people as 9, 465 and more [2]. This clearly shows that, homeless people is indeed a global concern [2].

Currently, the homelessness daily needs such as food, shelter and wellness treatment were provided by non-governmental organizations (NGOs). In Malaysia, most NGOs, such as the Soup Kitchen, emphasizes on feeding alone [3]. To date, only the Yayasan Kebajikan Negara (YKN) focuses on other aspects including accommodation, medicine and job provider for the homeless community, with the establishment of the Anjung Singgah in Kuala Lumpur [3]. However, the services offered are limited. These homeless people require help from other sources, as most of them have no income or having very low income. According to Rafiza, at least 17.7% of the homeless have zero income [4]. Jobs and income also known to be related with education level. Homelessness in the Malaysian Policy Sheet reported that 56% of homeless people in Malaysia have primary education only [5]. Additionally, according to Shelton et al., there were several risk factors that cause homeless people to have no education or have low education [6]. This is due to socioeconomic problems such as not having the opportunity to spend on education because of financial problems [6].

According to the Fourth Edition Dewan Bahasa dan Pustaka Dictionary, homeless person or gelandangan in Malay means a person who does not have a permanent job or residence [7]. National Coalition of the Homeless also supports the definition of homelessness in which a homeless person is defined as an individual who does not have a fix and comfortable place to stay especially at night [8]. Similarly, in their brief policy report, Shelter England defines the homelessness as a group of people who do not have homes [9]. On the other hand, Canadian Homelessness Research Hub defined homelessness as persons who are faced with a situation where they and their families do not have a stable life, not having the right house and not being able to have it [10]. The National Coalition of the Homeless also added that this

homelessness as study population [16]. The questionnaire was assessed for content validity by the experts and face validity was evaluated during the pretest. The questionnaire was divided into four parts namely sociodemographic, socioeconomic, health related and healthcare utilization, as well as a section on health financing.

Individuals were asked on their birth dates, sex, ethnicity and marriage status in the sociodemographic section. Socioeconomic questions consisted of education level, working status and their income. For health related, individuals were asked on questions such as whether they smoked or not, consumed alcohol or not, were drug users or not, whether they had any disease or not and whether they had any disabilities or not. For healthcare utilization, individuals were asked on where do they get treatment for their health problem. For financier part, which constitute the dependent variable, individuals were asked on who paid for their health services, whether they use their own money or otherwise and whether they get any aid to finance their health services.

During the initial phase, data were entered into EXCEL and transferred to IBM SPSS Predictive Analytics software version 20.0 for analysis. All data were first explored descriptively before proceed to bivariate analysis. As all data are categorical, the data were presented in numbers and percentage, and Pearson Chi-square analysis were performed for bivariate analysis. For mulvariate analysis, Multiple Logistic Regression were used. For that purpose, few independent variables were recategories: marital status [single and married (plus others)], working status [working and not working (plus beggars)]

Table 1 Bivariate analysis of using own money as health services financier ($n = 113$)

Variables	Own money n (%)	Not own money n (%)	χ^2 value	p value
Gender				
Male	42 (44.7)	52 (55.3)	1.110	0.292
Female	6 (31.6)	13 (68.4)		
Age				
Early adulthood	22 (41.5)	31 (58.5)	1.979	0.372
Middle-Late adulthood	26 (47.2)	29 (52.8)		
Marital Status				
Single	30 (42.3)	41 (57.7)	0.278	0.870
Married	13 (40.6)	19 (59.4)		
Others (Widow/Widower)	5 (50.0)	5 (50.0)		
Working Status				
Working	28 (53.8)	24 (46.2)	9.358	0.009*
Not working	18 (40.9)	26 (59.1)		
Beggars	2 (11.8)	15 (88.2)		
Income				
With	22 (28.2)	56 (71.8)	20.995	< 0.001*
Without	26 (74.3)	9 (25.7)		
Level of Education				
Low	16 (50.0)	16 (50.0)	1.4.34	0.488
Middle	28 (38.4)	45 (61.6)		
High	4 (50.0)	4 (50.0)		
Smoking				
Yes	35 (43.8)	45 (56.2)	0.181	0.670
No	13 (39.4)	20 (60.6)		
Took Alcohol				
Yes	3 (23.1)	10 (76.9)	2.263	0.133
No	45 (45.0)	55 (55.0)		
Took Drugs				
Yes	14 (41.2)	20 (58.8)	0.034	0.854
No	34 (43.0)	45 (57.0)		
Disease				
Have	29 (40.8)	42 (59.2)	0.208	0.648
No	19 (45.2)	23 (54.8)		
Disabilities				
Have	1 (16.7)	5 (83.3)	1.728	0.189
No	47 (43.9)	60 (56.1)		

* Significant at $p < 0.05$

respondents who did not take drugs were higher to receive aid for health services as compared to those who were drug users. Respondents, who did not smoke, did not take alcohol, did not have disease and did not have disabilities had higher percentage of receiving aid for health services as oppose with those who smoked, consumed alcohol, had disease and had disabilities. However these associations were not statistically significant.

The influencing factors for homeless to use their own money for health services were further analysed using multiple logistics regression. The findings are shown in

Table 2 Bivariate analysis of received aid as health services financier ($n = 113$)

	With Aid n (%)	Without Aid n (%)	χ^2 value	p value
Gender				
Male	40 (42.6)	54 (57.4)	4.247	0.039*
Female	13 (68.4)	6 (31.6)		
Age				
Early adulthood	24 (45.3)	29 (54.7)	0.707	0.707
Middle-late Adulthood	29 (48.3.0)	31 (51.7)		
Marital Status				
Single	32 (45.1)	39 (54.9)	0.258	0.879
Married	16 (50.0)	16 (50.0)		
Others (Widow/Widower)	53 (46.9)	60 (53.1)		
Working status				
Working	24 (46.2)	28 (53.8)	5.049	0.080
Not working	17 (38.6)	27 (61.4)		
Beggars	12 (70.6)	5 (29.4)		
Income				
With	46 (59.0)	32 (41.0)	14.736	< 0.001*
Without	7 (20.0)	28 (80.0)		
Level of Education				
Low	16 (50.0)	16 (50.0)	1.696	0.428
Middle	35 (47.9)	38 (52.1)		
High	2 (25.0)	6 (75.0)		
Smoking				
Yes	34 (42.5)	46 (57.5)	2.132	0.144
No	19 (57.6)	14 (42.4)		
Took Alcohol				
Yes	5 (38.5)	8 (61.5)	0.420	0.517
No	48 (48.0)	52 (52.0)		
Took Drugs				
Yes	11 (32.4)	23 (67.6)	4.134	0.042*
No	42 (53.2)	37 (46.8)		
Disease				
Have	30 (42.3)	41 (57.7)	1.658	0.198
No	23 (54.8)	19 (45.2)		
Disabilities				
Have	2 (33.3)	4 (66.7)	0.468	0.494
Non	51 (47.7)	56 (52.3)		

* Significant at $p < 0.05$

Table 3. All variables were entered into the multivariate analysis. It was shown that the significant variables in the final model were education level, income and disability, with adjusted odd ratio (OR) (95% CI) 3.15 (1.07–9.25), 0.08 (0.029–3.07) and 0.05 (0.003–0.88) respectively and p value 0.037, < 0.001 and 0.041 respectively. The Pseudo R-square calculated was 0.352, which indicates that 35.2% of the identified factors influenced the usage of own money for health services in this model. A chi-square statistic was utilized to assess the difference in – 2 log-likelihoods between the final model and a reduced model. It was found that the reduced model is equivalent to the final model because omitting the effect does not increase the degree of freedom.

Table 3 Factors associated with using own money for health services among homeless (multiple logistic regression)

Variable	Regression coefficient (b)	Std error	Wald Z value	Adjusted odds ratio (95% CI)	-value
Age					
Early adulthood	0.037	0.466	0.006	1.04 (0.42–2.59)	0.937
Middle-late adulthood	0				
Gender					
Male	0.73	0.742	0.977	2.08 (0.48–8.92)	0.323
Female	0				
Marital status					
Single	−0.140	0.491	0.082	0.87 (0.33–2.27)	0.775
Married	0				
Education level	1.147	0.549	4.361	3.15 (1.07–9.25)	0.037*
Low	0				
Middle-high					
Working status	0.572	0.501	1.301	1.77 (0.66–4.73)	0.254
Working	0				
Not working					
Income					
With	−2.46	0.559	19.416	0.08 (0.029–3.07)	< 0.001*
Without	0				
Smoking					
Yes	−0.13	0.638	0.040	0.88 (0.25–3..07)	0.841
No	0				
Took Alcohol					
Yes	−1.11	0.794	1.956	0.33 (0.69–1.56)	0.162
No	0				
Took drugs					
Yes	0.221	0.543	0.166	1.25 (0.43–3.62)	0.684
No	0				
Disease					
Have	−0.437	0.482	0.820	0.65 (0.25–1.66)	0.365
No	0				
Disability					
Have	−3.012	1.473	4.183	0.05 (0.00308.9(0.638)-5911.8(0.040)-5373.2(0.88)-296.2((0	
	Smoking				

Table 4 shows the influencing factors for homeless population who received aid for health services. All variables were entered during the multivariate analysis. It was shown that the significant variables in the final model were income and history of taking drugs with adjusted OR (95% CI) 6.50 (2.30–18.39) and 0.33 (0.11–0.95) and p value < 0.001 and 0.041 respectively. The Pseudo R-square calculated was 0.276, which indicates that 27.6% of the identified factors influenced the receiving of aid for health services model in this analysis. A chi-square statistic was further utilized to check the difference in − 2 log-likelihoods between the final model and a reduced model. It was again found that the reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.

Discussion

It is found that majority of the homeless people in Kuala Lumpur were male, in their middle age and more than half of them were still single. These findings were consistent with findings by Pusat Transit Gelandangan Kuala Lumpur, Mohamad et al., and Muhammad Syafiq

Table 4 Factors associated with received aid for health services among homeless (Multiple logistic regression)

Variable	Regression coefficient (b)	Std error	Wald Z value	Adjusted odds ratio (95% CI)	-value
Age					
Early adulthood492.7(i.TDh8lTJ16.9.8(odds)-297.8hBt7c-1.59690d)-51omel62wtg y1.5969099221((645y)-7d30.32				e1.7(a)8292.1(adultrross)-41.2(30.e)Tj.9992-1	

and Doris [3, 12, 17]. However, according to the Department of Social Welfare 2015 statistical report regarding homeless in Malaysia, 68.2% were female and majority of them were at 30–60 years old [18]. However, in America, the homeless population were at a younger age of 18–40 years old [19, 20]. Similar findings were found by other studies in which more than half of the homeless were single [12, 17, 21]. Marriage is not their priority as they can hardly afford to spend money even for themselves.

This study also found that majority of homeless people managed to complete their form five study only. Less than half of these homeless respondents were working. According to Mohamad et al. and Muhammad Syafiq and Doris, not all homeless people was jobless [12, 17]. However, this study also found that their income was relatively very low, which made it difficult for them to rent even a room in Kuala Lumpur. From this study, half of the homeless respondents had low income, i.e. just below the Malaysia's average national poverty line

household monthly income [22]. In view of their low education level, it is also difficult for them to get a good job. As mentioned earlier, Shelton et al., stated that their low education level was due to several risk factors such as being school dropout or having financial problems to pursue their study [6]. Another possible reason on why they did not continue their study was because higher education level was expensive [23]. According to Muhammed Abdul Khalid, the liberalization in terms of fees in public universities would have an impact towards the poor [24]. This finding is supported by other study findings which stated that these homeless people earn a low income job. They also hold small-scaled jobs paid with a meagre salary, for example picking up stuff such as cans or tins, arranging files, taking care of parking lots, helping friends in bundle shops, being a security guards, retail shop assistants, masseurs and sweepers [17, 25]. In fact, many studies including this study found that some of them were not paid for the job that they were hired for [12, 17, 25]. According to Mohamad et al., there were some employers who take advantage against this group, by not paying them accordingly [12].

Majority of the homeless people in this study were smokers, which is higher than overall Malaysians, i.e. 22.8% adults (aged > 15) or 43% of men smoked [26]. Majority of them did not consume alcohol. This finding was similar to the data from the Department of Welfare (Jabatan Kebajikan Masyarakat) which found that only 0.5% of the homeless population were alcoholic [27].

More than half of the respondents in this study had diseases with half of them having chronic diseases. According to Emma Woolley there were at least 85% of homeless people reported having chronic health problems such as asthma, bronchitis, hypertension with diabetes and diabetes [28]. However, most of the previous studies conducted in Malaysia emphasized mental health over other illnesses. On the other hand, infectious disease such as HIV were also found among this homeless population. Almost one fifth of the respondents were found to be HIV positive. Referring to Global Aids Response Progress Report Malaysia 2015, 11.7 cases per 100,000 Malaysian populations were HIV positive [29]. This finding is supported by a number of previous studies. National Coalition for The Homeless stated that the prevalence of HIV among homeless people was between 3 and 20%, and people living with HIV / AIDS were at higher risk of becoming homeless [8]. National Coalition for the Homeless and Kidder et al. found in their studies that homeless population has three times risk in getting HIV disease compared to the general population [8, 30]. This is supported by Hwang's findings, who mentioned that they had the potential to be exposed with infectious

Social Welfare and many other foundations. Kaye et al. reported that community assistant was very much related to respondents' socio-economic factors [34].

Fazel et al. showed that morbidity and mortality rate were higher among the homeless people [35]. In this study, it was found that having disabilities and had history of taking drugs significantly associated with health services financier among homeless besides depending on their own income. A study conducted in United States reported that health care assistance for HIV patients was available for almost 99% of HIV patients including the homeless people [35]. Kidder also mentioned that community clinics were among the services provided for the homeless communityhoenz7h HIVWelfar%con535.4(h401t6dy)m communStatpe12.51(-(81.5(HIV)]TJ0-