Factors Associated with Psychological Distress of Online Drivers in Medan Regency, North Sumatera, Indonesia

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Abstract

BACKGROUND: In developing countries, public health issues that are often discussed about psychological distress can be characterized by anxiety, sadness, stress, depression, and confusing feelings. Online drivers have the potential to experience the stress of psychological distress. The individual is faced with various pressures from work or family such as competition between transportation to get passengers daily, long working time to achieve the target leads, the obligation to pay off the loan, and responsibilities to family needs often cause stress.

METHODS: This study was a multivariate type of predictive analysis to finding out factors associated with GHQ-12 scores of the online drivers with 110 samples who have fulfilled inclusion and exclusion criteria.

RESULTS: Found the factors associated with psychological distress that is marital status, number of family members, length of education, working experience, age, length of work/day, daily target achievement, and total income/month of online drivers.

CONCLUSION: From the results of this study, it was found that the most associated factors with psychological distress scores are total income/month.

Background

Considering worldwide data, ±12 million people die every year where professional drivers such as truck drivers, bus drivers, and taxi drivers are more susceptible to it than drivers in the general population due to differences in stress levels while driving [1]. Work-related stress contributes to detriment mental health outcomes where otherwise being handled properly will lead to more serious problems, psychological stress occurs when an individual feels that the demands of the environment exceed its adaptive capacity [2].

Online drivers or also referred to as a dedicated rental transport driver is an individual who provides door-to-door transportation services with bookings by passengers from information technology-based applications with the number of fares listed in the application [3]. Online drivers have many regulations from companies that must be met starting from the terms to become an online driver [4] high crime rates against drivers [5], higher cost living is not comparable to income [6], and in general, the driver is closely related to fatigue to drowsiness while driving, stress due to work, psychic and psychological symptoms and health disorders such as low back pain [7].

Responses can be prolonged stress and anxiety to depression. The stress that arises in line with the many supporting factors such as long working hours, reduced incomes that impact the economy, marital status, and length of education [8].

Length of work/day is related to psychological distress because it is one part of the demands of work for a worker, including online drivers that are done daily in addition to the amount of competition between fellow workers to earn income or reward and mobilization of high jobs that can cause stress and affect the mental health of the worker beside that marital status and age are also associated with stress levels psychological high where every day more drivers spend time on the highway driving or waiting for passengers by paying attention to special service applications on their respective mobile phones car drivers online at the base of roadside compared to family. The length of education is related to psychological stress where education is assumed to be a buffer against a person's ability to the effects of stressor that could occur in his life such as on the young adults with low education compared to more susceptible to stress, for example, related to the economy. Ethnic is a person's cultural background that reflects the role of someone in social life. This factor is also considered to affect psychological distress and stress in the person [9].

Amount of income/month is related to the number of family members considered to be an important factor associated with psychological distress proven by every worker who has or unmarried have daily life needs that must be met for his family, so it is considered that the amount of income is a low economic burden on workers. Being the breadwinner of the family means a person who is the subject of strength in the family in this case to economic needs in which the person becomes a source of income family finance and had car credit or other credit factors can affect a person's psychosocial, the other credit in question can be in the form of other goods such as money, electronic goods, household furniture items, motorcycles or other goods that are needed, this is considered to be burdensome including online drivers so that they can make they will work more to cover these expenses in addition to the need for other stress-causing [1].

Achievement of daily targets, especially in online drivers which is divided into several points and amounts of income from each target that may vary depending on the policies of the dedicated rental transport company. Even if the higher target in the amount of income earned but found to be contributing to the susceptibility to stress is higher because in a day of online drivers must get the number of passengers who have determined by the company so that it must pursue such targets in the event of income or cover the car's expenses such as gasoline, car damage or periodic car inspections, if only expect from the amount of income given by the passenger either in cash or through the third parties that hold money deemed insufficient to cover such expenses [4].

More specifically, in the West Ontario region, Canada, the prevalence of psychological distress using the General Health Questionnaire-12 scale on 4395 drivers reported men were-aged 35-54 (OR=0.99), marital status who never married (OR=1.60), and income of \$30,000–\$49,999 (OR=0.59) compared with income <\$30,000 and respondents who completed high school (OR=1.73) showed positive correlation as significant predictors of stress [6].

One study with a cross-sectional survey in Australia on 380 waiting taxi drivers of passengers at Melbourne Airport using the Kessler Psychological Distress Scale (K10) found that prevalence of very high psychological distress on 101 respondents (28.3%) with nearly every day contact with family (56.9%) were stressor by night shift (0R=1.62), beaten up badly (OR=3.03), and had experienced with more than three traumatic events (OR=4.29) [5].

In Colombia, among 3665 drivers using the Colombian Version of Job Content Questionnaire and General Health Questionnaire-12 scale, observed related factors to psychological stress were age (p = −0.034), gender (p = −0.026). In contrast, hourly intensity (p = −0.06) and social support (p = −0.117) had unrelated factors to be a stressor of the psychological distress of drivers [2].

Methods

Study participants

All of the participants were men which included arrival and waiting driver as participants; they are 19–45 years were approached and given an informative explanation about the study. This study made use of the following inclusion criteria: (1) Men who are working as online drivers using two public transportation applications, (2) online drivers between the ages of 19–45 years old, (3) those capable of speaking the Indonesian language, (4) those capable of reading and writing, (5) cooperative and interview-able online drivers, and (6) those willing to participate in the study, confirmed by signing consent to participate in the study both by subjects. While the exclusion criteria used in carrying out this study were: (1) Online drivers who had other jobs and (2) who have physical weaknesses such as blindness and deafness. The study was done after the authors were granted ethical clearance from the Health Research Ethical Committee of the Faculty of Medicine, Universitas Sumatera Utara, with number 199/TGL/KEPK FK USU-RSUP HAM/2020.

Measurements

Outcome

This study was a multivariate linear regression analysis with a cross-sectional approach to assessing the relationship of interesting variables and GHQ-12 scores of the online drivers in Medan Baru sub-district, Medan Regency, North Sumatera, Indonesia. This study used the Indonesian version of GHQ-12 that was validated by Sri Idaiani and Suhardi with sensitivity and specificity value 67.8% and 74.75% and Cronbach's alpha of 0.670–0.776 (>0.600) was obtained. The 12-Item GHQ was the gold standard used for screening instruments of psychological symptoms to assess current anxiety and depressive symptoms in population surveys. The customary type of scores used a 4-point Likert-type scale (0-1-2-3) divided into four categories; 0 for better than usual, 1 for the same as usual, 2 for less than usual, and 3 for much less than usual with optimum limit scores is 7/8 (7.5) to detect psychiatric problems within 2 weeks [9].

Variables

This study featured in three domain categorical were sociodemographic factors (age, marital status, length of education, number of family members, being the breadwinner of the family, and ethnic), working situations (working experience, length of work/day, daily target achievement, and total income/month), and financial problem (had car credit and had another credit) were exposure variables of interest that

chosen by related to psychological distress based on experience [5], [6], [7].

Statistical methods

A descriptive study with cross-sectional studies was used in carrying out this study. Bivariate analysis for categorical variables used Pearson test and numerical variables used t-test analysis, they have assessed the relationship of exposure variables and psychological distress scores. All variables having complete data. For multivariate linear regression analysis, 12 variables for the prevalence of psychological distress were carried out into clustering to find the most associated variable in men. When conducting linear regression analysis, in addition to numeric-numeric correlative correlation, there are also nominal-numeric correlation categorical variables there was marital status, ethnicity, being the breadwinner of the family, daily target achievement, had car credit, and had other credit variables than for linear regression analysis made dummy variables that will later be included in the linear regression analysis. Dummy variables can be created manually or using SPSS. Based on considerations in this study, dummy variables were created by using SPSS version 23. To create a dummy variable, first specify a comparison category. Here the variable stipulated as a comparison is an unmarried status, non-Batak, not being the breadwinner of the family, target 18 orders (Rp. 140.000), no car credit, and no other credits. In this study, one dummy variable was created for each dummy variable because the categorical data consisted of two groups with multivariate analysis results were age (p = 0.015), marital status (p = 0.001), length of education (p = 0.017), number of family members (p = 0.026), working experience (p = 0.046), length of work/day (p < 0.001), daily target achievement (p = 0.009), and total income/month (p < 0.001).

Results

Characteristics of respondents

From Table 1, it shows that in 110 male subjects who had been agreed to take part in this study, From Table 1, it can be observed that most characteristics of respondents were married (53.6%), Batak (52.7%), being the breadwinner of their family (58.2%), got daily target achievement in 14 orders (70.0%), have car credit (50.9%), had another credit (60%), besides that, the characteristics of respondents ranged from 18 to 45 years old with the length of education between 9 and 17 years, they have 2 and 7 number of family, the working experience was 1 and 6 years, length of work/day was until 9 and 16 h, and also total income/month 2.8 and 7 million rupiahs.

Table 1: Demographic characteristics of online drivers

Respondents characteristic	Median (min-max)	n (%)
Male		
Age	32 (19–45)	
Marital status		
Marriage		59 (53.6)
Single or widow		51 (46.4)
Ethnic		
Batak		58 (52.7)
Non-Batak		52 (47.3)
Length of education	15 (9–17)	
Number of family members	4 (2–7)	
Being the breadwinner of the family		
Yes		64 (58.2)
No		46 (41.8)
Working experience	3 (1–6)	
Length of work/day	11 (9–16)	
Daily target achievement		
14 orders (Rp. 120.000)		77 (70)
18 orders (Rp. 140.000)		33 (30)
Total income/month	5.0 (2.8–7)	
Have car credit		
Yes		56 (50.9)
No		54 (49.1)
Had another credit		
Yes		66 (60)
No		44 (40)

Bivariate analysis of psychological distress

Table 2 showed that all variables were related to psychological distress scores of GHQ-12 questionnaires. Therefore, they were eligible to continue linear regression multivariate analysis with a predictive concept.

Table 2: Bivariate analysis of psychological distress score with 12 variables

Male	p	
Marital status		
Marriage	10.10 ± 3.60[a]	0.016*
Single or widow	11.67 ± 3.04[a]	
Ethnic		
Batak	10.03 ± 3.29[a]	0.010*
Non-Batak	11.71 ± 3.40[a]	
Being the breadwinner of the family		
Yes	11.81 ± 3.12[a]	<0.001*
No	9.46 ± 3.40[a]	
Daily target achievement		
14 orders (Rp. 120.000)	11.30 ± 3.31[a]	0.027*
18 orders (Rp. 140.000)	9.73 ± 3.51[a]	
Car credit		
Yes	10.18 ± 3.63[a]	0.043*
No	11.50 ± 3.10[a]	
Had another credit		
Yes	11.56 ± 2.96	0.006*
No	9.73 ± 3.81	
Age	0.23[b]	0.017**
Number of family members	0.28[b]	0.003**
Length of education	0.23b[b]	0.016**
Working experience	−0.24[b]	0.012**
Length of work/day	0.50[b]	<0.001**
Total income/month	−0.34[b]	<0.001**

*t independent test. **Pearson test. [a]Mean±SD. [b]Correlation (r).

Multivariate analysis of psychological distress

Table 3 can be concluded that significant associations were found between psychological distress and variables of age, length of education, the number of family members, length of work/day, working experience, total income/month, marital status, and daily target achievement for online drivers (p < 0.05) in Medan, Indonesia. Descriptively it appears that length of work/day variables has the highest correlation coefficient to psychological distress scores (p < 0.001). There were no significant associations found with

Table 3: Multivariate analysis of factors associated with psychological distress in online drivers

Psychological distress	Correlation coefficients	Multivariate regression β	p
Constant		2.50	0.033
Age	0.185	0.10	0.015
Length of education	0.100	0.15	0.017
Number of family members	0.085	0.21	0.026
Length of work/day	0.442	0.70	<0.001
Working experience	−0.146	−0.37	0.046
Total income/month	−0.338	−1.00	<0.001
Marital status	0.111	0.76	0.013
Daily target achievement	−0.124	−0.92	0.009

Adjusted R^2= 47.1%

being the breadwinner of the family (p ≥ 0.05), ethnic (p ≥ 0.05), had car credit (p ≥ 0.05), and had credit besides car credit (p ≥ 0.05) variables and psychological distress.

Discussion

The results of this study using 110 subjects found that the most related variables of psychological distress were the length of work/day (p < 0.001) and total income/month (p < 0.001). Similar results were also found in the studies carried out by Evans *et al*. [10], which found the length of work/day to be the most related for psychological distress factors. A study conducted by Mann *et al*. [6] in Ontario, Canada found that there is a factor of being psychological distress for online drivers using the GHQ-12 questionnaire (p < 0.01) was total income/month, which is <$2,500. Other variables were also related to psychological distress, such as age (p = 0.015); this result similar to studies conducted by Useche *et al*. [2] in Colombia drivers found there was a negative correlation between age and psychological distress with the GHQ-12 questionnaire (p = −0.034) and length of education (p = 0.017); this result similar to studies conducted by Hilton *et al*. [8] found that the length of education is related to psychological distress (p < 0.001) and number of family members (p = 0.026); this result similar to studies conducted by Davidson *et al*. [5] found that number of family members is related to psychological distress with CI 95% (64.08–78.62), working experience (p = 0.046), marital status (p = 0.013), and daily target achievement (p = 0.009) for online drivers. A study conducted by Bhattacharyya *et al*. [11] found from 601 men aged 30–75 years in Goa, India, that total income/month (p = 0.112), length of education (p = 0.370), and marital status (p = 0.142) were unrelated factors with psychological distress.

Regulations of taxi operation are often associated with taxi drivers such as service hours, travel routes, length of operation, income, and the requirements for drivers and vehicles too [12]. Mental state during work can lead to a variety of stressful experiences, temporary or over time [13]. Stress is the main cause of their poor health and they associate it with a variety of problems. High blood pressure, high cortisol, high adrenaline, high noradrenaline, high triglyceride, high glucose, high low-density lipoprotein cholesterol, and decreases high-density lipoprotein cholesterol as a sign of the increase in neuroendocrine hormones observed among drivers can lead to atherosclerosis, musculoskeletal pain, gastrointestinal problems, and strokes until ischemic heart disease [13], [14]. Unhealthy habits can be the beginning of frequent health problems among drivers. The lack of recreational time and lack of rest time changed their lifestyle [15]. Something else came from poor working conditions that led to the development of the habit. Long working hours a day and the number of working days a week give rise to a little movement, dwell with static movements in the car, irregular meal times even after work of 10 h or more, they do not have time to rest properly such as sleeping or eating quietly [16]. However, at least in terms of earnings and working hours require further research to better assess them to get accurate results [17].

Strengths and limitations

To the best of our knowledge, this study is the first one published factors associated with psychological distress among online driver attendees in Indonesia. The lack of this study is a self-reporting questionnaire where the subject in this study fills out their questionnaire given so that the results were subjective then there is a possibility in questionnaire filling the subject does not fill according to their actual state. This study set was on attendees to online drivers in Medan Baru sub-district and may not apply to populations from Medan Regency.

Conclusions

Psychological distress, the burden of disease, and disability should be a priority of public mental health in various areas of study, especially for developing countries. This research shows that the high psychological pressure on workers, especially those working on the road, becomes online drivers. From the result, it was expected that online drivers partnership might pay more attention to factors related to psychological distress, especially in the long working/day factor and the achievement of daily targets where it is hoped that the company can set better policies for online drivers in the form of a decrease in the number of targets that must be achieved every day to lower the long working/day factor to reduce stress levels in online drivers. By knowing the factors associated with psychological distress, it is hoped that clinicians can be more aware by providing counseling guidance such as advocating for online drivers seeking support from family or people nearby, looking for time to rest and

stretch if there are no passengers, or set a comfortable driving position for the driver to cope with the stress experienced. There is still a need for longitudinal research to look for other factors that can increase psychological distress to clarify the relationship.

References

1. Poó FM, Ledesma RD, López SS. The taxi industry: Working conditions and health of drivers, a literature review. Transp Rev. 2018;38(3):394-411. https://doi.org/10.1080/01441647.2017.1370035

2. Useche SA, Cendales B, Montoro L, Esteban C. Work stress and health problems of professional drivers: A hazardous formula for their safety outcomes. PeerJ. 2018;6:e6249. https://doi.org/10.7717/peerj.6249
   PMid:30595994

3. Regulation of the Minister of Transportation of the Republic of Indonesia Resources Pages. The Implementation of Special Rental Transportation. Available from: https://www.peraturan.bpk.go.id/Home/Details/104386/permenhub-no-118-tahun-2018. [Last accessed on 2020 Apr 15].

4. PT GOJEK Resources Pages. Go Car. Available from: https://www.gojek.com/app/kilat-contract. [Last accessed on 2020 Apr 10].

5. Davidson S, Wadley G, Reavley N, Gunn J, Fletcher S. Psychological distress and unmet mental health needs among urban taxi drivers: A cross-sectional survey. Aust N Z J Psychiatry. 2018;52(5):473-82. https://doi.org/10.1177/0004867417741556
   PMid:29185352

6. Mann RE, Asbridge M, Stoduto G, Smart RG, Goldbloom DS, Vingilis E, *et al*. Psychological distress and collision involvement among adult drivers. Stress Heal. 2010;26(2):127-34. https://doi.org/10.1002/smi.1274

7. Santos JA, Lu JL. Occupational safety conditions of bus drivers in Metro Manila, the Philippines. Int J Occup Saf Ergon. 2016;22(4):508-13.
   PMid:27093582

8. Hilton MF, Whiteford HA, Sheridan JS, Cleary CM, Chant DC, Wang PS, *et al*. The prevalence of psychological distress in employees and associated occupational risk factors. J Occup Environ Med. 2008;50(7):746-57. https://doi.org/10.1097/jom.0b013e31817e9171
   PMid:18617830

9. Drapeau A, Marchand A, Beaulieu-Prevost D. Epidemiology of psychological distress. In: Mental Illnesses Understanding, Prediction and Control. London: IntechOpen; 2012. https://doi.org/10.5772/30872

10. Evans D, Mallet L, Flahault A, Cothereau C, Velazquez S, Capron L, *et al*. The importance of both workplace and private life factors in psychological distress: A large cross-sectional survey of French railway company employees. Soc Psychiatry Psychiatr Epidemiol. 2013;48(8):1211-24. https://doi.org/10.1007/s00127-012-0605-7
    PMid:23086586

11. Bhattacharyya M, Marston L, Walters K, D'Costa G, King M, Nazareth I. Psychological distress, gender, and dietary factors in South Asians: A cross-sectional survey. Public Health Nutr. 2014;17(7):1538-46. https://doi.org/10.1017/s136898001300147x
    PMid:23768422

12. Sun Z, Yu M, Zeng J, Wang H, Tian Y. Assessment of the Impacts of App-Based Ride Service on Taxi Industry: Evidence from Yiwu city in China. Transportation Research Board, Archived Meeting Content; 2017.

13. Bawa MS, Srivastav M. Study the epidemiological profile of taxi drivers in the background of occupational environment, stress, and personality characteristics. Indian J Occup Environ Med. 2013;17(3):108-13. https://doi.org/10.4103/0019-5278.130855
    PMid:24872669

14. Gany FM, Gill PP, Ahmed Z, Acharya S, Leng J. Every disease man can get can start in this cab: Focus groups to identify South Asian taxi drivers' knowledge, attitudes, and beliefs about cardiovascular disease and its risks. J Immigr Minor Health. 2013;15(5):986-92. https://doi.org/10.1007/s10903-012-9682-7
    PMid:22843321

15. Yang Y, Fan X, Tian C, Zhang W, Li J, Li S. Health status, intention to seek health examination, and participation in health education among taxi drivers in Jinan, China. Iran Red Crescent Med J. 2014;16(4):e13355. https://doi.org/10.5812/ircmj.13355
    PMid:24910797

16. Wang PC, Delp L. Health status, job stress, and work-related injury among Los Angeles taxi drivers. Work 2014;49(4):705-12. https://doi.org/10.3233/wor-131696
    PMid:24004750

17. Wood Z, Parry G, Carruthers J, Rose K. Assessing the Impact of Digital Innovations in the London Transportation Network. Project Report. UWE Repository; 2017.