzed using the SPSS program (version 16) for windows. A descriptive analysis was done in the form of frequencies, mean ± standard deviation (SD). Knowledge and beliefs scores were calculated according to the guidelines for data processing and analysis of the OKAT and OHBCS. Independent sample *t*-test and analysis of variance test with Tukey's *post hoc* multiple comparison

Table 1: Mean scores of OKAT and OHBS subscales among the studied women.

OKAT subscales	Mean (SD)	Min–max
Understanding (symptoms and risk of fracture of osteoporosis) (Q 1, 2, 8, 9, 11)	3.6 (1.2)	0–5
Knowledge of risk factors for osteoporosis (Q 3, 4, 5, 6, 7, 12, 18)	3.1 (1.5)	0–7
Knowledge of preventive factors as physical activity and diet relating to osteoporosis (Q 10, 13, 14, 15, 16, 17)	3.4 (1.6)	0–6
Treatment availability (Q 19, 20)	0.72 (0.7)	0–2
All items (Q 1–20)	10.8 (3.3)	0–17
OHBS subscales:		
Susceptibility of osteoporosis (Q 1–6)	19.2 (5.5)	6–30
Seriousness of osteoporosis (Q 7–12)	21.4 (4.5)	6–30
Benefits of exercises (Q 13–18)	23.2 (5.2)	6–30
Benefits of calcium intake (Q 19–24)	21.97 (5.4)	6–30
Barriers to exercises (Q 25–30)	18.2 (5.3)	6–30
Barriers to calcium intake (Q 31–36)	15.7 (4.7)	6–25
Health motivation (Q 37–42)	21.2 (4.7)	6–42
All items (Q 1–42)	140.9 (18.1)	42–180

test were used to determine the socio-demographic factors associated with knowledge and beliefs about osteoporosis; as appropriate. Significance was assumed for a p-value ≤ 0.05. A multiple linear regression analysis was performed to explain OHBS subscales as dependent variables by different knowledge domains as independent variables.

Results

The mean age of studied women in years was 68.4% ± 8.3% and 50.5% are from urban areas. Most of them (64.4%) were not currently married (single, widow, and divorced) and the majority (88.5%) were overweight/obese. Only 19.2% of them had a high level of education, 65.9% reported enough income, and 95.7% were non-smokers (Data are not shown in table).

Osteoporosis leads to an increased risk of bone fractures was the most frequent correct answer reported by 90.9% of participants while the item of osteoporosis is more common in men was the least correctly answered one reported by 14.4% of participants. Only 35.1% of women realized that effective treatments for osteoporosis are available. The most frequent source of knowledge about osteoporosis among studied women was TV/radio (47%) followed by friends/relatives (27%), books (15%), health centers (10%), and journals/magazines (1%).

Regarding OHBS, the item "keeping healthy is very important for you" was the most frequent strongly agreed upon (44.2%) versus the most common strongly disagreed upon (30.8%) for the item "your spouse or family discourages you from exercising" (Data are not shown in table).

The mean scores of OKAT and OHBS subscales: The overall mean OKAT score was 10.8 ± 3.3 out of a possible 20 points on the OKAT (Table 1). Also, the table shows deficient knowledge for all themes, especially the identification of osteoporosis risk factors with the mean score at 3.1 ± 1.5. The overall mean score for all the seven OHBS subscales was 140.9 ± 18.1. Based on the OHBS subscale score, the highest perception was for the benefits of exercises (mean score 23.2 ± 5.2) and the lowest perception was for barriers to calcium intake (mean score15.7 ± 4.7). Perception to the benefits of exercise (mean 23.2 ± 5.2) and calcium intake (mean 21.97 ± 5.4) was higher than perception to their barriers (mean 18.2 ± 5.3 and 15.7 ± 4.7, respectively). Also, perception for the importance of health motivation was moderate (mean score 21.2 ± 4.7 compared to the possible maximum of 42.

The overall OKAT mean score shows a statistically significant difference between those with less than secondary and those of the high level of education. The mean scores do not differ significantly with other variables (Table 2).

The understanding symptoms and knowledge of preventive factors predicted 0.17 of the subscale: susceptibility of osteoporosis while the domain: treatment availability was the only predictor of subscale: the seriousness of osteoporosis (R^2 = 0.02). Meanwhile, understanding symptom, knowledge of preventive factors, and treatment availability predicted 0.21 of subscale: benefit of exercises. Understanding symptom and knowledge of risk factors were predictors of subscale: benefits of calcium intake (R^2 = 0.09). Knowledge of preventive factors was the only predictor of barriers to exercises and barriers to calcium intake (R^2 = 0.12 and 0.88; respectively). Understanding symptoms and knowledge of risk factors predicted 0.07 of the variation in the health motivation subscale (Table 3).

Discussion

In response to the scarcity of local studies in Egypt that address the level of knowledge and beliefs toward osteoporosis together with the increased

Table 2: Relation between mean scores of OKAT and OHBS and socio-demographic characteristics of studied women.

Character	*N*	OKAT mean (SD)	OHBS mean (SD)
Overall	208	10.8 (3.3)	140.9 (18.1)
Age(years)			
60	112	10.98 (3.2)	141.6 (21.7)
65+	96	10.57(3.4)	140.1(12.7)
p-value[a]		0.37	0.38
Residence:			
Urban	105	10.9 (3.26)	141.5 (21.5)
Rural	103	10.7 (3.34)	140.3 (13.8)
p-value[a]		0.62	0.64
Education:			
<Secondary	125	10.45(3.6)*	140.7 (13.3)
Secondary	43	10.49 (3.2)	137.7(29.9)
>Secondary	40	12.2 (1.98)*	144.7750(13.5)
p-value[b]		0.01	0.20
BMI:			
Normal weight	24	10.3 (4.1)	144.5 (22.6)
Overweight/ obese	184	10.9 (3.2)	140.4 (17.4)
p-value[a]		0.39	0.29
Corticosteroid/ hormonal therapy:			
Yes	10	11.8 (2.2)	136.80 (12.6)
No	198	10.7 (3.3)	141.096(18.3)
p-value[a]		0.32	0.46
Smoking			
Yes	9	10. 7 (2.9)	138.1 (10.2)
No	199	10.8 (3.3)	141.02 (18.3)
p-value[a]		0.91	0.64
Marital status			
Single/divorced/ widow	134	10.79 (3.4)	140.7 (20.2)
Married	74	10.78 (3.1)	141.2 (13.5)
p-value[a]		0.98	0.87

[a]Independent sample *t*-tests.
[b]Tukey's *post hoc* multiple comparisons and *significant difference between the corresponding groups.

incidence of osteoporosis among women, the present study was conducted on menopausal women as they represent risk group who would be the most exposed to osteoporosis and its impact.

Women have defective knowledge in all domains. Typically, 89% of women in a Syrian study mentioned that "osteoporosis leads to an increased risk of bone fractures" [17]. An Indian study found that the majority of participants were poorly knowledgeable in all areas especially in the area of treatment although 82% knew osteoporosis is more common in women [21]. Knowledge deficit in our study could be explained by the fact that only 19.2% of participants had a high level of education while the majority was of low education. Contrary to the present result, other studies found that the most frequent correct answer among participants was the definition of osteoporosis [21–24]. This difference could be explained by the difference in culture, study sample, and study tool.

The present study found that the most frequent source of knowledge about osteoporosis among studied women was TV and radio while the least was journals and newspapers. This could be attributed to the low educational level and income of the most of the participant. The TV and radio are considered cheap popular media for all economic and educational levels. Contrary to present results, a study on educated Indian women reported magazine and newspaper as the common source of knowledge (51%) versus only 23% for TV and radio [21].

The overall mean score of knowledge about osteoporosis in the present work is slightly better than previous findings from Pakistan, Syria, and Salvador [16,17,25].

Knowledge on risk factors and preventive practices is vital in preventing or delaying the onset of osteoporosis as well as in minimizing morbidity [21]. The present study showed that the most deficient domain was knowledge on risk

Table 3: *β* coefficient of linear regression analysis of the significant effect of OKAT subscales as predictors of OHBS subscales.

OKAT domains	OHBS subscales						
	Susceptibility of osteoporosis	Seriousness of osteoporosis	Benefit of exercises	Benefits of calcium intake	Barriers to exercises	Barriers to calcium intake	Health motivation
Understanding symptoms.	2.2***		1.2***	1.14***			0.810**
Knowledge of risk factors.				0.58*			0.479*
Knowledge of preventive factors.	−1.05***		0.8***		−1.13***	−0.87***	
Treatment availability.		−0.957*	−1.113*				
R^2	0.17	0.02	0.21	0.09	0.12	0.09	0.07

*$p \leq 0.05$, **$p \leq 0.01$, ***$p \leq 0.001$. R^2 = coefficient of determination.

factors followed by preventive practices. This is in agreement with previous results in other countries [21,26–28]. A previous study [16] suggested that osteoporosis-related knowledge was limited; not fully understood or poorly internalized. However, other studies [27,29] suggested that osteoporosis-related knowledge is often poorly integrated and internalized; and does not lead to improved health behaviors.

In the present study, higher education (more secondary school) was the only significant determinant for knowledge about osteoporosis. A study on Chinese women in Singapore supported our finding [30]. It was mentioned that education increases the identification of individuals at risk and may reduce hip fractures and associated healthcare costs [31].

Regarding beliefs towards osteoporosis, the present work expressed "keeping healthy is very important for you" as the most frequent strongly agreed one upon versus "your spouse or family discourages you from exercising" as the most common strongly disagreed item. A Syrian study supports our former finding while "Exercising regularly makes you uncomfortable" was the most common strongly disagreed item for it [17]. According to the OHBS subscales, perceptions of the benefits of exercise and calcium intake were higher than perceptions of their barriers indicating that women were motivated towards practicing physical exercises and taking calcium-rich food. Some of the findings were supported by previous study [16]. Furthermore, the present study revealed the low importance of health motivation. In comparison, some studies reported the low perception towards susceptibility to osteoporosis [32,33]. Other studies reported the high perception towards the seriousness of osteoporosis [16,32].

Rationally, health beliefs depend on an individual's perception of the health problem. However, perception could be modified by an increase in knowledge level. If an individual's perception of the health problem dictates his health behaviors, the improvement in health beliefs is likely to be beneficial in changing the person's lifestyle [34]. This was supported by the finding that knowledge of women about osteoporosis as significant predictors to all health beliefs subscales towards the disease. Perceptions of participants in different issues of osteoporosis were predicted by different domains of knowledge about the disease. A study on adolescent girls to detect the predictors of osteoporosis prevention behaviors found that osteoporosis knowledge predicted calcium intake, whereas exercise self-efficacy and health motivation predicted physical activity [35]. Knowledge alone is insufficient to bring about significant improvement in preventive behavior. Knowledge can, however, power health-related behaviors when mediated by attitudes, beliefs, self-efficacy, and an effective call to action [32].

Conclusions

This study reflects the limited knowledge and modest perceptions toward osteoporosis among menopausal women. Education was the only significant determinant of women's knowledge about osteoporosis. TV and radio were the commonest sources of knowledge about osteoporosis among the studied group. Knowledge domains about osteoporosis were significant predictors to all health beliefs subscales towards the disease.

Recommendations

This study reveals the need for the development of comprehensive health educational programs targeted generally to females and specifically to menopausal women with enforcement to the role of broadcasting media especially TV and radio. These preventive programs may help to reduce the burden of osteoporosis in the Egyptian community.

Study Limitations

Despite being the first study in Mansoura and even Egypt and using validated Arabic tools, this study has some limitations. The first is the small convenience sample of 208 women from a single district, not based on sample size calculation with power consideration. Secondly, the sample is not random and the study results lack external generalizability. Finally, the social desirability and recall biases cannot be ruled out.

References

[1] Korsic M. Pathophysiology of postmenopausal osteoporosis. Reumatizam 2006; 53:32–5.

[2] Sultan A, Khan D A, Mushtaq M, Hassan MU. Frequency of osteoporosis and its associated risk factors in postmenopausal women in clinical practice at Rawalpindi. Pak J Pathol. 2006;17:115–118

[3] Spencer SJ. Lack of knowledge of osteoporosis: a multi-centre, observational study. Scott Med J 2007; 52:13–6.

[4] Khuwaja AK, Nasir A, Mithani Y. Preventing osteoporosis epidemic by exercise interventions. Med Today 2005; 3:140–2.
[5] Mandato VD, Sammartino A, Di Carlo C, Tommaselli GA, TauchmanovÀ L, D'Elia A, et al. Evaluation of skeletal status by quantitative ultrasonometry in postmenopausal women without known risk factors for osteoporosis. Gynecol Endocrinol 2005; 21:149–53.
[6] Chan MF. Osteoporosis prevention education program for women. J Adv Nurs 2006; 54(2):159–70.
[7] Cosman F, de Beur SJ, LeBoff MS, Lewiecki EM, Tanner B, Randall S, Lindsay R. Clinician's Guide to Prevention and Treatment of Osteoporosis. Osteoporos Int. 2014; 25(10): 2359–2381.
[8] Wahba SA, Abd El-Shaheed A, Tawheed MS, Mekkawy AA, Arrafa AM. Osteoporosis knowledge, beliefs, and behaviors among Egyptian female students. J Arab Soc Med Res 2010; 5(2):173–80.
[9] Sallam H, Galal AF, Rashed A. Menopause in Egypt: past and present perspectives. Climacteric 2006; 9(6):421–9.
[10] International Osteoporosis Foundation. 2010. Available via http://www.iofbonehealth.org/ (Accessed 20 November 2016).
[11] Taha M. Prevalence of osteoporosis in Middle East: systemic literature review. 10th ECOO, 2011. Available via http://www.scribd.com/doc (Accessed 20 November 2016).
[12] Karimi W. Preventing osteoporosis in menopause-A literature review. Published Bachelor's Thesis, General Nursing, Turku University of Applied Sciences, 2011, pp. 4–6.
[13] Stransky M, Rysava L. Nutrition as prevention and treatment of osteoporosis. Physiol Res 2009; 58(1):S7–11.
[14] Mar JM. The role of exercise in osteoporosis prevention: an educational module for clinicians. Published Master Thesis, Clinical Project in Science, College of Nursing, University of Arizona, 2004, p. 6.
[15] Riaz M, Abid N, Patel J, Tariq M, Khan MS, Zuberi L. Knowledge about osteoporosis among healthy women attending a tertiary care hospital. J Pak Med Assoc 2008; 58(4):190–4.
[16] Kasper MJ, Peterson MGE, Allegrante JP. The need for comprehensive educational osteoporosis prevention programs for young women: results from a second osteoporosis prevention survey. Arthritis Rheum 2001; 45:28–34.
[17] Sayed-Hassan RM, Bashour HN. The reliability of the Arabic version of osteoporosis knowledge assessment tool (OKAT) and the osteoporosis health belief scale (OHBS). BMC Res Notes 2013; 6:138.
[18] Winzenberg TM, Oldenberg B, Fiendin S, Jones G. The design of a valid and reliable questionnaire to measure osteoporosis knowledge in women: the Osteoporosis Knowledge Assessment Tool (OKAT). BMC Musculoskelet Disord 2003; 4:17.
[19] Kim K, Horan M, Gendler P, Patel MK. Development and evaluation of the Osteoporosis Health Belief Scale. Res Nurs Health 1991; 14(2):155–63.
[20] World Health Organization. Obesity: preventing and managing the global epidemic. Report of a WHO Consultation. WHO Technical Report Series 894. WHO, Geneva, Switzerland, 2000.
[21] Pande K, Pande S, Tripathi S, Kanoi R, Thakur A, Patle S. Poor knowledge about osteoporosis in learned Indian women. JAPI 2005; 53:433–6.
[22] Satterfield T, Johnson SM, Slovic P, Neil N, Schein JR. Perceived risks and reported behaviors associated with osteoporosis and its treatment. Women Health 2003; 31:21–40.
[23] Ungan M, Tumer M. Turkish women's knowledge of osteoporosis. Fam Pract 2001; 18:199–203.
[24] Hernandez-Rauda R, Martinez-Garcia S. Osteoporosis-related life habits and knowledge about osteoporosis among women in El Salvador: a cross-sectional study. BMC Musculoskelet Disord 2004; 5:29.
[25] de Silva REE, Haniffa MR, Gunathillaka KDK, Atukorala I, Fernando ED, Perera WL. A descriptive study of knowledge, beliefs and practices regarding osteoporosis among female medical school entrants in Sri Lanka. Asia Pac Fam Med 2014; 13:15.
[26] Eyiger S, Karapolat H, Durmaz B. Medical students knowledge of osteoporosis in Ege University Faculty of Medicine. Rheumatism 2008; 23: 77–81.
[27] Ribeiro V, Blakeley J, Laryea M. Women knowledge and practices regarding the prevention and treatment of osteoporosis. Health Care Women Int 2000; 21:347–53.
[28] Terrio K, Auld GN. Osteoporosis knowledge, calcium intake, and weight bearing physical activity in three age groups of women. J Community Health 2002; 27:307–20.
[29] Geller SE, Derman R. Knowledge, beliefs, and risk factors for osteoporosis among African-American and Hispanic women. J Natl Med Assoc 2001; 93:13–21.
[30] Zhang RF, Chandran M. Knowledge of osteoporosis and its related risk factors among nursing professionals. Singapore Med J 2011; 52(3):158.
[31] Majumdar SR, Lier DA, Beaupre LA, Hanley DA, Maksymowych WP, Juby AG, et al. Osteoporosis case manager for patients with hip fractures: results of a cost-effectiveness analysis conducted alongside a randomized trial. Arch Intern Med 2009; 169:25–31.
[32] Von Hurst PR, Wham CA. Attitudes and knowledge about osteoporosis risk prevention: a survey of New Zealand women. Public Health Nutr 2007; 10:747–53.

[33] Edmonds E, Turner LW, Usdan SL. Osteoporosis knowledge, beliefs, and calcium intake of college students: utilization of the health belief model. Open J Prev Med 2012; 2:27–34.
[34] Tung WC, Lee IFK. Effects of an osteoporosis educational programme for men. J Adv Nurs 2006; 56(1):26–34.
[35] Gammage KL, Klentrou P. Predicting osteoporosis prevention behaviors: health beliefs and knowledge. Am J Health Behav 2011; 35(3):371–82.