Quality of life and mental health among Thai older workers in community enterprises

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Abstract

Purpose – An aging society is a growing global reality resulting in an increasing number of older workers, especially in community enterprises. It is important to understand factors that influence the mental health and quality of life (QOL) of these older workers. The purpose of this paper is to explore the influence of personal, work, and mental health factors on the QOL among older workers in community enterprises.

Design/methodology/approach – This cross-sectional study examined the mental health and QOL of 387 older workers from three industries: food production, handicraft, and farm-related work. These participants formed a representative sample of the 19,200 members of the 1,184 groups in the community enterprise sector in Nakhon Ratchasima province. Stratified random sampling technique was used. Pearson's Product Moment Correlation Analysis was used to examine the factors associated with QOL. A multiple regression statistical model was used to examine the QOL predicting factors.

Findings – The response rate for this study was 93.25 percent. The majority of participants were female (73.4 percent). The majority of older workers were educated to primary school educational level (81.4 percent). The ratio of workers within each project included farm-related work (36.7 percent), handicraft (37.7 percent) and food production (25.6 percent). Most older workers (90.2 percent) had normal mental health based on their GHQ screening. The overall QOL average score was 88.43 (SD 10.43). The results suggested that the QOL is related to age, income, somatic symptoms, anxiety and insomnia, social dysfunction, severe depression, and mental health problems. Additionally, multiple regression analysis indicated social dysfunction and income were significant predictors for the QOL of older workers with $R^2 = 0.118$, $F = 15.53$ ($p < 0.001$).

Originality/value – With the results showing associations between personal factors and work factors relating to QOL, it is important for health professionals to pay attention to older workers' work environments, financial issues, and mental health.

Keywords Mental health, Quality of life, Older workers, Community enterprises

Paper type Research paper

Background

Informal workers are those who work without protection and security[1]. The types of informal work include community enterprises, household businesses, and freelance workers who are working to survive[2]. Currently, there are 21.3 million informal workers making up about 55 percent of the total labor force in Thailand[3]. Approximately 3.45 million older workers are employed, of which 3.1 million are employed in the informal sector[4].

According to the United Nations definition, a country with more than 10 percent of its population over 60 years old is considered to have entered the elderly society[5]. The National Statistical Office indicated that Thailand had entered the elderly society bracket since 2005. The current elderly population in Thailand is at 16.67 percent. It is expected that Thailand will be fully integrated into the aging society in 2025, where the proportion of the aging population is projected to increase[6]. Older workers are generally defined as workers who are 45 years or older[7, 8]. This is because people generally have a maximum body capacity of about 25 years for work until the age of 50 years old, based on the deterioration of the body[8, 9]. The physiological condition will change and increase the risk of diseases, including both physical and mental health problems[10].

The Northeastern region of Thailand has the highest prevalence of an older workforce. Nakhon Ratchasima province has the highest population in the Northeast area and the second highest population in the country. The Statistics Office of Nakhon Ratchasima province reported the population to be 2,808,574, with 49.35 percent males and 50.65 percent females. The average life expectancy is 70.52 years for male and 76.79 years for female. The economic growth has continued with a Gross Domestic Product of 202,014 million Baht in 2011. The labor force was 1,632,424 people, or 73.99 percent of the population aged 15 and over. The workers' characteristics were home-based workers, self-employment, subcontracting, and community enterprises[11].

The term community enterprise was derived from the implementation of the community economy of informal workers and Sufficiency Economy Philosophy to develop continuously and systematically. Community enterprises have more emphasis on self-sufficiency than profit. It is a real economic base of the community[12]. If the community is strong and self-reliant, the economy of the country will be strong and stable.

Nakhon Ratchasima province has many natural resources distributed across its districts. There are 32 districts with 1,184 well-run community enterprise groups involved in pasteurized salted egg processing, rice cracker production, tissue box sewing, organic fertilizer development, and weaving. There are 19,200 members in the community enterprises in Nakhon Ratchasima province involved in processing a wide variety of community products, especially products that focus on unique community wisdom. There is a definite distribution market[11]. Some enterprises can produce products throughout the year. Standardized products are accepted by the market, such as Dan Kwian pottery, silk, Korat noodles, vegetables, and fruits. However, community enterprise is not a public organization, not under commercial law and the support system is not systematic and united. Informal workers in many of the existing community enterprises face work risks like other workers in the informal sector. The problems and obstacles in the work of the informal workers are manifold, including eye problems, fatigue, musculoskeletal problems, back pain, and muscle ache. Occupational health is poor, and concerns include restrictive workplace, hot air, dust, and prolonged posture[13]. Many workplace environments and conditions do not suit the physical condition of the older workers. Other problems they face include lack of succession, lack of bargaining power, unfair compensation, uncertain income, and debts[4].

Informal workers have a higher risk of illness or occupational injury due to the nature of their work with exposure to various health threats, such as chemical (agricultural chemicals), biological (germs), physical environment risk (light, heat), and psychological (stress). More importantly, the older workers in this group have lower levels of education and economic status than the general labor force who are protected by the Social Security Office; they also face lack of funding and self-care knowledge and the ability to access public health services[14]. Most of the older workers have non-standard working conditions and no

official employment contract; they do not get a fair wage and are not covered by the Social Security Act 2010 and the Labor Protection Act BE 2541, making their employment unstable. There is also no security in life as they get older[2].

The literature review showed that occupational health and safety issues are major problems for informal workers, with 57 percent who were found to be experiencing poor work conditions and work environment, such as heavy lifting, working in postures that cause pain and working in dusty areas[15]. Most work environment problems and most injuries found were for working in hot weather (71 percent) and having sharp injuries (92 percent)[13]. Studies found informal workers to have moderately positive attitudes about health promotion (89 percent) and recommended doing health surveillance as well as promoting proper use of personal protective equipment (PPE) and personal health care to reduce health risks from work[16]. For quality of life (QOL) and mental health of informal workers, a study found that most informal workers (79 percent) had a moderate level of QOL. Factors related to QOL were health behaviors and family relationships[17]. Some studies found that the lowest QOL domain was the physical domain (38 percent), followed by environmental and social relationship[18].

Many older informal workers will soon enter their elderly years. However, there are no welfare benefits to help with health risks resulting from work as well as mental health and development of QOL in the future as they enter their elderly years. Therefore, this study examined the work risks of the older informal workers in community enterprises and examined factors that influence their mental health and QOL. The results of this study can be used by older informal workers in community enterprises but also by their families, as a means of preventing workplace risks, promote self-care, prevent physical health problems from work, promote mental health, and ultimately, to improve the quality of work life.

Research objectives are as follows: to study the demographic characteristics, work characteristics, and occupational health risks among older workers in community enterprises; to study the mental health and QOL among older workers in community enterprises; and to explore the influence of personal factors, work factors, and mental health factor on the QOL among older workers in community enterprises.

Methods
Study design
A cross-sectional research was conducted among older workers in community enterprises to assess their mental health and QOL. The researcher applied the concept of epidemiological theories, which identified the relationship of health status, health behavior and environment as well as the concept of occupational health and safety, particularly the assessment of risk factors.

Participants for this study were older workers in three community enterprise industries: food production, handicrafts, and farm-related work. The study population included female and male older informal workers who are members of the community enterprise group in Nakhon Ratchasima province. There are 1,184 community enterprise groups with 19,200 members in Nakhon Ratchasima.

Sample size. From the total of 19,200 members in 1,184 enterprise groups in 32 districts of Nakhon Ratchasima province, potential samples were selected from the districts with the highest members: Pak Thong Chai, Chokchai, and Khonburi Districts. Sample size estimation from Krejcie and Morgan's table for determining sample size from a given population was 377 persons[19]. Additional 10 percent were added to compensate for incomplete data, making the total sample size of 415 persons.

Stratified sampling. Participants were randomly selected from the three districts with the same proportion (1: 11.51): Khonburi district (2,017 members), Pak Thong Chai district (1,349 members) and Chokchai district (1,410 members). Therefore, Khon Buri District included 175 older workers; Pak Thong Chai district included 117 older workers; and Chokchai district included 123 older workers. Next, the researcher randomly selected the community enterprise workers for data collection in each district, with equal numbers of older workers in the 3 community enterprise industries (food production, handicraft, and farm-related work) per district. For Khonburi district, each industry had 58 participants; for Pak Thong Chai district, each industry had 39 participants; and for Chokchai district, each industry had 41 participants. In total, there were 415 selected participants.

Final participant selection criteria for this study include these eight conditions: older worker who is at least 45 years old; works without formal employment contracts or has no employer under labor law; Thai nationality; works at least six months in community enterprise; has lived in the community for more than six months; able to answer questions, no problems speaking, listening and communicating; willing to volunteer to participate in this study; and able to sign the informed consent form.

Research instruments
The data collected in the research are as follows:

- Part 1: personal factors including age, gender, marital status, highest education level, occupation, income, and working year.

- Part 2: for health risk assessment, this study used the health risk assessment questionnaire developed by the Bureau of Occupational and Environmental Diseases, the Ministry of Health in 2010 which measures the occupation risk of informal workers[20]. The questionnaire included work risk perception, work behaviors, and health risk behaviors. There were 6 items with two levels of scores: 1 and 2. Results were divided into three levels: low risk (6 to 7 points), medium risk (8 to 9 points), and high-risk (10 to 12 points). There were also three questions about the need for support to reduce the occupational health risks: knowledge, PPE, and health checkup.

- Part 3: the General Health Questionnaire (Thai GHQ 28) is one of the most widely accepted mental health screening instruments available in more than 36 languages. The Thai GHQ 28 is an acceptable screening test for mental health problems in the community with Cronbach's α coefficient between 0.84 and 0.94 in previous studies with the Thai population[21]. Cronbach's α coefficient for this study was found to be 0.90. The Thai GHQ 28 assessed the health status in the past 2-3 weeks; a score of 6 points or more is considered to be abnormal mental health. The Thai GHQ 28 is divided into four symptom areas: somatic symptoms; anxiety and insomnia; social dysfunction; and severe depression.

- Part 4: QOL over the past two weeks is assessed by the World Health Organization Quality of Life Scale (WHOQOL-BREF-Thai). The WHOQOL project was initiated in 1991 with the aim of developing an international cross-culturally comparable QOL assessment instrument[22]. This 26-question, five-level scale is easy to understand and takes minimal time to complete[22]. The overall scores for the QOL range from 26 to 130 points. Overall scores can be compared with the following criteria which has already been validated among Thai people[23]: scores between 26-60 indicate poor QOL; scores between 61-95 indicate moderate QOL; scores between 96-130 indicate good QOL[24]. Cronbach's α coefficient of WHOQOL-BREF-Thai for this study was found to be 0.88. More specifically, the WHOQOL-BREF-Thai consisted of 4 domains: Physical domain (7 items) is the perception of the physical condition which affected

daily activities; Psychological domain (6 items) is the mental self-perception; Social relationships domain (3 items) is the perception of their relationships with others; Environment domain (8 items) is the perception effect of the environment.

Content validity. A panel of three experts assessed the content validity of the questionnaires. The experts included one specialist for older workers' health (adult and aging health nurse), one psychiatric specialist, and one occupational health nurse. The suggestions item sentence was revised in accordance to the main concept of measure and made easier to understand.

Reliability. The questionnaires were tested for reliability with 30 older workers who have similar characteristics as the potential participants. The purpose was to check the correctness of the statement and to evaluate the time used for answering the questionnaires. For internal consistency reliability testing, Cronbach's α coefficient was analyzed.

Data collection processes
The data collection process is described below: first, data collection started after receiving approval from the Committee of Human Ethical Research, Maharat Hospital Nakhon Ratchasima. Ethics Code 096/2016; second, permission was submitted to the administrator of the Provincial Health Office who coordinated with the chair of the community enterprise in Nakhon Ratchasima. The researcher coordinated with the community enterprise in each district. Third, the researchers trained the data collection team to use the questionnaires, including how to obtain informed consent and provide basic assistance when the participant was found to be at risk. Fourth, researchers traveled to the area to collect data. The village health volunteers assisted the research team with access to participants to collect data. The participants were invited for interview during their break time, after lunch, or after work in the resting zone or break area of their enterprises. Fifth, results of all responses and information are confidential and only used for research and educational purposes. Sixth, the questionnaire included 72 questions. Participants completed the questionnaire in an average of 45 minutes. Seventh, when the questionnaire was completed, the researcher verified the completeness of the information obtained from the responses, then recorded and analyzed the data.

Statistical Packet for the Social Sciences 23.0 was used for data analyses. Descriptive statistics were used to describe participants' personal and work characteristics. Pearson correlation coefficients were used to explore relationships between demographic variables and work, mental health, and QOL. Multiple regression analyses were used to test the predictability of personal, work, and mental health factors on the QOL among older workers.

Results
A total of 387 participants completed the questionnaires, including 73.4 percent females and 26.6 percent males. The average age was 54.74 (SD $= 7.82$, range $= 45\text{-}80$). The majority of the older workers (81.4 percent) were educated up to primary school level. Most participants (81.7 percent) were married. The majority of participants (71.1 percent) had a monthly income of 5,000 Baht or less. Most participants did not smoke (89.0 percent) and did not use alcohol (82.4 percent). Older workers' work characteristics, work risks, and work risk scores are indicated in Table I.

Regarding support needed among older workers, 94.3 percent indicated that they needed some kind of support. Specifically, many participants expressed the need for safety concept knowledge (47.5 percent), chemical safety knowledge (25.6 percent), knowledge for risk of work hazards (22.7 percent), and knowledge for work hazard and risk prevention (21.2 percent). Several participants also indicated the need for PPE, including goggles (26.4 percent), protective masks (54.3 percent), protective gloves (54.0 percent), and boots (34.9 percent). During the physical health checkup, many participants expressed the need for

Work factors	Number (%)
Work characteristics	
Farm-related work	142 (36.7)
Handcraft	146 (37.7)
Food production	99 (25.6)
Working year (Mean = 27.08, SD 13.252)	
5-10	64 (16.5)
11-15	29 (7.5)
16-20	39 (10.1)
21-25	49 (12.7)
26-30	69 (17.8)
31-35	35 (9.0)
36-40	59 (15.2)
41 and more	43 (11.1)
Work risks perception	
Yes	366 (94.6)
Not sure	10 (2.6)
No	11 (2.8)
Dust	
No	215 (55.6)
Yes	172 (44.4)
Chemicals	
No	246 (63.6)
Yes	141 (36.4)
Noise	
No	378 (97.7)
Yes	9 (2.3)
Heat	
No	253 (65.4)
Yes	134 (34.6)
Light	
No	372 (96.1)
Yes	15 (3.9)
Musculoskeletal injury	
No	199 (51.4)
Yes	188 (48.6)
Biological risks	
No	399 (87.6)
Yes	48 (12.4)
Other	
No	381 (98.4)
Yes	6 (1.6)
Risk concerns	
All the time	116 (30.0)
Frequently	180 (46.5)
Sometimes	91 (23.5)
Risk prevention	
All the time	136 (35.1)
Frequently	202 (52.2)
Sometimes	49 (12.7)
Work risk score (range score = 6-12)	
Low (6-7)	267 (69.0)
Moderate (8-9)	105 (27.1)
High (10-12)	15 (3.9)
Note: $n = 387$	

annual health checks (56.1 percent) and health checkup based on risk factors (38.5 percent). Most older workers (90.2 percent) had normal mental health based on the GHQ screening. Few had somatic symptoms (2.3 percent), anxiety and insomnia (0.8 percent), social dysfunction (1.3 percent), and severe depression (0.8 percent). Table II showed the level of QOL of older workers including scores on the four domains.

For the bivariate analysis of personal variables, overall QOL mean values were lower for female ($p = 0.040$), individuals between 61 and 70 years ($p = 0.007$), education to primary school level ($p = 0.020$), monthly income less than 5,000 Baht ($p < 0.001$), and having at least one chronic disease ($p = 0.016$). See Table III for additional results of personal variables for the QOL physical, psychosocial, social relationships, and environment domains. For the bivariate analysis of work variables, overall QOL mean values were lower for work risk perception for heat ($p = 0.009$) and biologicals (p-value $= 0.016$). See Table IV for additional results of work variables for the QOL physical, psychosocial, social relationships, and environment domains. For the bivariate analysis of mental health (GHQ) variables, overall QOL mean values were lower for total score of abnormal mental health ($p < 0.001$) and social dysfunction ($p = 0.001$). See Table V for additional results of mental health variables for the QOL physical, psychosocial, social relationships, and environment domains.

The zero-order correlations ranged from 0.005 to 0.818 (Table VI). Results suggested that when age increased, income decreased, somatic symptoms increased, anxiety and insomnia increased, social dysfunction increased, severe depression increased, total score of mental health problems increased, and QOL decreased. Further, the correlations suggested that respondents with higher age reported lower income. Respondents who had higher working years reported higher total work risk score, higher somatic symptoms, higher anxiety and insomnia, and higher social dysfunction.

Quality of life	Number	(%)
QOL: physical domain		
Poor	3	0.8
Moderate	298	77.0
Good	86	22.2
QOL: psychosocial domain		
Poor	9	2.3
Moderate	206	53.2
Good	172	44.4
QOL: social relationship domain		
Poor	45	11.6
Moderate	298	77.0
Good	44	11.4
QOL: environment domain		
Poor	5	1.3
Moderate	321	82.9
Good	61	15.8
QOL (Total)		
Poor	2	0.5
Moderate	305	78.8
Good	80	20.7
Notes: $n = 387$. Min-Max score $= 43\text{-}120$, Mean $= 88.43$, SD $= 10.437$		

	WHOQOL-BREF scores (Mean (SD))				
Variables	Overall QOL	Physical	Psychological	Social relationships	Environment
Gender					
Male	90.24 (12.03)	24.90 (3.45)	22.80 (3.75)	9.55 (1.80)	26.44 (4.41)
Female	87.78 (9.74)	23.46 (3.13)	21.53 (3.34)	9.66 (1.59)	26.56 (3.94)
p-value	0.040	< 0.001	0.002	0.579	0.793
Age (years)					
45-50	89.35 (10.68)	24.17 (3.24)	22.16 (3.50)	9.74 (1.68)	26.66 (4.15)
51-60	87.80 (10.63)	23.84 (3.28)	21.60 (3.60)	9.57 (1.56)	26.32 (4.05)
61-70	85.94 (7.99)	22.53 (2.49)	21.15 (2.99)	9.50 (1.62)	26.00 (3.83)
71-80	86.18 (8.80)	21.73 (4.56)	21.64 (3.44)	8.73 (1.90)	28.09 (3.33)
p-value	0.007	0.289	0.202	0.429	0.207
Highest education					
No education	88.60 (10.60)	25.00 (0.00)	21.60 (23.80)	9.80 (2.28)	26.00 (3.08)
Primary school	87.82 (10.62)	23.60 (3.32)	21.66 (3.50)	9.58 (1.68)	26.48 (4.19)
Secondary school	91.71 (10.03)	25.11 (3.16)	23.16 (3.13)	9.73 (1.34)	26.80 (3.73)
High school and higher	90.50 (6.96)	24.45 (2.52)	22.23 (3.49)	10.05 (1.59)	26.73 (3.13)
p-value	0.020	0.058	0.599	0.945	0.093
Income					
≤ 5,000	88.84 (9.85)	23.17 (3.05)	21.19 (3.41)	9.58 (1.60)	26.39 (3.94)
5,001-10,000	92.29 (11.07)	25.42 (3.13)	23.45 (3.25)	9.81 (1.87)	26.96 (4.50)
10,001-15,000	92.95 (12.04)	26.42 (3.64)	23.53 (3.24)	9.74 (1.28)	26.47 (4.36)
15,001-20,000	91.50 (4.80)	23.00 (3.65)	24.50 (0.58)	10.00 (1.41)	27.25 (4.34)
> 20,000	91.25 (4.50)	25.25 (3.30)	24.25 (2.22)	8.50 (1.29)	26.50 (1.73)
p-value	< 0.001	< 0.001	0.482	0.837	< 0.001
Marital status					
Single	88.19 (10.25)	23.38 (2.66)	21.69 (2.77)	9.75 (2.15)	26.75 (4.57)
Married	88.76 (10.02)	23.92 (3.30)	21.89 (3.44)	9.05 (1.74)	25.75 (4.96)
Widowed/divorced	86.62 (12.63)	23.53 (3.33)	21.76 (4.02)	9.05 (1.75)	25.75 (4.96)
p-value	0.599	0.948	0.019	0.305	0.371
Diseases or illnesses					
No	89.60 (11.05)	24.61 (3.29)	22.24 (3.59)	9.62 (1.60)	26.48 (4.28)
Yes	87.05 (9.50)	22.94 (3.04)	21.42 (3.33)	9.64 (1.70)	26.58 (4.07)
p-value	0.016	< 0.001	0.021	0.931	0.808
Smoking					
No	88.33 (10.43)	23.77 (3.27)	21.76 (3.48)	9.66 (1.65)	26.53 (4.09)
Yes	89.12 (10.59)	24.36 (3.32)	22.58 (3.57)	9.42 (1.63)	26.50 (3.94)
p-value	0.234	0.122	0.333	0.960	0.619
Alcohol					
No	88.32 (9.36)	23.73 (3.15)	21.74 (3.35)	9.68 (1.58)	26.52 (3.72)
Sometime	90.50 (13.64)	24.50 (3.67)	22.85 (3.80)	9.65 (1.87)	27.09 (5.21)
Often	81.06 (9.41)	23.00 (3.43)	19.56 (3.42)	8.69 (1.45)	24.00 (3.56)
p-value	0.111	0.001	0.063	0.022	0.004

Note: $n = 387$

Table III.
Bivariate association (mean differences) between personal variables and quality of life (QOL) among older workers in community enterprise

When analyzing the factors influencing QOL using multiple regression analysis, the dependent variable: total score of QOL, independent variables entered: age, income, working year, total working risk score, somatic symptoms, anxiety and insomnia, social dysfunction, severe depression, total score of GHQ, the results showed that social dysfunction ($\beta = -0.289$, with 95% CI: −3.87 to −1.97) and income ($\beta = 0.189$ with 95% CI: 0.00 to 0.001)

Variables	Overall QOL	WHOQOL-BREF scores (Mean (SD))			
		Physical	Psychological	Social relationships	Environment
Work characteristics					
Farm-related work	89.26 (13.68)	24.07 (3.54)	22.52 (3.96)	9.46 (1.95)	26.81 (5.31)
Handcraft	88.29 (8.51)	24.15 (3.11)	21.82 (2.97)	9.72 (1.37)	25.94 (3.53)
Food production	87.45 (7.12)	23.07 (3.04)	21.00 (3.34)	9.73 (1.37)	26.99 (2.31)
p-value	0.410	0.024	0.004	0.320	0.081
Working year					
5-25	88.08 (10.62)	23.67 (3.31)	21.56 (3.45)	9.72 (1.74)	26.49 (3.86)
26 and more	88.74 (10.29)	24.00 (3.25)	22.14 (3.52)	9.55 (1.56)	26.56 (4.25)
p-value	0.536	0.322	0.105	0.326	0.873
Work risks perception					
Yes	88.43 (10.27)	23.85 (3.29)	21.86 (3.50)	9.63 (1.65)	26.53 (3.97)
Not sure	94.30 (17.01)	25.40 (3.63)	24.10 (3.73)	10.20 (2.10)	27.4 (7.85)
No	83.27 (5.53)	22.27 (1.90)	19.90 (1.87)	9.27 (0.65)	25.63 (2.62)
p-value	0.053	0.091	0.023	0.424	0.611
Dust					
No	87.54 (10.51)	24.03 (3.45)	22.04 (3.37)	9.30 (1.70)	25.73 (4.10)
Yes	89.55 (10.27)	23.61 (3.04)	21.65 (3.65)	10.05 (1.48)	27.52 (4.07)
p-value	0.061	0.209	0.281	< 0.001	< 0.001
Chemicals					
No	87.70 (10.47)	23.94 (3.40)	22.02 (3.34)	9.36 (1.64)	26.02 (4.15)
Yes	89.70 (10.30)	23.68 (3.07)	21.59 (3.76)	10.11 (1.55)	27.42 (3.76)
p-value	0.070	0.457	0.239	< 0.001	0.001
Noise					
No	88.50 (10.40)	23.83 (3.28)	21.91 (3.44)	9.63 (1.64)	26.54 (4.10)
Yes	85.56 (12.30)	24.44 (3.17)	20.00 (5.45)	9.56 (1.74)	25.89 (2.57)
p-value	0.403	0.580	0.105	0.890	0.634
Heat					
No	89.43 (10.19)	23.92 (3.25)	21.89 (3.49)	9.92 (1.56)	26.94 (3.92)
Yes	86.54 (10.68)	23.70 (3.34)	21.83 (3.52)	9.09 (1.67)	25.75 (4.23)
p-value	0.009	0.532	0.879	< 0.001	0.006
Light					
No	88.52 (10.52)	23.78 (3.30)	21.85 (3.53)	9.66 (1.65)	26.66 (4.04)
Yes	86.27 (8.20)	25.40 (2.44)	22.13 (2.72)	9.00 (1.31)	23.33 (3.35)
p-value	0.413	0.061	0.763	0.130	0.002
Musculoskeletal injury					
No	87.78 (8.56)	22.85 (2.43)	20.83 (3.01)	10.04 (1.45)	27.27 (3.55)
Yes	89.13 (12.07)	24.90 (3.71)	22.96 (3.65)	9.20 (1.73)	25.74 (4.42)
p-value	0.204	< 0.001	< 0.001	< 0.001	< 0.001
Biologicals					
No	88.91 (10.70)	24.04 (3.35)	22.13 (3.50)	9.61 (1.66)	26.55 (3.10)
Yes	85.04 (7.610)	22.50 (2.32)	19.98 (2.84)	9.75 (1.54)	26.38 (3.10)
p-value	0.016	0.002	< 0.001	0.591	0.782
Other					
No	88.43 (10.48)	23.80 (3.27)	21.86 (3.51)	9.64 (1.64)	26.56 (4.08)
Yes	88.83 (8.33)	26.50 (3.08)	22.33 (2.50)	9.17 (1.94)	24.17 (4.07)
p-value	0.925	0.045	0.742	0.487	0.152
Risk concerns					
All the time	89.73 (14.12)	24.78 (3.81)	22.81 (4.16)	9.21 (1.86)	26.52 (5.23)
Often	87.15 (7.11)	23.04 (2.63)	20.80 (2.68)	9.96 (1.46)	26.66 (3.07)
Sometime	89.32 (10.27)	24.24 (3.36)	22.77 (3.43)	9.52 (1.59)	26.29 (4.14)
p-value	0.075	< 0.001	< 0.001	0.001	0.779

(*continued*)

Table IV.
Bivariate association
(mean differences)
between work
variables and quality
of life (QOL) among
older workers in
community
enterprises

Variables	WHOQOL-BREF scores (Mean (SD))				
	Overall QOL	Physical	Psychological	Social relationships	Environment
Risk prevention					
All the time	89.65 (13.11)	24.50 (3.32)	22.63 (3.95)	9.26 (1.80)	26.71 (5.14)
Often	87.70 (8.01)	23.30 (2.85)	21.17 (3.14)	9.92 (1.43)	26.67 (3.15)
Sometime	88.08 (10.82)	24.29 (4.34)	22.61 (2.99)	9.45 (1.82)	25.45 (3.97)
p-value	0.237	0.002	< 0.001	0.001	0.139
Total work risk					
Low	88.46 (9.92)	23.73 (3.10)	21.59 (3.45)	9.73 (1.63)	26.72 (3.90)
Moderate	88.50 (11.91)	24.03 (3.77)	22.46 (3.58)	9.51 (1.70)	26.18 (4.52)
High	87.53 (8.76)	24.67 (2.77)	22.67 (3.29)	8.67 (1.18)	25.60 (3.38)
p-value	0.943	0.446	0.064	0.035	0.349

Table IV. **Note:** $n = 387$

Variables	WHOQOL-BREF scores (Mean, SD)				
	Overall QOL	Physical	Psychological	Social relationships	Environment
Total score					
Abnormal	81.82 (12.05)	21.39 (3.38)	20.55 (4.14)	8.92 (1.88)	25.61 (5.36)
Normal	89.15 (10.00)	24.11 (3.16)	22.01 (3.40)	9.71 (1.60)	26.63 (3.90)
p-value	< 0.001	< 0.001	0.015	0.005	0.141
Somatic symptoms					
Abnormal	83.44 (6.67)	21.56 (1.88)	21.22 (1.72)	9.67 (1.66)	25.89 (3.82)
Normal	88.55 (10.43)	23.90 (3.29)	21.88 (3.53)	9.63 (1.65)	26.54 (4.08)
p-value	0.147	0.034	0.577	0.947	0.634
Anxiety and insomnia					
Abnormal	84.67 (10.50)	23.67 (3.06)	21.67 (3.51)	9.00 (1.00)	24.67 (4.62)
Normal	88.46 (10.44)	23.84 (3.28)	21.87 (3.50)	9.64 (1.65)	26.53 (4.07)
p-value	0.531	0.925	0.921	0.506	0.427
Social dysfunction					
Abnormal	72.40 (9.63)	18.40 (5.86)	18.60 (4.34)	8.00 (1.00)	22.40 (3.78)
Normal	88.64 (10.29)	23.92 (3.18)	21.90 (3.47)	9.65 (1.64)	26.58 (4.05)
p-value	0.001	< 0.001	0.035	0.025	0.022
Severe depression					
Abnormal	82.33 (9.29)	22.00 (2.00)	20.00 (3.00)	9.33 (0.58)	26.53 (4.05)
Normal	88.48 (10.44)	23.86 (3.28)	21.88 (3.50)	9.63 (1.64)	26.53 (4.07)
p-value	0.310	0.329	0.354	0.754	0.822

Table V.
Bivariate association (mean differences) between mental health (GHQ) variables and quality of life (QOL) among older workers in community enterprise

Note: $n = 387$

were significant predictors for QOL of older workers (*p*-value < 0.001). These two predictors explains 11.8 percent of the influence on QOL of older workers. ($F = 15.53$, $p < 0.001$, $R^2 = 0.118$, adjusted $R^2 = 0.113$) (Table VII).

Discussion

A total of 387 questionnaire sheets were collected. The response rate was 93.25 percent. There were some non-responses in this study, in spite of the researcher setting the meeting and introducing the research study to the participants, explaining the purposes of the

research and requesting their cooperation in answering the questionnaires for all older workers in each enterprise. Some participants left work earlier while some refused to participate even though the consent and rights of research participants were described with an opportunity to ask questions regarding what was not fully understood.

The search for QOL has received increasing interests from society, especially from health personnel who often feel responsible to promote health for the population to extend its longevity with a healthy QOL. The results showed that 20.7 percent of older workers had good QOL while 78.8 percent showed moderate QOL and only 0.5 percent showed poor QOL. Overall, the results might indicate that older workers in these communities had positive work characteristics such as a flexible work schedule that allows them to easily take care of their family. This is consistent with the study on QOL of informal workers in Bangkok which found that most workers (78.9 percent) had a moderate QOL[17]. Another study of the QOL of informal workers in Muang District, Lamphun province, found that 68.4 percent of informal workers enjoyed a moderate QOL while 47.7 percent had good mental health and 37.7 percent had good social relations[18]. The QOL of the elderly in Phitsanulok Municipality (most of them engaged in informal labor) was found to be moderate; the overall QOL of the female elderly was significantly higher than that of the male elderly[25]. The high QOL of older workers may be because they enjoy a higher degree of autonomy and control over their work schedule. In addition, older workers tend to be more satisfied with the balance of work activities and family/community involvement[26]. The work environment is an important factor that contributes to worker well-being in all age groups[27]. Our results showed work factors such as work characteristics, work risk perception, work risk concern associated with QOL, to be congruent with results of a study with SME workers in Indonesia[28].

Variables	1	2	3	4	5	6	7	8	9	10
1. Age	1									
2. Working year	0.409**	1								
3. Income	−0.115*	0.073	1							
4. Total work risk score	0.076	0.148**	0.062	1						
5. Somatic symptoms	0.084	0.240**	0.082	0.217**	1					
6. Anxiety and insomnia	0.005	0.140**	0.035	0.066	0.521**	1				
7. Social dysfunction	0.032	0.158**	0.012	0.148**	0.469**	0.581**	1			
8. Severe depression	−0.050	0.068	0.044	0.146**	0.217**	0.428**	0.579**	1		
9. Total score of GHQ	0.040	0.215**	0.061	0.194**	0.807**	0.820**	0.818**	0.610**	1	
10. Total score of QOL	−0.101*	0.005	0.185**	−0.019	−0.151**	−0.218**	−0.287**	−0.210**	−0.268**	1

Notes: $n = 387$. *$p < 0.05$; **$p < 0.01$

Table VI.
Variables associated with QOL by Pearson's correlation coefficients

Predictors	B	S.E.	Exp. (B)	t	p-value	95% C.I.for EXP(B) Lower	Upper
Constant	87.094	0.771	–	112.952	< 0.001	85.578	88.610
Social dysfunction	−2.916	0.484	−0.289	−6.028	< 0.001	−3.867	−1.965
Income	0.000	0.000	0.189	3.940	< 0.001	0.000	0.001

Notes: $n = 387$. Dependent variable: total score of QOL; Independent variables entered: age, income, working year, total working risk score, somatic symptoms, anxiety and insomnia, social dysfunction, severe depression, total score of GHQ

Table VII.
Multiple regression analysis for predicting the QOL

Regarding mental health, this study also showed that the majority of respondents had good mental health scores in all domains. This supports a recent study which found that work status was one of the key determinants of mental health. Elderly people who were still working enjoyed better mental health than elderly who did not work[29]. In this study, social dysfunction and income have only a very weak association with QOL as shown in Table VI whereas these two mentioned variables can predict the QOL. Social dysfunction was a negative influencing factor for QOL among older workers with higher social dysfunction causing lower QOL. This result extended the links from previous studies that found depression as negative influence factor and life satisfaction as positive influence factor for QOL[30]. Regarding income, most informal workers in Thailand had lower income per month than other workers, about 2.2 times lower than the average 6,691 Baht per month[3]. For this study, income was the predictor for QOL among older workers in community enterprises. These results are consistent with conditions of other older workers around the world where literature showed the hiring rates of older workers tend to be much lower than those of other age groups[31].

Conclusion

The research objective of this study was to examine the work risks of older informal workers in community enterprises and factors that influence their mental health and QOL. Results showed the majority of older workers were female; work risks included dust, chemicals, heat, and musculoskeletal injury; the majority of older workers had a moderate QOL and good mental health. Personal characteristics, especially age, income and some mental health problems correlated with QOL. Social dysfunction and income can also predict the QOL of individuals. Health professionals can start by helping older workers improve social functioning to help improve their QOL. The hope is that older workers will maintain healthy QOL as they move into their retirement years. Finally, the results of this study showed associations between personal factors and work factors with QOL. Therefore, it is important to pay attention to older workers' work environments, income, and mental health.

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