

A Report on 22nd East Asian Forum of Nursing Scholars (EAFONS) Conference 2019 (I)

～Association among the factors in conjunction with Height Loss
of females by the literature review～

2019第22回東アジア看護学研究者フォーラムの報告 (I)

～文献検討による女性の身長短縮に関連する因子および因子間の関連～

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I. Introduction

22nd East Asian Forum of Nursing Scholars (EAFONS) Conference was held at the Furama-Riverfront Hotel in Singapore, Singapore from January 17 to 18, 2019. It was organised by National University of Singapore. It was an outstanding international conference for nursing professionals and provides a unique academic platform for scholars and research students to share and exchange knowledge, sciences and academic insights, and to advance high quality doctoral education in nursing. I presented our study at this meeting. The following report describes the 22nd EAFONS 2019 and our study.

II. EAFONS 2019

The theme of the conference was 'Preparing a New Decade of Doctoral Education and Research - Innovation, Transformation, New Dynamism'. There were Keynotes about "Transforming Nursing and Healthcare Science, Practice and Policy: The Role of Doctoral Education and Research." and "Innovation and New Dynamism Doctoral Research." We heard that the development of the Doctor of Nursing Practice degree had increased in the United States, in recent years. During the two-day event, there were 65 oral presentations and 669 poster presentations on the theme: Clinical research, Community nursing, Education research, Health and global issues, Health informatics, Health services, Nursing management, and Research methodology. About 800 Nursing Scholars from Japan, South Korea, Taiwan, Hong Kong, Thailand, Vietnam, Philippines, China, Bangladesh, and Singapore participated and discussed. Many of the participants were masters and doctoral students in the Graduate school, and were trying to lead the world's nursing together in the future.

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III. Our study

We are interested in height loss among older adults. The title of our poster is “Association among the factors in conjunction with Height Loss of females by the literature review”.

Key words : Height Loss, Bone Density, Spinal deformity, Muscle Mass loss, Overweight

IV. Background

There are reports related to the height loss by aging leads to reducing of the respiratory function, digestive function, and reduce QOL. However, there are very few literature reviews on the cause of height loss itself.

V. Objective

We examined the several factors related to the height loss of female and relations among those factors to provide basic resources to prevent height loss.

VI. Methods

Due to the limited number of past researches, we have decided to search for long and various keywords. We searched past researches with keywords “Height Loss”, “Spinal Deformation”, “Vertebral Fracture”, “Bone Density”, “Knee Joint Deformation”, “Muscle Mass”, and “Overweight” for the past 33 years in PubMed and Ichushi-Website (<https://login.jamas>). The agreement rates of categorization of two researchers other than the author were calculated based on the formula by Scott W.A.

VII. Results

There were 20 studies that described the factors associated with the height loss of females and the relations among those factors. There were 18 studies stated to be related between factors and 2 studies stated to be unrelated between factors. Those sources are listed in the Table 1 along with the study-type, region of study, and information of participants. Figure 1 describes the association of categories of “Spinal deformation (including vertebral fracture)”, “Bone density”, “Muscle Mass reduction”, “Overweight” and “Knee joint deformation”. The agreement rates calculated by the formula of Scott W.A. was over 70%, therefore the reliability of these categories were confirmed.

VIII. Conclusion

As a result of the literature review, it was revealed that the “Height Loss” was related to the five factors of “Spinal deformation (including vertebral fracture)”, “Bone density loss”, “Muscle Mass loss”, “Overweight”, and “Knee Joint deformation”. It was suggested that prevention of factors in these categories could be used as a basic material to prevent height loss by aging. In the future, it is necessary to examine the bone density, muscle mass, body mass index, body fat percentage, exercise situation, and degree of height loss of the same person.

Table 1. List of past studies on the relation between factors related to Height Loss

relevance	NO. of studies	Source. Title. Publication year	Study type	Region	Participants	Number of participants	Age range or Average age
relevant	1)	Siminoski K, et al. Accuracy of height loss during prospective monitoring for detection of incident vertebral fractures. 2005	Cohort study for 3 years	Japan	Postmenopausal women	985	69.0±7.1
	2)	Briot K, et al. Accuracy of patient-reported height loss and risk factors for height loss among postmenopausal women. 2010	Cross-sectional	France	Postmenopausal patient	8,610	70.9±7.2
	3)	T. Machida, et al. A Population Study on Age-related Loss of Height in Yachiho. 1986	Cohort study for 25 years	Japan	Residents who undergone spinal check	male 442 female 615	≥ 50
	4)	Janssen I, et al. Low relative skeletal muscle mass (sarcopenia) in older persons is associated with functional impairment and physical disability. 2002	Cross-sectional	USA	Third National Health and Nutrition Examination Survey	4,504	≥ 60
	5)	Yasuyo Miura, et al. Relation of Height Loss and Body Mass Index in Middle-aged and Elderly. 2018	Cross-sectional	Japan	Health Promotion Facility Users	male 172 female 314	≥ 50
	6)	Yoshio Koga. Epidemiological Study on Knee Osteoarthritis and the Background of Development of Three-Dimensional Alignment Assessment System. 2007	Cohort study for 21 years	Japan	Local residents	about 1200	40~65 (first checkup) / Target Four times every seven years
	7)	Yuichi Maeda, et al. Relationship between osteoarthritis of the knee and the kyphotic angle of the thoracic vertebrae. 2009	Cross-sectional	Japan	Elderly women during orthopedic surgery	Osteoarthritis 37 Non-Osteoarthritis 26	77.0±6.2 74.0±6.9
	8)	Satoshi Mizogami, et al. Separate Measurement of Radial Trabecular and Cortical Bone Mineral Density by Peripheral Quantitative Computed Tomography (pQCT) in Degenerative Joint Disease. 1999	Cross-sectional	Japan	Male and female who measured bone density (Lumbar & radial) at a hospital	568	40s 80 years old
	9)	Kazushi Haraguchi, et al. The relationship between Sarcopenia and osteoporosis in outpatients. 2016	Cross-sectional	Japan	Orthopedic Outpatient	male 23 female 210	74.3±8.6
	10)	Yoshitaka Toda, et al. The relationship between osteoarthritis of the knee and lean body mass of the lower extremity. 2000	Cross-sectional	Japan	Female Patient at Orthopedic Clinic	305	≥ 45
	11)	Katsuko Okida. Effect of obesity on osteoarthritis of the knee. 1992	Cross-sectional	Japan	Healthy subjects	159 (male 43 female 116)	male 52.8 female 52.8
	12)	Keiko Nishizaki, et al. The relationship between age and physical functions among community-dwelling elder women with osteoarthritis of the both knees. 2011	Cross-sectional	Japan	Osteoarthritis of the knee Women with Osteoarthritis in Physical Therapy	517 (male 117 female 400)	male 64.1 female 66.0
	13)	Tanaka S, et al. Overweight/obesity and underweight are both risk factors for osteoporotic fractures at different sites in Japanese postmenopausal women. 2013	Cohort study for 6.7 years	Japan	Postmenopausal women	1,614	62.9±11.2
	14)	Izumi Nishibata, et al. A study of factors affecting bone density in elderly people: Effects of physique, Amount of exercise and muscular strength. 2004	Cross-sectional	Japan	Healthy local residents	male 15 female 29	62~80
	15)	P. Dargent-Molina, et al. In elderly women weight is the best predictor of a very low bone mineral density: evidence from the EPIDOS study. 2000	Cross-sectional	France	EPIDOS study participants	6,958	≥ 75
	16)	Katsuhiko Kohara. Sarcopenic obesity. 2014	36 literature reviews	Norway, USA, Taiwan, Japan, Mexico, South Korea, et al.	Residents, Dock examinees, Patients	41,231	18~87
	17)	Denise von Muhlen, et al. Associations between the Metabolic Syndrome and Bone Health in Older Men and Women: The Rancho Bernardo Study. 2007	Cross-sectional	USA	Rancho Bernardo Study participants Caucasian	male 417 female 671	male 74.2±9.7 female 74.4±10.9
	18)	Takafumi Kusano, et al. Relationship between Metabolic Syndrome and Anti-aging Medical Indicators such as Functional Age and Oxidative Stress Markers. 2010	Cross-sectional	Japan	Anti-aging Dock examinees	male 15 female 7	male 62.9±11.8 female 63.8±12.1
	19)	Kinjo M, et al. Bone mineral density in adults with the metabolic syndrome. 2007	Cross-sectional	USA	Third National Health and Nutrition Examination Survey (1988-1994) participants	8,197	≥ 20
not relevant	20)	Kan Sun, et al. Association between metabolic syndrome and bone fractures: A meta-analysis of observational studies. 2014	meta-analysis of 8 observational studies	Norway, USA, Spain, South Korea, France, Japan	Observational studies participants	39,935	20~80

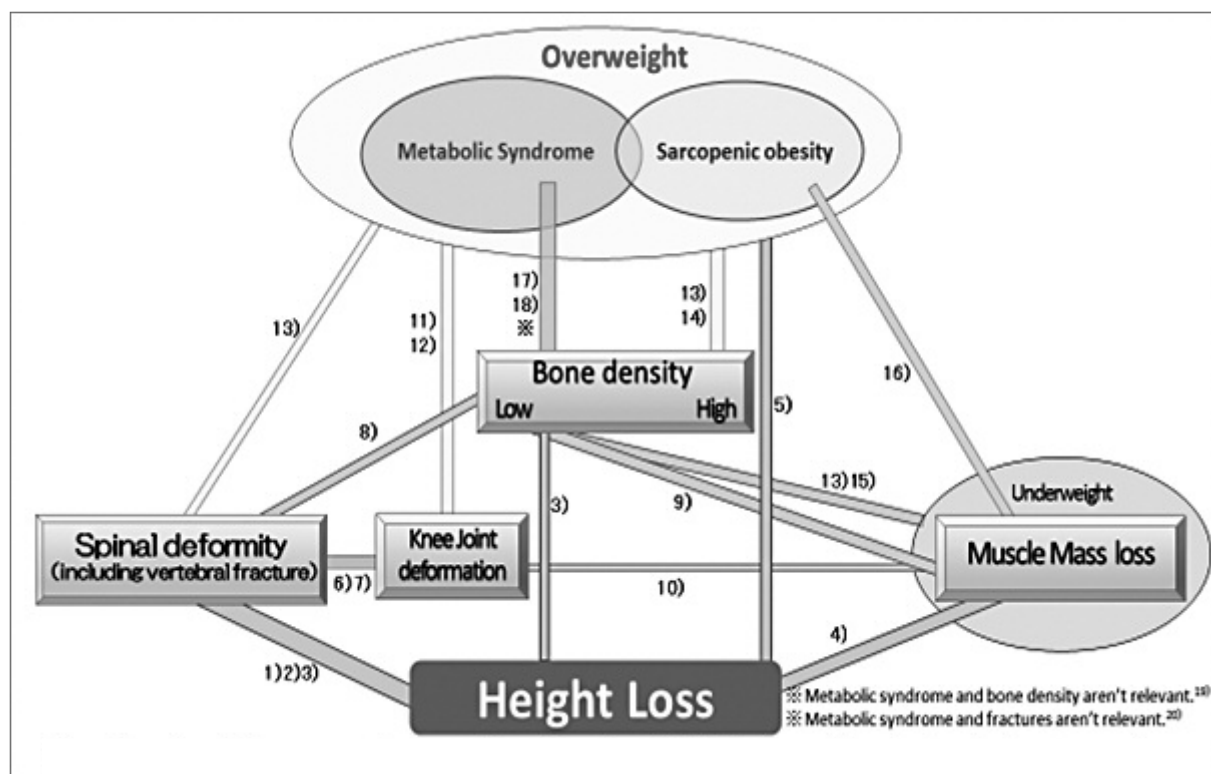


Figure 1. Association among the factors in conjunction with Height Loss of females by the literature review

References

- 1) Siminoski K, Jiang G, Adachi JD, et al. Accuracy of height loss during prospective monitoring for detection of incident vertebral fractures. *Osteoporosis International*, 16(4), 2005, 403-410.
- 2) Briot K, Karine Briot, Erik Legrand, et al. Accuracy of patient-reported height loss and risk factors for height loss among postmenopausal women. *The Canadian Medical Association Journal*, 182(6), 2010., 558-562.
- 3) Takuya Machida, Mitsukuni Yanagihara, Hideho Tada, et al. A Population Study on Age-related Loss of Height in Yachiho. *Journal of Surgery*, 5(5), 1986, 117-121.
- 4) Hyuntae Park, Sungjin Park, Roy Shephard, et al. Yearlong physical activity and sarcopenia in older adults: the Nakanojo Study. *European Journal of Applied Physiology*, 109, 2010, 953-961.
- 5) Yasuyo Miura, Yasuko Sino. Relation of Height Loss and Body Mass Index in Middle-aged and Elderly. *Bulletin of Social Medicine*, 35(1), 2018, 129-135
- 6) Yoshio Koga. Epidemiological Study on Knee Osteoarthritis and the Background of Development of Three-Dimensional Alignment Assessment System. *Japanese Physical Therapy Association*, 34(8), 2007, 340-344.
- 7) Yuichi Maeda, Shin Murata, Michinori Inoue, et al. Relationship between osteoarthritis of the knee and the kyphotic angle of the thoracic vertebrae. *West Kyushu Journal of Rehabilitation Sciences*, 2, 2009, 51-54.
- 8) Satoshi Mizogami, Yoshihiro Ebihara, Takuo Fujita, et al. Separate Measurement of Radial Trabecular and Cortical Bone Mineral Density by Peripheral Quantitative Computed Tomography (pQCT) in Degenerative Joint Disease. *Japanese Journal of Geriatrics*, 36, 1999, 466-471.
- 9) Kazushi Haraguchi, Masayuki Kawaguchi, Atsushi Kimura, et al. The relationship between Sarcopenia and

- osteoporosis in outpatients. *Orthopedics & Traumatology*, 65(3), 2016, 588-590.
- 10) Yoshitaka Toda, Kiyosuke Takemura, Yoshimi Toda, et al. The relationship between osteoarthritis of the knee and lean body mass of the lower extremity. *Orthopedic Surgery*, 51(3), 2000, 356-360.
 - 11) Katsuko Okida. Effect of obesity on osteoarthritis of the knee. *Yokohama Medical Journal*, 43, 1992, 347-354.
 - 12) Keiko Nishizaki, Mitsuo Kanagae, Masayuki Yamada, et al. The relationship between age and physical functions among community-dwelling elder women with osteoarthritis of the both knees. *Journal of the Nagasaki Physical Therapy Association*, 11, 2011, 7-13.
 - 13) Tanaka S, Kuroda T, Saito M, et al. Overweight/obesity and underweight are both risk factors for osteoporotic fractures at different sites in Japanese postmenopausal women. *Osteoporosis International*, 24(1), 2013, 69-76.
 - 14) Izumi Nisibata, Hiromi Shimada, Miyoko Tajima, et al. A study of factors affecting bone density in elderly people: Effects of physique, Amount of exercise and muscular strength. *Bulletin of Kawasaki City College of Nursing*, 9(1), 2004, 9-17.
 - 15) P. Dargent-Molina, F. Poitiers, G. Bréart, et al. In elderly women weight is the best predictor of a very low bone mineral density: evidence from the EPIDOS study. *Osteoporosis International*, 11(10), 2000, 881-888.
 - 16) Katsuhiko Kohara. Clinical characteristics and implication of sarcopenic obesity. *Japanese journal of geriatrics*, 51(2), 2014, 99-108.
 - 17) Denise von Muhlen, Satareh Safii, Johan Svarberg, et al. Associations between the metabolic syndrome and bone health in older men and women: the Rancho Bernardo Study. *Osteoporosis International*, 18, 2007, 1337-1344.
 - 18) Takafumi Kusano, Taku Higuchi. Relationship between Metabolic Syndrome and Anti-aging Medical Indicators such as Functional Age and Oxidative Stress Markers. *Ningen Dock International*, 25(3), 2010, 521-529.
 - 19) Mitsuyo Kinjo, Soko Setoguchi, Daniel H.Solomon. Bone mineral density in adults with the metabolic syndrome: Analysis in a population-based US sample. *Journal of Clinical Endocrinology & Metabolism*, 92 (11), 2007, 4161-4164.
 - 20) Kan Sun, Jianmin Liu, Nan Lu, et al. Association between metabolic syndrome and bone fractures: a meta-analysis of observational studies. *BMC Endocrine Disorders*, 14 (1), 2014, 73-87.