

คุณภาพชีวิตด้านสุขภาพของผู้ป่วยกระดูกสะโพกหัก หนึ่งปีภายหลังการจำหน่ายจากโรงพยาบาล

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Health-Related Quality of Life of the Thai Hip Fracture Patients after the One Year of Post- Hospital Discharge

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หลักการและวัตถุประสงค์: โรคกระดูกสะโพกหักเป็นภาระในการดูแลสุขภาพที่สำคัญในประเทศไทย การศึกษาคุณภาพชีวิตผู้ป่วยกระดูกสะโพกหักนี้เป็นการสำรวจในมุมมองของ (1) ความน่าเชื่อถือของการใช้แบบสอบถามเอสเอฟ-36 ฉบับภาษาไทย (2) คุณภาพชีวิตผู้ป่วยกระดูกสะโพกหักเปรียบเทียบกับอาสาสมัครชาวไทยสุขภาพปกติ

วิธีการศึกษา: ผู้ป่วยกระดูกสะโพกหักจำนวน 201 รายได้รับการคัดกรองก่อนการออกจากโรงพยาบาลและติดตามผลนานหนึ่งปี แบบสอบถามเอสเอฟ-36 ฉบับภาษาไทย ชนิดผู้ป่วยประเมินเองถูกจัดส่งทางไปรษณีย์เพื่อการติดตามผล ข้อมูลลักษณะของผู้ป่วยด้านคลินิกเก็บรวบรวมจากการสัมภาษณ์ผู้ป่วยและผู้ดูแลผู้ป่วยโดยตรงในระหว่างการคัดเลือกผู้ป่วยเข้าศึกษาพร้อมตรวจยืนยันกับบันทึกทางการแพทย์แล้วทำการวิเคราะห์แบบภาคตัดขวางและรายงานผลเชิงพรรณนา

ผลการศึกษา: แบบสอบถามได้รับการตอบกลับทั้งสิ้นร้อยละ 59.2 (119 ราย) ค่าคะแนนเฉลี่ย (ค่าเบี่ยงเบนมาตรฐาน) [ช่วงเชื่อมั่น 95%] ของค่าคะแนนเฉลี่ยเกี่ยวกับสุขภาพกาย

Background and Objectives: Hip fracture is a major healthcare burden in Thailand. The study explored quality of life for hip fracture patients from perspective of (i) Reliability of a medical outcomes study, a 36-item short form survey (ii) Quality of life of hip fracture as compared with Thai healthy volunteer.

Methods: Pre-hospital discharge 201 hip fracture patients were screened and follow-up over one year. Mail survey by a self-rated medical outcomes study, a 36-item short-form survey (Thai) dispatched for follow-up, other clinical and demographic characteristics were collected through direct interviews from patients or caregivers during recruitment with simultaneous cross-checking from medical records. A descriptive cross-sectional analysis was performed

Results: Mails responder represented 59.2%(N=119), score for physical, mental and global health of both patient and caregiver rated outcomes were , mean(SD), 95% CI 35.2(11.7)[33.1-37.3], 53.2(11.5)[51.1-55.2],43.1(10.4) [41.2-44.9], whereas physical, mental and role component summary score suggested by Suzukamo et al¹⁰ were

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สุขภาพจิต และสุขภาพโดยรวม ที่ประเมินโดยผู้ป่วยและผู้ดูแลผู้ป่วย มีค่าเท่ากับ 35.2(11.7)[33.1-37.3], 53.2(11.5)[51.1-55.2], 43.1(10.4)[41.2-44.9], ในขณะที่ค่าคะแนนเฉลี่ยเกี่ยวกับสุขภาพกาย สุขภาพจิต และสุขภาพเกี่ยวกับบทบาทของผู้ป่วยกระดูกสะโพกหัก¹⁰ มีค่าเท่ากับ 26.5(12.3)[24.2-28.7], 61.1(12.3)[58.8-63.3], 39.5(10.4)[37.6-41.3] โดยมีค่าสัมประสิทธิ์ความน่าเชื่อถือ Chronbach's alpha เท่ากับ 0.914, 0.809, 0.916 และ 0.896, 0.789, 0.718 ตามลำดับ ค่าสัมประสิทธิ์ ความน่าเชื่อถือ Chronbach's alpha ที่ประเมินจากผู้ป่วยกระดูกสะโพกหักในการศึกษานี้และผู้ป่วยที่มีอาการปวดหลังเรื้อรัง⁵ มีค่าใกล้เคียงกันที่ 0.91 กับ 0.93, 0.82 กับ 0.92 และ 0.91 กับ 0.94 ตามลำดับ. การเปรียบเทียบคุณภาพชีวิตที่เกี่ยวข้องกับสุขภาพประเมินจากแบบสอบถามเอสเอฟ-36 ฉบับภาษาไทย พิจารณาจากค่าคะแนนเฉลี่ยของสุขภาพโดยรวมระหว่างผู้ป่วยกระดูกสะโพกหักและอาสาสมัครปกติชาวไทยในกรุงเทพฯ และทั่วประเทศ พบว่า ผู้ป่วยกระดูกสะโพกหักมีคุณภาพชีวิตด้านสุขภาพโดยรวมลดลงร้อยละ 33 และ 42 ตามลำดับ

สรุป: การประเมินคุณภาพชีวิตที่เกี่ยวข้องกับสุขภาพโดยแบบสอบถามเอสเอฟ-36 ฉบับภาษาไทยภายหลังการจำหน่ายออกจากโรงพยาบาลนานหนึ่งปี มีความน่าเชื่อถือ ข้อมูลจากการศึกษานี้ให้ข้อมูลข่าวสารที่เป็นประโยชน์ด้านคุณภาพชีวิตที่เกี่ยวข้องกับสุขภาพผู้ป่วยกระดูกสะโพกหักภายหลังการรักษา ผู้ป่วยกระดูกสะโพกหักมีคุณภาพชีวิตโดยรวมที่ต่ำกว่า จากการประเมินโดยแบบสอบถาม เอสเอฟ 36 ฉบับภาษาไทยพบว่าลดลงร้อยละ 33 และ 42 เปรียบเทียบกับอาสาสมัครปกติชาวไทยในกรุงเทพฯ และทั่วประเทศตามลำดับ จุดด้อยและข้อจำกัดของการศึกษาด้านการลำเอียงเพื่อรายงานผลและความจำเป็นในการรายงานสามารถแก้ไขได้

คำสำคัญ: การประเมินคุณภาพชีวิตที่เกี่ยวข้องกับสุขภาพแบบสอบถามเอสเอฟ-36 ฉบับภาษาไทย กระดูกสะโพกหัก

26.5(12.3)[24.2-28.7], 61.1(12.3)[58.8-63.3], 39.5(10.4)[37.6-41.3] with Chronbach's alpha reliability coefficient of 0.914, 0.809, 0.916 and 0.896, 0.789, 0.718 for Thai hip fracture respectively. The same for hip fracture as compared with chronic low back pain were 0.91 vs 0.93, 0.82 vs 0.92 and 0.91 vs 0.94 respectively. Comparison of health-related quality of life assessment with medical outcomes study, a 36-item short-form survey (MOS SF-36) suggested poorer global quality of life with lower mean score for global health for hip fracture patients as compared with healthy Bangkok resident and healthy national volunteer reflected a deficit of score for 33% and 42 % respectively.

Conclusion: Health-related quality of life assessment with MOS SF-36 after one year hospital discharge for hip fracture was reliable. The data provided useful information related to post-treatment health-related quality of life outcomes. Hip fracture patients reflected deficits of global health-related quality of life score assessment with MOS SF-36 of 33% as compared with healthy Bangkok resident and of 42% as compared with healthy national volunteer respectively. The shortcoming and limitation in terms of recall and report bias could be rectified.

Keywords: Health-related quality of life, Medical Outcomes Study a 36-item Short-Form Survey (MOS SF3-6), Hip fracture

Background and Objectives

Healthcare service for hip fracture patients in Thailand is a national burden in terms of healthcare resource utilization.¹⁻⁴ There is scarce of data in terms of health-related quality of life for hip fracture patients due to the following : (i) Epidemiological aspects of hip fracture (eg. the relative incidence of osteoporosis, falls fractures and repeat fractures) in particular subgroups,

(ii) lack of health status and quality of life aspects of both the illness itself, (iii) a substantial variation in terms of outcomes of care for patients and service for hip fractures including those for prevention and management of risk factors. This study aims to explore quality of life for hip fracture patients from perspective of: (i) reliability and validity of a MOS SF-36 (Thai) earlier validated by Jirattanapholchai et al.⁵, (ii) comparison of MOS

SF-36 score and reliability for individual components (iii) comparison of MOS SF-36 score among hip fractures and healthy volunteer. This exploration initiated to assess quality of life outcomes sought by patients and their caregivers after one-year post-discharge in general. The Medical Outcomes Study, a 36-item, Short-Form Survey, SF-36 developed and translated into Thai by Jirattanapholchai et al⁵ was obtained with permission to use for this study. The pragmatic setting in day-to-day clinical management of hip fractures started from patient admission in the emergency unit, hospitalized and subjected to surgical procedure as demanded by respecting orthopaedist in charge, stabilized fracture for nonsurgical for sufficient times until they should be discharged from hospital. Appropriate healthcare management strategy in terms of overall care and service management was based on orthopaedist in-charge pertaining to hospital budgeting and policy. These were essential elements for optimization of sustaining quality of service and care especially for public hospital in general.

Methods

Hip fracture patients admitted in the hospital were both due to traumatic falls or repeated fracture of various aetiopathologies. Admitted patients were both transferred patients from remote community and regional as well as other provincial hospitals. The study protocol was approved by Clinical Epidemiology Unit, Faculty of Medicine, Chulalongkorn University and by the research ethics committee of Chiang Rai Hospital with written informed consent obtained.

Sample, Sample size and Statistical Analysis

Hip fracture patients age 50 years or older admitted at the emergency unit were prospectively screened by research assistant nurse, as per eligibility criteria during the 1st September 2009 to 31st March 2010, including any diagnosis of hip fracture per ICD-10 except for hip fractures due to major traumatic accident such as car accident, patients with memory and cognitive deficits as well as patients whom cannot read or had severe organic

disease. All hip fractures were confirmed by positive radiography at the time of hospital admission. The research assistant nurse had assisted to ensure proper understanding of northern dialects among admitted patients should they speak northern dialects than normal Thai dialects. Patients and caregivers were explained before hospital discharge by research assistant nurse for the strict follow-up after one year post-discharge. The procedure was to ensure correct understanding of the wording used in the survey questionnaire which should have been mailed to them after one year post-discharge to obtain the medical outcomes study, a 36-item short-form survey (MOS SF-36). Demographic and clinical characteristics of hip fractures were obtained both during patient interview before hospital discharged with simultaneous cross checking from medical records. Readmitted patients were recorded with periodic telephone monitoring. The MOS SF-36 (Thai version) with instruction mail in detail, together with pre-paid postage was dispatched to all 201 patients during March-May 2011 after one year post-discharge. The statistical analysis, including descriptive statistics and the reliability of each of health dimension, health domain and global health was performed. The above were estimated using both internal consistency and item-scale correlation and inter-scale correlation. Internal consistency reliability was estimated with the Cronbach's alpha and item-scale correlation and inter-scale correlation⁸. All analyses were performed with the software SPSS version 16.0 (SPSS Inc.)

The Medical Outcomes Study, a 36-item Short-Form Survey Assessment

The Medical Outcomes Study, a 36-item, Short-Form Survey (SF-36) originally proposed by Ware et al.⁹ consists of 36 items and were combined to measure eight health symptom dimensions namely: Physical Functioning (PF), Role Limitations due to Physical Health (Role-Physical, RP), Bodily Pain (BP), General Health Perceptions (GH), Vitality (VT), Social Functioning (SF), Role Limitations due to Emotional Problems (Role Emotional, RE) and Mental Health (MH). There is in

addition a single-item measure of Health Transition (HT). The eight health symptom dimensions were grouped into two domains components of health domain, namely Physical Component Summary (PCS) and Mental Component Summary (MCS). The physical component summary domain consists of PF, RP, BP and GH whereas the mental component summary domain consists of VT, SF, RE and MH. The global health are scores of the overall 36-item combined (GLOBAL). The response choices for the items were on 2-, 3-, 5-, 6- point scales. The item scores range from 0 to 20,40,60,80,100 for 6-point scales and 0 to 25, 50, 75 and 100 for 5-point scales and in the same direction and as a reverted direction for specific items. The item scores with higher values indicate a better health states and less health limitation. The MOS SF-36 scales are scored using the method of standardized score from 0 to 100, for each of eight health symptom dimensions (PF, RP, BP, GH, VT, SF, RE and MH) and also for each of two domains health component items (PCS, MCS) as well as for Global health score. Moreover, a recent three-component model for SF-36 score proposed by Suzukamo et al.¹⁰ namely physical component score (PCS) which consists of PF, BP and GH , a mental component summary (MCS) which consists of VT, RE and MH and finally a role component summary (RCS) which consists of RP, SF and RE were also assessed. An additional (vitality score-VT and general health score-GH) were added into each of PCS and MCS as suggested by authors.

Results

Characteristics of hip fracture patients

Over all mails responders were 119 (59.2%). In spite of this low responder rate, there were actual non-responders of 43 (21.3%) where mails returned with survey but did not complete the survey. This was basically due to the mails returned with no recipients of 18 (8.9%) and reported death of 21 (10.4%) could justify for lower responder, as this was probably the untrue responder. Overall mean age of hip fracture patients was 74.7 year olds (SD±11.0), ranging from 50 - 104 year olds. Majority of patients were older than 65 years

old which represented by 96 patients (80.7%). Majority of 111 (93.2%) patients were medically reimbursed through national universal healthcare coverage (UC) which is a public healthcare scheme supported by Thai government. Main clinical characteristic were Inter-trochanteric fracture (64.8%), and were non-surgical management (59.6%). Over all other demographic and clinical characteristics were given in **Table 1** and **Table 2**.

Table 1 Socio-demographic characteristic of 119 hip fracture patients

Characteristics.	N	Mean (SD) or Number (%)
Mean Age (years)	119	74.7 (11.0)
	< 65	23 (19.3)
	≥ 65	96 (80.7)
Gender	Male	68 (57.1)
	Female	51 (42.9)
Marital Status	Single	8 (6.7)
	Married - Spouse	46 (38.7)
	Divorced	5 (4.2)
	Widow	60 (50.4)
Educational Status	None	49 (41.1)
	Primary or lower	44 (36.9)
	Secondary	16 (13.4)
	College or University	10 (8.6)
Person living with patients	Son - or Daughter or both	94 (78.9)
	Spouse	15 (12.6)
	Family-Relative	10 (8.4)
	Other	0
Medical Reimbursement Scheme	Universal Coverage	111 (93.2)
	State Welfare	5 (4.2)
	Relative supports	1 (0.8)
	Personal expense	1 (0.8)
	Other	1 (0.8)

Reliability of MOS SF-36 score

Overall 119 patients responder consisted of 43 (36.1%) and 76 (63.8%) for patients and caregivers rated survey. Over all mean score, standard deviation and a 95% confidence interval between each of

health dimensions, domains and global health score with their respecting Cronbach's alpha coefficient for reliability assessment were given in **Table 3**. We found that concepts of three symptoms domains proposed by Suzukamo et al¹⁰ was more reliable for PCS than MCS and RCS with Chronbach's alpha of 0.896, 0.789 and 0.718 respectively though the score for PCS was much lower as compared with MCS which was much higher with mean score (\pm SD) for PCS at 26.5(\pm 14.2) and MCS at 61.3(\pm 14.2) respectively. Whereas the RCS of 39.5(\pm 10.4) was valued between both RP of 31.8(\pm 14.6) and RE of 46.3(\pm 15.1) despite the less reliability Chronbach's alpha of 0.718. The inter-scale correlations and internal consistency reliability provided in **Table 4** revealed that the reliability Cronbach's alpha coefficient or the within-scale correlation (diagonal bold) was higher than the between scale correlation which confirmed that each symptoms dimension for Thai hip fracture was generally being highly discriminated between different health symptom concepts measured, except for physical function and role limiting physical. General health and vitality as well as role limiting emotion were less discriminated. The Chronbach's alpha coefficient comparison of MOS SF-36 reported, the

original investigator by Jirarattanapholchai et al⁵ and by the authors assessment of Thai hip fracture patients were found very reliable as given in **Table 5**. This finding suggested that the MOS SF-36 was very sensitive to chronic condition with more physical disability than mental disability.

Quality of life for Thai hip fracture patients and the healthy volunteer

Earlier assessment of SF-36 both from healthy Thai volunteer among healthy Bangkok resident reported by Kongsakon et al¹⁶ and the healthy national volunteer reported by Lim et al¹⁷ were given in **Table 5**. It was found that health-related quality of life assessed with MOS SF-36 after one year post-hospital discharge for hip fracture patients remained low especially physical score. We found that mental health score contributed to the better overall improvement in global health score. In comparison with the healthy Thai volunteer, hip fracture patients had a less deficits score of 32.5% as compared with healthy Bangkok resident and of 42.1% as compared with healthy national volunteer respectively, meaning healthy Bangkok resident had lower score as compared with healthy national volunteer as given in **Figure 1**.

Table 2 Clinical characteristics of 119 elderly hip fracture patients.

Characteristics	N = 119	Mean (SD) or Number (%)
Body Mass Index(Kg/m 2)		18.96 (2.57)
< 20		78 (65.5)
≥ 20		41 (34.5)
Pattern of hip fracture		
Femoral Neck		42 (35.2)
Intertrochanteric		77 (64.8)
Type of hospital management / discharge		
Surgical		48 (40.4)
Nonsurgical		71 (59.6)
Comorbidity		
Absence		56 (47.1)
Presence		63 (52.9)

Table 3 MOS SF-36 Score for eight health dimensions - summary score of 119 patients

Health dimension	Mean score (SD)	No of items	Cronbach's alpha coefficient
Physical Functioning (PF)	19.0 (21.3)	10	0.952
Role Physical (RP)	31.8 (14.6)	4	0.848
Bodily Pain (BP)	63.0 (24.4)	2	0.914
General Health (GH)	16.9 (10.7)	5	0.664
Vitality (VT)	59.5 (16.6)	4	0.641
Social Functioning (SF)	44.4 (17.7)	2	0.610
Role Emotion (RE)	46.3 (15.1)	3	0.695
Mental Health (MH)	62.8 (16.7)	5	0.775
Physical component summary (PCS) ^a	40.1 (11.6)	25	0.911
Mental component summary (MCS) ^a	48.0 (10.2)	19	0.822
Physical component summary (PCS) ^b	35.2 (11.7)	21	0.914
Mental component summary (MCS) ^b	53.2 (11.5)	14	0.809
Physical component summary(PCS) ^c	26.5 (14.2)	17	0.896
Mental component summary(MCS) ^c	61.3 (14.2)	9	0.789
Role component summary(RCS) ^c	39.5 (10.4)	9	0.718
Global health score	43.1 (10.4)	36	0.916

a = proposed by authors, b = original SF-36, c = proposed by Suzukamo (2010)¹⁰

Table 4 Inter-scale correlations and internal consistency reliability (Cronbach's alpha coefficients, on the diagonal)

	PF	RP	BP	GH	VT	SF	RE	MH	GLOBAL
PF	0.95								
RP	0.62	0.84							
BP	0.12	0.22	0.91						
GH	0.22	0.14	0.21	0.66					
VT	0.32	0.30	0.43	0.38	0.64				
SF	0.09	0.14	0.33	0.17	0.29	0.61			
RE	0.18	0.15	0.18	0.41	0.44	0.19	0.69		
MH	0.21	0.24	0.47	0.15	0.46	0.29	0.19	0.77	
GLOBAL	0.63	0.62	0.59	0.46	0.45	0.50	0.52	0.61	0.91

Table 5 Comparison of reliability test- Cronbach's alpha coefficient between MOS SF-36 v2 in Hip fracture patients at Chiangrai Hospital / Low Back Pain Patients at Srinagarind Hospital

Cronbach's alpha coefficient	Hip fracture patients at Chiangrai Hospital	Chronic low back pain patients at Srinagarind Hospital ⁵
Physical health summary score	0.91	0.93
Physical functioning (PF)	0.95	0.87
Role physical (RP)	0.84	0.91
Bodily pain (BP)	0.91	0.84
General health (GH)	0.66	0.87
Mental health summary score	0.82	0.92
Vitality (VT)	0.64	0.73
Social functioning (SF)	0.61	0.72
Role emotion (RE)	0.69	0.94
Mental health (MH)	0.77	0.83
Global health score	0.91	0.94

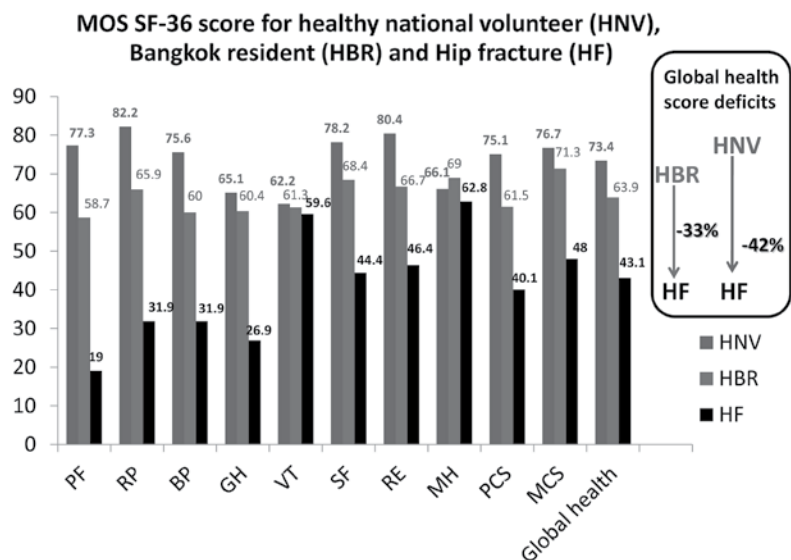


Figure 1

Discussion

There was no specific registered death report from Chiang Rai hospitals where patients were admitted during recruitment as genuine certified cause of death rather than death certificates from district hospitals records. The result being due to national public hospital service system, especially for the tertiary hospital to obtain data transfer needed from referred patients. This issue remains key factor in assessing death with accurate mortality statistics in Thailand which could be anticipated elsewhere in Thai healthcare system as reported by Tangcharoensathien et al.¹¹ Male hip fracture represented slightly higher proportion (57.1%) than female (42.9%) which was similar to the finding from Rojanasathien et al in the Northern Thailand.¹² Whereas several other studies elsewhere, women was almost twice as higher than men.¹³⁻¹⁵ This investigation though reflected certain shortcoming as the cross sectional mail survey, the direct interview with pre-discharge education and consultation before further follow-up after one year post hospital discharge to patients and caregivers with specialized research nurse was useful. The approach had helped the reporting of the MOS SF-36 more reliable. The researcher-patients communication with local dialect ensured that the responding to survey after discharged were reflects from patients and their caregivers at home rehabilitation. The authors found that patient-

reported outcomes with MOS SF-36 developed by Jirattanapholchai et al⁵ was very reliable especially for the chronic disability. This was due basically to higher impacts from the physical disability than mental disability especially among hip fracture. Since the reports from patients and their caregivers tended to be intimidated should their well-being status implicated in less service and care given by the healthcare, thus could possibly intriguing a report bias. The comparison between patient-rated and caregiver rated should be assessed for further analysis was suggested. The authors proposed that the mails survey with pre-counseling before hospital discharge should provided less reported bias and this, however, is probably specific to individual health system. Nevertheless, there may be possible recall bias in this aspect. However, the attempt of this exploration was based on long-term consequence, health-related quality of life status perceived by patients and caregivers after home rehabilitation itself as was reported in the mail survey. Since, it was envisaged that all hip fracture patients received the same standard medical treatment as provided through universal healthcare insurance by public healthcare provider. Thereby this mail survey could be justified with less recall bias. The authors suggested that post-discharge mortality may probably lower than estimated. However, the lower one year mortality was probably due to our sample had more

non-surgical discharge of 59.6% (N=71) as compared with surgical discharge 40.4% (N=48). The one-year mortality reported was closed to earlier report among Thai hip fractures which reported as high as 17% by Chariyalertsak et al² and probably lower than a one year post-surgery mortality of 27.1 % for hip fracture reported by Lee et al.¹⁸ This was in fact in our finding which represented as high as 80.9% (N=17, 14 Female and 3 male) post-surgical hip fracture patients for all total reported dead (N=21). There was only 19.1% (N=4) patients were non-surgical mortality. Among these, thereby among surgical discharge was only 40.4% (N=48) among all cases. As such, the overall one-year mortality after surgical discharge could be as high as 35.4% (17/21) and closed to that reported by Lee et al.¹⁸ The public hospital with high bed turn-over rate may have been exposed certain risk especially for surgical hip fracture patients. However, the authors found that in our case, hip fracture patients admitted in the hospital was ranged from 4 to 21 days before discharge. A long delay from the time of fracture to hospital admission may be factor related to mortality similar to that reported by Vidal et al.^{19,20} Post-hospital discharge with better supportive home care, community service and proper rehabilitation were major factors contributing to better quality of life for hip fracture patients reported elsewhere. The supportive intervention, the so-called interdisciplinary intervention for older hip fracture patients after surgery suggested by Shyu et al²¹ had confirmed to improve health-related quality of life assessed with SF-36 as compared with patients who did not have interdisciplinary intervention which may probably explain the improvement of mental health through interdisciplinary intervention. Unless otherwise, better management of pre-fracture in terms of prevention of falls leading to fracture, better medical surveillance to prevent any susceptible complication and early management of comorbidities would be a sufficient. For a better prospective recruitment of hip fracture patients as multicenter research is encouraging to ensure better representative of younger age group to support for better understanding in terms of quality of life of post-fracture. This exploration though had limitation and shortcoming as a cross-sectional by nature, the authors

proposed patient-reported outcomes which provided deeper understanding of outcomes valued by patients are good assessment tools. This approach as tools for follow-up is complimenting to clinical follow-up of hip fracture patients. The MOS SF-36 assessment was a reliable tool though may have some recall bias if the assessment conducted after long period of time after hospital discharge. This could be assessed just before hospital discharge and after 6-12 month as a follow-up tool. The authors found that MOS SF-36 as supporting tools for both caregivers and patients could be employed along clinical outcomes assessment. This approach could help establish as early as possible before hospital discharge, the direction to which patients turn to health-related quality of life.

Conclusion

This study concluded that the Medical Outcomes study. a 36-item Short-Form health survey (MOS SF-36) is a reliable instrument and should be complimentary for clinical outcomes assessment for hip fracture. The MOS SF-36 outcomes score could well discriminate health-related symptoms. A one year post-hospital discharge health-related quality of life for hip fracture patients reflected deficits of global health score ranging from 33-43 % as compared with healthy Thai volunteer.

Competing interests

There are no competing interests.

Authors' contributions

AU, JB and TT participated in the design of the study, AU, JB conducted and monitored patient recruitment with research assistant, collected data and performed the statistical analyses. AU drafted a manuscript with revision by JB, TT whom also served as a project advisor for over all investigation as well as final revision of the manuscript. All authors read and approved the final manuscript.

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