Article

Status and Determinants of Symptoms of Anxiety and Depression among Food Delivery Drivers in Shanghai, China

Yuxun Peng 1,†, Yuqing Shao 1,‡, Ziyun Li 1,2, Ruian Cai 1, Xiaochen Bo 1, Chen Qian 1, Qiao Chu 1, Jiang Chen 3,* and Jianwei Shi 4,5,*

1 School of Public Health, Shanghai Jiaotong University School of Medicine, Shanghai 200025, China  
2 Department of Sports Medicine, Shanghai Jiao Tong University Affiliated Sixth People’s Hospital, Shanghai 200233, China  
3 Shanghai Baoshan District Yanghang Town Community Health Service Center, Shanghai 201901, China  
4 Department of General Practice, Yangpu Hospital, Tongji University School of Medicine, Shanghai 200090, China  
5 Department of Social Medicine and Health Management, School of Public Health, Shanghai Jiaotong University School of Medicine, Shanghai 200025, China  
* Correspondence: chenluo3157@163.com (J.C.); shijianwei_amy@126.com (J.S.); Tel.: +86-188-1820-9852 (J.S.)  
† These authors contributed equally to this work.

Abstract: (1) Background: The psychological status of employees, especially vulnerable populations, has received considerable research attention. However, as a newly emerging and popular occupation in the gig industry, food delivery drivers have received little attention. The majority of these workers are immigrants who are already in a precarious position due to a lack of available jobs, inadequate medical care, poor diets, and communication and acculturation difficulties even before they take these jobs, which involve long working hours and exposure to the elements. (2) Methods: To examine the anxiety and depression symptoms of these workers and possible influencing factors, a cross-sectional study was conducted with a sample of food delivery drivers working for the Meituan Company (one of the largest e-platform companies in China). Anxiety and depression scales were adapted from the GAD-7, and the PHQ-9 was used to assess participants’ related symptoms. Differences were compared in terms of sociodemographic, work situation, and lifestyle variables. Binary logistic regressions were conducted to analyze the effects of various factors on the two psychological dimensions. (3) Results: Among the 657 participants, the proportions of participants reporting anxiety and depression symptoms were 46.0% and 18.4%, respectively. Lack of communication with leaders (OR

About: 1.1528–4.493, p < 0.001; OR

DE

= 1.928, 95% CI: 1.039–3.577, p = 0.037) and poor sleep quality (OR

AN

= 2.152, 95% CI: 1.587–2.917, p < 0.001; OR

DE

= 2.420, 95% CI: 1.672–3.504, p < 0.001) were significant risk factors for both anxiety and depression symptoms. Women (OR = 2.679, 95% CI: 1.621–4.427, p < 0.001), those who climbed ≥31 floors per day (OR = 2.415, 95% CI: 1.189–4.905, p = 0.015), and those with a high frequency of breakfast consumption (OR = 3.821, 95% CI: 1.284–11.369, p = 0.016) were more likely to have anxiety symptoms. Participants who earned less than 5000 RMB (OR = 0.438, 95% CI: 0.204–0.940, p = 0.034), were unwilling to seek medical help (OR = 3.549, 95% CI: 1.846–6.821, p < 0.001), or had a high frequency of smoking (OR = 5.107, 95% CI: 1.187–21.981, p = 0.029) were more likely to be depressive. (4) Conclusion: The existence of communication channels with leaders and good sleep quality are protective factors for anxiety and depression symptoms. Participants who were female, climbed ≥31 floors per day, and had a high frequency of eating breakfast were more likely to have anxiety symptoms, while earning less, unwillingness to seek medical help, and a high frequency of smoking were risk factors for depression symptoms.

Keywords: work-related factors; anxiety; depression; influencing factor
1. Introduction

Adverse psychological health conditions exist in all professions, with common conditions being stress, depression, and anxiety. Up to 41% of the general population will suffer from depression in their lifetime [1]. The lifetime prevalence of anxiety disorders is 3.8–33.7%, and, given comorbidities and primary diagnoses, anxiety disorders constitute three-quarters of all psychiatric disorders [2]. Existing studies have shown that a high level of burnout could have detrimental effects on behavioral and organizational outcomes [3]. Regarding the possible reasons, researchers have found that organizational injustice and restructuring, long working hours, and work–life imbalance are potential causes of depression among working people. For instance, in studies by Tokuyama et al. (2003) [4] and Wieland et al. (2006) [5], aspects of the psychosocial work environment, such as effort–reward imbalance, organizational injustice, and undesirable work events, were associated with an increased risk of depression or depressive symptoms. Lorant’s study (2003) identified low socioeconomic status as a risk factor for major depression [6]. Studies have shown an increase in depression in obese individuals [7,8]. One study concluded that a diet that emphasizes fruits can reduce the risk of depression [9]. In addition, Marianna et al. (2012) found strong evidence that age (early or mid-adulthood), female sex, binge drinking, smoking, low socioeconomic status, and negative stressful life events were predictors of depression [10,11]. Fried et al. (2014) found that women were more likely to have physical symptoms such as fatigue, sleep problems, and appetite problems, while men were more likely to have suicidal thoughts [12,13]. Nathaniel et al. (2015) found that poor sleep quality may increase both anxiety and depression symptoms [14]. In Virtanen’s study (2011), long working hours increased the risk of various adverse outcomes, including psychological distress and symptoms of depression and anxiety [15].

Among the various occupations, food delivery driving represents a novel vocation in the gig economy, especially in developed and developing countries with high e-platform development. Existing studies have focused on delivery persons and Uber drivers and found that the characteristics of food delivery drivers have some similarities but differ in that they are mostly part-time and may be mentally healthier than traditional workers because they have greater decision-making capabilities, enabling them to overcome difficulties and enjoy more activities of their choosing; they also have lower psychological strain and higher confidence and self-worth [16,17]. However, other reports have shown that they have worse general mental health and lower job satisfaction than permanent employees [18,19].

These workers are also set apart from more typical delivery staff by other characteristics; most of them are migrants who eat irregularly [20], get less sleep, have inferior health insurance, and are less likely to have a career direction [21], according to Jin et al.’s study (2020). Similarly, Dütsch (2011) noted that because food delivery drivers mostly work on a temporary basis, they lack career prospects, which increases their work stress and is conducive to anxiety [19]. Furthermore, when delivering food, they mostly use electric bikes, which are open to the elements and leave them susceptible to the weather and a poor working environment [22]. They have the added pressure of being forced to deliver food quickly, and, if they are late, they may be fined.

To our knowledge, there is no quantitative analysis of food delivery drivers’ mental health and its influencing factors. To understand the current psychological status of food delivery drivers, this study aims to investigate the occupational mental health and depression of food delivery drivers and to identify the possible influencing factors. We hope to improve the psychological status of vulnerable food delivery drivers in China.

2. Materials and Methods

2.1. Data Source

In this study, subjects were enrolled from the Meituan Company in Shanghai. Meituan offers services on an e-commerce platform, with takeaway service as its primary offering. Currently, Meituan has a dominant position in the market for online food and beverage
takeaway. In 2020, the e-platform had nearly three million food delivery drivers, and, in the fourth quarter of 2021, the peak order volume of Meituan takeaway exceeded 50 million orders per day [23]. After this study was explained to human resources personnel, participants were randomly chosen by their job numbers. The inclusion criteria were as follows: (1) relevant work experience (over a month on the job) as food delivery drivers, and (2) voluntary participation in the survey. An online questionnaire was designed, and the survey was conducted via mobile devices from July through August 2021. A total of 783 questionnaires were distributed; 657 were valid, for a valid response rate of 83.9%.

2.2. Measures

The data collection consisted of a self-report survey completed by food delivery drivers that covered sociodemographic variables, work situation, lifestyle, and psychological status.

2.2.1. Outcome Variables

The outcome variables of psychological status (anxiety and depression) in this study were designed on the basis of the Generalized Anxiety Disorder 7-Item Scale (GAD-7) [24] and Patient Health Questionnaire-9 (PHQ-9) [25], respectively. The GAD-7 is a self-rating measure used to assess general anxiety disorder, with a score range of 0–21 [24,26]. The PHQ-9 is the most widely used instrument for screening depression in primary healthcare [27,28], with a total score of 27. For both scales, a score of 10 or more is considered a positive cutoff point for screening, with high sensitivity and specificity [24,28–30].

To better target the participants, we specified the GAD-7 regulations and fine-tuned the expression of the PHQ-9. Outcomes were presented on a scale with 10 items representing anxiety and nine items representing depression, each of which was scored on a five-point Likert scale (1 = “never”, 2 = “seldom”, 3 = “sometimes”, 4 = “often”, 5 = “always”). Two numbers equal to 10 points on the original scales were taken as cutoffs (24 for anxiety and 17 for depression, converted in equal proportions).

The final KMO coefficients for the anxiety and depression dimensions were 0.954 and 0.958, respectively, and the significance probability values for Bartlett’s sphericity test were both <0.001, indicating that the scale had high construct validity and was suitable for factor analysis. The AVE values for the psychological dimensions of anxiety and depression were 0.764 and 0.826, respectively, and the CR values were 0.970 and 0.977, respectively, indicating high convergent validity. The square root of the AVE for the two was 0.874 and 0.909, respectively, both greater than the maximum value of the absolute value of the inter-factor correlation coefficient of 0.507, indicating good discriminant validity. Additionally, the Guttman split-half coefficients were 0.943 and 0.944, respectively, indicating good reliability of the two scales.

2.2.2. Independent Variables

The independent variables were as follows: (1) demographics, including gender (male, female), age (≤29, 30–39, and ≥40 years), household registration (Shanghai and other), education (junior high school or less, senior high school, junior college, and undergraduate or more), monthly household income (<5000, 5000–9999, and ≥10,000 RMB), BMI (<18.5, [18.5, 24.0), [24.0, 28.0), ≥28.0 kg/m²), medical insurance (Shanghai urban medical insurance, other cities’ urban medical insurance, new rural cooperative medical insurance, commercial medical insurance or other, and no insurance), marital status (unmarried, married, and divorced/widowed), living with family members (yes and no), and willingness to seek medical care (yes and no); (2) work situation, including work type (part-time and full-time), work years (<5 and ≥5 years), daily working hours (<8, 8–10, and ≥11 h), communicating with leaders (yes and no), floors climbed per day (≤10, 11–20, 21–30, and ≥31 floors), transportation (bike, electric bike/motorbike, and van/car/other), and food delivering distance (≤25, 25–50, 51–75, and ≥76 km/day); (3) lifestyle, including daily sleeping time (≤6, 7–8, and ≥9 h), sleep quality (continuous variable, with higher scores indicating poorer sleep quality), regularity of meals (never, seldom, sometimes, often, and
always), frequency of breakfast (never, seldom, sometimes, often, and always), eating fruit (never, 1–2, 3–4, 5–6, and \( \geq 7 \) times/week), smoking (never, seldom, sometimes, often, and always), and drinking (never, seldom, sometimes, often, and always).

2.3. Statistical Analysis

SPSS 26.0 software was used in this study. Descriptive statistical analysis methods and chi-square tests were used to analyze whether there were differences among the various influencing factors. Binary logistic regression analysis was performed to screen factors associated with anxiety and depression symptoms and calculate ORs (odds ratios) and their 95% CIs (confidence intervals). All analyses were considered statistically significant at \( p < 0.05 \) (two-tailed).

3. Results

3.1. Basic Information

As shown in Table 1, among the 657 participants, most were male \((n = 467, 71.1\%)\), younger than 30 years old \((n = 475, 72.3\%)\), unmarried \((n = 439, 66.8\%)\), and with a household registration outside Shanghai \((n = 459, 69.9\%)\).

| Table 1. Descriptive analysis of participants. |
|-----------------------------------------------|
| Item                             | Classification | N (% ) | p-Value |
|-----------------------------------------------|
| Demographics                       |                |        |             |
| Age (year)                         | \( <29 \)     | 475 (72.3) | 353 (75.6) | 122 (64.2) | \(<0.001\) |
|                                  | 30–39          | 124 (18.9) | 85 (18.2) | 39 (20.5) |
|                                  | \( \geq 40 \)  | 58 (8.6) | 29 (6.2) | 29 (15.3) |
| Household registration            | Shanghai       | 198 (30.1) | 142 (30.4) | 56 (29.5) | 0.813 |
|                                  | Other          | 459 (69.9) | 325 (69.6) | 134 (70.5) |
| Education                         | Junior high school or less | 140 (21.3) | 100 (21.4) | 40 (21.1) | 0.150 |
|                                  | Senior high school | 154 (23.4) | 120 (25.7) | 34 (17.9) |
|                                  | Junior college  | 159 (24.2) | 110 (23.6) | 49 (25.8) |
|                                  | Undergraduate or more | 204 (31.1) | 137 (29.3) | 67 (35.3) |
| Monthly household income (RMB *)   | \(<5000 \)     | 152 (23.1) | 92 (19.7) | 60 (31.6) | 0.005 |
|                                  | \( 5000–9999 \) | 249 (37.9) | 191 (40.9) | 58 (30.5) |
|                                  | \( \geq 10,000 \) | 187 (28.5) | 137 (29.3) | 50 (26.3) |
|                                  | Unknown        | 69 (10.5) | 47 (10.1) | 22 (11.6) |
| BMI (kg/m\(^2\))                  | \(<18.5 \)     | 65 (9.9) | 28 (6.0) | 37 (19.5) | \(<0.001\) |
|                                  | \[18.5, 24.0\] | 373 (56.8) | 264 (56.5) | 109 (57.4) |
|                                  | \[24.0, 28.0\] | 153 (23.3) | 122 (26.1) | 31 (16.3) |
|                                  | \( \geq 28.0 \) | 66 (10.0) | 53 (11.3) | 13 (6.8) |
| Medical insurance                 | Shanghai urban medical insurance | 197 (30.0) | 143 (30.6) | 54 (28.4) | 0.371 |
|                                  | Other cities’ urban medical insurance | 188 (28.6) | 125 (26.8) | 63 (33.2) |
|                                  | New rural cooperative medical insurance | 92 (14.0) | 65 (13.9) | 27 (14.2) |
|                                  | Commercial medical insurance or other | 109 (16.6) | 78 (16.7) | 31 (16.3) |
|                                  | No insurance   | 71 (10.8) | 56 (12.0) | 15 (7.9) |
| Marital status                    | Unmarried      | 439 (66.8) | 335 (71.7) | 104 (54.7) | \(<0.001\) |
|                                  | Married        | 165 (25.1) | 98 (21.0) | 67 (35.3) |
|                                  | Divorced/widowed | 53 (8.1) | 34 (7.3) | 19 (10.0) |
| Whether living with family members | Yes            | 417 (63.5) | 287 (61.5) | 130 (68.4) | 0.093 |
|                                  | No             | 240 (36.5) | 180 (38.5) | 60 (31.6) |
| Item | Classification | Total | Male | Female | p-Value |
|------|----------------|-------|------|--------|---------|
| **Willing to seek medical care** | Yes | 563 (85.7) | 405 (86.7) | 158 (83.2) | 0.237 |
| | No | 94 (14.3) | 62 (13.3) | 32 (16.8) | |
| **Work situation** |  |  |  |  |  |
| Work type | Part-time | 397 (60.4) | 266 (57.0) | 131 (68.9) | 0.004 |
| | Full-time | 260 (39.6) | 201 (43.0) | 59 (31.1) | |
| Work years (years) | <5 | 509 (77.5) | 353 (75.6) | 156 (82.1) | 0.070 |
| | ≥5 | 148 (22.5) | 114 (24.4) | 34 (17.9) | |
| Daily working hours (h) | <8 | 302 (46.0) | 197 (42.2) | 105 (55.3) | 0.002 |
| | 8–10 | 263 (40.0) | 193 (41.3) | 70 (36.8) | |
| | ≥11 | 92 (14.0) | 77 (16.5) | 15 (7.9) | |
| Communication channels with leaders | Yes | 527 (80.2) | 376 (80.5) | 151 (79.5) | 0.762 |
| | No | 130 (19.8) | 91 (19.5) | 39 (20.5) | |
| Floors climbed per day (floor) | ≤10 | 260 (39.6) | 169 (36.2) | 91 (47.9) | <0.001 |
| | 11–20 | 193 (29.4) | 131 (28.1) | 62 (32.6) | |
| | 21–30 | 103 (15.7) | 79 (16.9) | 24 (12.6) | |
| | ≥31 | 101 (15.4) | 88 (18.8) | 13 (6.8) | |
| Transportation | Bike | 72 (11.0) | 59 (12.6) | 13 (6.8) | 0.079 |
| | Electric bike/motorbike | 539 (82.0) | 374 (80.1) | 165 (86.8) | |
| | Van/car/other | 46 (7.0) | 34 (7.3) | 12 (6.3) | |
| Food delivery distance (km/day) | ≤25 | 168 (25.6) | 119 (25.5) | 49 (25.8) | 0.003 |
| | 25–50 | 215 (32.7) | 136 (29.1) | 79 (41.6) | |
| | 51–75 | 153 (23.3) | 113 (24.2) | 40 (21.1) | |
| | ≥76 | 121 (18.4) | 99 (21.2) | 22 (11.6) | |
| Lifestyle | Daily sleeping time (h) | ≤6 | 218 (33.2) | 144 (30.8) | 74 (38.9) | 0.027 |
| | 7–8 | 357 (54.3) | 256 (54.8) | 101 (53.2) | |
| | ≥9 | 82 (12.5) | 67 (14.3) | 15 (7.9) | |
| Regularity of meals | Never | 101 (15.4) | 84 (18.0) | 17 (8.9) | <0.001 |
| | Seldom | 113 (17.2) | 87 (18.6) | 26 (13.7) | |
| | Sometimes | 227 (34.6) | 155 (33.2) | 72 (37.9) | |
| | Often | 128 (19.5) | 75 (16.1) | 53 (27.9) | |
| | Always | 88 (13.4) | 66 (14.1) | 22 (11.6) | |
| Frequency of breakfast | Never | 97 (14.8) | 81 (17.3) | 16 (8.4) | 0.007 |
| | Seldom | 155 (23.6) | 113 (24.2) | 42 (22.1) | |
| | Sometimes | 168 (25.6) | 121 (25.9) | 47 (24.7) | |
| | Often | 135 (20.5) | 83 (17.8) | 52 (27.4) | |
| | Always | 102 (15.5) | 69 (14.8) | 33 (17.4) | |
| Frequency of eating fruit (times/week) | Never | 122 (18.6) | 91 (19.5) | 31 (16.3) | 0.097 |
| | 1–2 | 293 (44.6) | 219 (46.9) | 74 (38.9) | |
| | 3–4 | 162 (24.7) | 103 (22.1) | 59 (31.1) | |
| | 5–6 | 46 (7.0) | 30 (6.4) | 16 (8.4) | |
| | ≥7 | 34 (5.2) | 24 (5.1) | 10 (5.3) | |
| Frequency of smoking | Never | 273 (41.6) | 169 (36.2) | 104 (54.7) | <0.001 |
| | Seldom | 114 (17.4) | 91 (19.5) | 23 (12.1) | |
| | Sometimes | 138 (21.0) | 105 (22.5) | 33 (17.4) | |
| | Often | 80 (12.2) | 58 (12.4) | 22 (11.6) | |
| | Always | 52 (7.9) | 44 (9.4) | 8 (4.2) | |
Table 1. Cont.

| Item Classification | N (%) | p-Value | N (%) | p-Value |
|---------------------|-------|---------|-------|---------|
| Total Male Female   |       |         |       |         |
| Frequency of drinking |       |         |       |         |
| Never               | 208 (31.7) | 132 (28.3) | 76 (40.0) | 0.013 |
| Seldom              | 169 (25.7) | 129 (27.6) | 40 (21.1) |         |
| Sometimes           | 176 (26.8) | 130 (27.8) | 46 (24.2) |         |
| Often               | 66 (10.0)  | 44 (9.4)  | 22 (11.6) |         |
| Always              | 38 (5.8)   | 32 (6.9)  | 6 (3.2)   |         |

* RMB: Chinese yuan. The average exchange rate between USD and CNY from July to August 2021 was 6.481.

A higher proportion of women than men were aged 40 years or older (15.3%, p < 0.001), and a higher proportion of women than men had a BMI below 18.5 (19.5%, p < 0.001). The proportion of men who were unmarried was significantly higher than that of women (71.7%, p < 0.001). The proportions of men working full time (57.0%, p = 0.004) and more than 11 h a day (16.5%, p = 0.002) were significantly higher than those of women. Regarding the work situation, a higher proportion of men than women climbed 31 floors or more per day (18.8%, p < 0.001) and delivered 76 km or more (21.2%, p = 0.003). In terms of lifestyle, a higher proportion of women slept less than or equal to 6 h (38.9%, p = 0.027). The proportion of men who never ate regular meals (18.0%, p < 0.001) and never ate breakfast (17.3%, p = 0.007) was higher, and the proportion of women who never smoked (54.7%, p < 0.001) or drank (40.0%, p = 0.013) was higher.

3.2. Anxiety and Depression Symptoms among Food Delivery Drivers with Different Characteristics

Table 2 summarizes the rates of anxiety and depressive symptoms among food delivery drivers. The proportions of participants reporting anxiety and depression symptoms were 46.0% and 18.4%, respectively. Significantly higher proportions of anxiety symptoms were found in females (58.9%, p < 0.001) and among participants who did not live with family members (53.8%, p = 0.002), were not willing to seek medical care (61.7%, p = 0.001), worked fewer than 5 years (48.3%, p = 0.024), had no communication channels with leaders (66.9%, p < 0.001), climbed ≥31 floors per day (58.4%, p = 0.002), sometimes used electric bikes or motorbikes as transportation tools (49.9%, p < 0.001), delivered food 25–50 miles per day (54.4%, p < 0.001), slept six or fewer hours per day (52.3%, p = 0.016), had poor sleep (p < 0.001), sometimes had regular meals (61.2%, p < 0.001), sometimes had breakfast (65.5%, p < 0.001), ate fruit 1–2 times per week (56.3%, p < 0.001), sometimes smoked (62.3%, p < 0.001), and often drank (62.1%, p < 0.001).

Table 2. Description of anxiety and depressive symptoms among food delivery drivers.

| Item Classification | Anxiety Symptoms | Depression Symptoms |
|---------------------|------------------|---------------------|
|                    | No n (%) | Yes n (%) | p-Value | No n (%) | Yes n (%) | p-Value |
| Total              | 355 (54.0) | 302 (46.0) | 536 (81.6) | 121 (18.4) | 0.658 |
| Demographics       |         |           |         |           |         |         |
| Sex                |         |           |         |           |         |         |
| Male               | 277 (59.3) | 190 (40.7) | <0.001 | 379 (81.2) | 88 (18.8) | 0.024 |
| Female             | 78 (41.1) | 112 (58.9) | 0.052 | 157 (82.6) | 33 (17.4) |         |
| Age (year)         |         |           |         |           |         |         |
| ≤29                | 259 (54.5) | 216 (45.5) | 0.207 | 377 (79.4) | 98 (20.6) | 0.052 |
| 30–39              | 60 (48.4) | 64 (51.6) | 0.016 | 107 (86.3) | 17 (13.7) |         |
| ≥40                | 36 (62.1) | 22 (37.9) | 0.016 | 52 (89.7) | 6 (10.3) |         |
| Household registration |       |           |         |           |         |         |
| Shanghai           | 113 (57.1) | 85 (42.9) | 0.305 | 157 (79.3) | 41 (20.7) | 0.320 |
| Other              | 242 (52.7) | 217 (47.3) | 0.016 | 379 (82.6) | 80 (17.4) |         |
Table 2. Cont.

| Item                | Classification                        | Anxiety Symptoms | Depression Symptoms |
|---------------------|---------------------------------------|------------------|---------------------|
|                     |                                       | No n (%)         | Yes n (%)          | p-Value      | No n (%)     | Yes n (%) | p-Value |
|                    |                                       |                  |                    |             |             |           |         |
| **Education**       | Junior high school or less            | 79 (56.4)        | 61 (43.6)          | 0.771       | 111 (79.3)  | 29 (20.7) | 0.493   |
|                     | Senior high school                    | 79 (51.3)        | 75 (48.7)          |             | 130 (84.4)  | 24 (15.6) |         |
|                     | Junior college                        | 89 (56.0)        | 70 (44.0)          |             | 133 (83.6)  | 26 (16.4) |         |
|                     | Undergraduate or more                 | 108 (52.9)       | 96 (47.1)          |             | 162 (79.4)  | 42 (20.6) |         |
| **Monthly household income (RMB)** | <5000                                 | 81 (53.3)        | 71 (46.7)          | 0.542       | 118 (77.6)  | 34 (22.4) | 0.388   |
|                     | 5000–9999                             | 127 (51.0)       | 122 (49.0)         |             | 202 (81.1)  | 47 (18.9) |         |
|                     | ≥10,000                               | 107 (57.2)       | 80 (42.8)          |             | 157 (84.0)  | 30 (16.0) |         |
|                     | Unknown                               | 40 (58.0)        | 29 (42.0)          |             | 59 (85.5)   | 10 (14.5) |         |
| **BMI (kg/m²)**     | <18.5                                 | 35 (53.8)        | 30 (46.2)          | 0.583       | 51 (78.5)   | 14 (21.5) | 0.685   |
|                     | [18.5, 24.0)                          | 198 (53.1)       | 175 (46.9)         |             | 310 (83.1)  | 63 (16.9) |         |
|                     | [24.0, 28.0)                          | 81 (52.9)        | 72 (47.1)          |             | 123 (80.4)  | 30 (19.6) |         |
|                     | ≥28.0                                 | 41 (62.1)        | 25 (37.9)          |             | 52 (78.8)   | 14 (21.2) |         |
| **Medical insurance** | Shanghai urban                       | 115 (58.4)       | 82 (41.6)          | 0.517       | 158 (80.2)  | 39 (19.8) | 0.289   |
|                     | medical insurance                     |                  |                    |             |             |           |         |
|                     | Other cities’ urban                  | 103 (54.8)       | 85 (45.2)          |             | 159 (84.6)  | 29 (15.4) |         |
|                     | medical insurance                     |                  |                    |             |             |           |         |
|                     | New rural cooperative                 | 47 (51.1)        | 45 (48.9)          | 0.764       | 76 (82.6)   | 16 (17.4) |         |
|                     | medical insurance                     |                  |                    |             |             |           |         |
|                     | Commercial medical insurance or other | 56 (51.4)        | 53 (48.6)          |             | 91 (83.5)   | 18 (16.5) |         |
|                     | No insurance                          | 34 (47.9)        | 37 (52.1)          |             | 52 (73.2)   | 19 (26.8) |         |
| **Marital status**  | Unmarried                             | 244 (58.5)       | 195 (41.5)         | 0.002       | 348 (83.5)  | 69 (16.5) | 0.103   |
|                     | Married                               | 82 (49.7)        | 83 (50.3)          |             | 141 (85.5)  | 24 (14.5) |         |
|                     | Divorced/widowed                      | 29 (54.3)        | 24 (45.3)          |             | 42 (79.2)   | 11 (20.8) |         |
| **Whether living with family members** | Yes                                   | 244 (58.5)       | 173 (41.5)         | 0.002       | 348 (83.5)  | 69 (16.5) | 0.103   |
|                     | No                                    | 111 (46.3)       | 129 (53.8)         |             | 188 (78.3)  | 52 (21.7) |         |
| **Willing to seek medical care** | Yes                                   | 319 (56.7)       | 244 (43.3)         | 0.001       | 477 (84.7)  | 86 (15.3) | <0.001  |
|                     | No                                    | 36 (38.3)        | 58 (61.7)          |             | 59 (62.8)   | 35 (37.2) |         |
| **Work situation**  | Part-time                             | 214 (53.9)       | 183 (46.1)         | 0.935       | 322 (81.1)  | 75 (18.9) | 0.698   |
|                     | Full-time                             | 141 (54.2)       | 119 (45.8)         |             | 214 (82.3)  | 46 (17.7) |         |
| **Work years (years)** | <5                                    | 263 (51.7)       | 246 (48.3)         | 0.024       | 423 (83.1)  | 86 (16.9) | 0.062   |
|                     | ≥5                                    | 92 (62.2)        | 56 (37.8)          |             | 113 (76.4)  | 35 (23.6) |         |
| **Daily working hours (h)** | <8                                    | 177 (58.6)       | 125 (41.4)         | 0.091       | 243 (80.5)  | 59 (19.5) | 0.521   |
|                     | 8–10                                  | 133 (50.6)       | 130 (49.4)         |             | 220 (83.7)  | 43 (16.3) |         |
|                     | ≥11                                   | 45 (48.9)        | 47 (51.1)          |             | 73 (79.3)   | 19 (20.7) |         |
| **Communication channels with leaders** | Yes                                   | 312 (59.2)       | 215 (40.8)         | <0.001      | 448 (85.0)  | 79 (15.0) | <0.001  |
|                     | No                                    | 43 (33.1)        | 87 (66.9)          |             | 88 (67.7)   | 42 (32.3) |         |
| **Floors climbed per day (floor)** | <10                                   | 161 (61.9)       | 99 (38.1)          | 0.002       | 216 (83.1)  | 44 (16.9) | 0.852   |
|                     | 11–20                                 | 104 (53.9)       | 89 (46.1)          |             | 157 (81.4)  | 36 (18.7) |         |
|                     | 21–30                                 | 48 (46.6)        | 55 (53.4)          |             | 82 (79.6)   | 21 (20.4) |         |
|                     | ≥31                                   | 42 (41.6)        | 59 (58.4)          |             | 81 (80.2)   | 20 (19.8) |         |
| **Transportation tool** | Bike                                  | 56 (77.8)        | 16 (22.2)          | <0.001      | 55 (76.4)   | 17 (23.6) | 0.459   |
|                     | Electric bike/motorbike               | 270 (50.1)       | 269 (49.9)         |             | 444 (82.4)  | 95 (17.6) |         |
|                     | Van/car/other                         | 29 (63.0)        | 17 (37.0)          |             | 37 (80.4)   | 9 (19.6)  |         |
Table 2. Cont.

| Item                        | Classification | Anxiety Symptoms | Depression Symptoms |
|-----------------------------|----------------|------------------|--------------------|
|                             |                | No n (%)         | Yes n (%)          | p-Value           | No n (%)         | Yes n (%)          | p-Value           |
| Food delivering distance    | <25            | 113 (67.3)       | 55 (32.7)          | <0.001           | 139 (82.7)       | 29 (17.3)          | 0.247             |
| (km/day)                    | 25–50          | 98 (45.6)        | 117 (54.4)         | 180 (83.7)       | 35 (16.3)        |
|                             | 51–75          | 83 (54.2)        | 70 (45.8)          | 126 (82.4)       | 27 (17.6)        |
|                             | ≥76            | 61 (50.4)        | 60 (49.6)          | 91 (75.2)        | 30 (24.8)        |

### Lifestyle

#### Daily sleeping time (h)

| Sleep quality | Anxiety Symptoms | Depression Symptoms |
|---------------|------------------|--------------------|
| Never         | 80 (79.2)        | 21 (20.8)          | <0.001             |
| Seldom        | 77 (68.1)        | 36 (31.9)          | <0.001             |
| Sometimes     | 88 (38.8)        | 139 (61.2)         | 102 (90.3)         |
| Often         | 53 (41.4)        | 75 (58.6)          | 103 (80.5)         |
| Always        | 57 (64.8)        | 31 (35.2)          | 67 (76.1)          |

#### Sleep quality

| Regularity of meals | Anxiety Symptoms | Depression Symptoms |
|---------------------|------------------|--------------------|
| Never               | 78 (80.4)        | 19 (19.6)          | <0.001             |
| Seldom              | 95 (61.3)        | 60 (38.7)          | 138 (89.0)         |
| Sometimes           | 58 (34.5)        | 110 (65.5)         | 113 (67.3)         |
| Often               | 61 (45.2)        | 74 (54.8)          | 112 (83.0)         |
| Always              | 63 (61.8)        | 39 (38.2)          | 87 (85.3)          |

#### Frequency of breakfast

| Frequency of fruit (times/week) | Anxiety Symptoms | Depression Symptoms |
|--------------------------------|------------------|--------------------|
| Never                          | 86 (70.5)        | 36 (29.5)          | <0.001             |
| 1–2                            | 128 (43.7)       | 165 (56.3)         | 240 (81.9)         |
| 3–4                            | 87 (53.7)        | 75 (46.3)          | 136 (84.0)         |
| 5–6                            | 33 (71.7)        | 13 (28.3)          | 38 (82.6)          |
| ≥7                             | 21 (61.8)        | 13 (38.2)          | 27 (79.4)          |

#### Frequency of smoking

| Frequency of drinking          | Anxiety Symptoms | Depression Symptoms |
|--------------------------------|------------------|--------------------|
| Never                          | 163 (59.7)       | 110 (40.3)         | <0.001             |
| Seldom                         | 76 (66.7)        | 38 (33.3)          | 96 (84.2)          |
| Sometimes                      | 52 (37.7)        | 86 (62.3)          | 90 (65.2)          |
| Often                          | 37 (46.3)        | 43 (53.8)          | 62 (77.5)          |
| Always                         | 27 (51.9)        | 25 (48.1)          | 31 (59.6)          |

For depression, a higher proportion of participants were unwilling to seek medical care (37.2%, p < 0.001), had no communication channels with leaders (32.3%, p < 0.001), slept nine or more hours per day (26.8%, p = 0.001), had poor sleep (p < 0.001), always had regular meals (23.9%, p = 0.002), sometimes had breakfast (32.7%, p < 0.001), and always smoked (40.4%, p < 0.001) and drank (50.0%, p < 0.001).

3.3. Logistic Regression Analysis of Factors Influencing the Psychology of Food Delivery Drivers

Table 3 shows the results of the logistic regression analysis. Lack of communication with leaders (ORAN = 2.620, 95% CI: 1.528–4.493, p < 0.001; ORDE = 1.928, 95% CI: 1.039–3.577, p = 0.037) and poor sleep quality (ORAN = 2.152, 95% CI: 1.587–2.917, p < 0.001; ORDE = 2.420, 95% CI: 1.672–3.504, p < 0.001) were significant risk factors for both anxiety and depression symptoms.
Table 3. Logistic regression of factors associated with anxiety and depression symptoms among food delivery drivers.

| Item                              | Classification | Anxiety Symptoms OR (95% CI) | p-Value | Depression Symptoms OR (95% CI) | p-Value |
|-----------------------------------|----------------|------------------------------|---------|--------------------------------|---------|
| **Demographics**                  |                |                              |         |                                |         |
| Sex                               |                |                              |         |                                |         |
| Male (reference)                  |                | 2.679 (1.621, 4.427)         | <0.001  | 1.175 (0.618, 2.233)           | 0.623   |
| Female                            |                | 1.063 (0.619, 1.824)         | 0.825   | 0.825 (0.417, 1.632)           | 0.581   |
| Monthly household income (RMB)    |                |                              |         |                                |         |
| <5000 (reference)                 |                |                              |         |                                |         |
| 5000–9999                         |                | 0.742 (0.457, 1.241)         | 0.329   | 0.436 (0.204, 0.940)           | 0.034   |
| ≥10,000                           |                | 0.872 (0.457, 1.641)         | 0.825   | 0.833 (0.306, 2.270)           | 0.721   |
| Unknown                           |                | 0.942 (0.457, 1.941)         | 0.825   | 0.833 (0.306, 2.270)           | 0.721   |
| Willing to seek medical care      |                |                              |         |                                |         |
| No (reference)                    |                | 1.424 (0.775, 2.615)         | 0.254   | 3.549 (1.846, 6.821)           | <0.001  |
| Yes                               |                |                              |         |                                |         |
| Work years (years)                |                |                              |         |                                |         |
| <5 (reference)                    |                | 0.804 (0.535, 1.235)         | 0.727   | 1.064 (0.655, 1.716)           | 0.460   |
| ≥5                                |                | 0.594 (0.355, 0.993)         | 0.047   | 1.256 (0.687, 2.397)           | 0.460   |
| Communication channels with leaders|                |                              |         |                                |         |
| No (reference)                    |                | 2.620 (1.528, 4.493)         | 0.010   | 1.928 (1.039, 3.577)           | 0.037   |
| Yes                               |                |                              |         |                                |         |
| Floors climbed per day            |                |                              |         |                                |         |
| 11–20                             |                | 1.124 (0.669, 1.887)         | 0.659   | 1.039 (0.523, 2.068)           | 0.912   |
| 21–30                             |                | 1.232 (0.648, 2.341)         | 0.525   | 1.152 (0.499, 2.661)           | 0.740   |
| ≥31                               |                | 2.415 (1.189, 4.905)         | 0.015   | 0.620 (0.240, 1.601)           | 0.324   |
| Daily sleeping time (h)           |                |                              |         |                                |         |
| 7–8                               |                | 0.534 (0.330, 0.863)         | 0.010   | 0.727 (0.396, 1.336)           | 0.305   |
| ≥9                                |                | 0.413 (0.197, 0.865)         | 0.019   | 1.064 (0.460, 2.460)           | 0.885   |
| Sleep quality                     |                |                              |         |                                |         |
| Never                             |                | 2.152 (1.587, 2.917)         | <0.001  | 2.420 (1.672, 3.504)           | <0.001  |
| Seldom                            |                | 1.533 (0.648, 3.625)         | 0.331   | 0.660 (0.199, 2.196)           | 0.498   |
| Sometimes                         |                | 3.061 (1.154, 8.112)         | 0.025   | 1.351 (0.393, 4.645)           | 0.633   |
| Often                             |                | 2.966 (1.125, 7.817)         | 0.028   | 1.106 (0.309, 3.957)           | 0.877   |
| Always                            |                | 3.821 (1.284, 11.369)        | 0.016   | 0.232 (0.039, 1.386)           | 0.109   |
| Frequency of smoking              |                |                              |         |                                |         |
| Never                             |                | 2.260 (1.214, 4.206)         | 0.010   | 0.760 (0.361, 1.603)           | 0.472   |
| Seldom                            |                | 1.600 (0.774, 3.225)         | 0.272   | 0.794 (0.347, 1.819)           | 0.586   |
| Sometimes                         |                | 0.759 (0.295, 1.955)         | 0.568   | 0.888 (0.261, 3.018)           | 0.849   |
| Often                             |                | 0.619 (0.202, 1.988)         | 0.402   | 0.396 (0.107, 1.463)           | 0.165   |
| Always                            |                | 0.558 (0.274, 1.136)         | 0.108   | 4.792 (1.612, 14.243)          | 0.005   |
| Frequency of drinking             |                |                              |         |                                |         |
| Never                             |                | 2.240 (1.184, 4.239)         | 0.013   | 0.805 (0.260, 2.495)           | 0.707   |
| Seldom                            |                | 4.084 (1.900, 8.779)         | <0.001  | 2.759 (0.926, 8.220)           | 0.068   |
| Sometimes                         |                | 3.803 (1.479, 9.780)         | 0.006   | 1.894 (0.515, 6.966)           | 0.336   |
| Often                             |                | 6.358 (1.396, 28.946)        | 0.017   | 3.516 (0.609, 20.307)          | 0.160   |

With regard to the presence of anxiety symptoms, we found that women were more likely to have anxiety symptoms than men (OR = 2.679, 95% CI: 1.621–4.427, p < 0.001). Those who had been in the job for 5 years or more were significantly less likely to have anxiety symptoms than others (OR = 0.594, 95% CI: 0.355–0.993, p = 0.047). Those who climbed 31 floors or more per day were more likely to have anxiety symptoms than those who climbed ≤10 floors per day (OR = 2.415, 95% CI: 1.189–4.905, p = 0.015). In regard to
lifestyle, sleeping 7–8 h (OR = 0.534, 95% CI: 0.330–0.863, \( p = 0.010 \)) or 9 h (OR = 0.413, 95% CI: 0.197–0.865, \( p = 0.019 \)) and more per day were protective factors for the development of anxiety symptoms compared to shorter sleep periods. Those who sometimes (OR = 3.061, 95% CI: 1.154–8.122, \( p = 0.025 \)), often (OR = 2.966, 95% CI: 1.125–7.817, \( p = 0.019 \)), and always (OR = 3.821, 95% CI: 1.284–11.369, \( p = 0.016 \)) ate breakfast were more likely to be anxious. Compared to those who never ate fruit, participants who ate fruit 1–2 times a week were more likely to have anxiety symptoms (OR = 2.260, 95% CI: 1.214–4.206, \( p = 0.010 \)). Lastly, participants who drank alcohol, whether seldom (OR = 2.240, 95% CI: 1.184–4.239, \( p = 0.013 \)), sometimes (OR = 4.084, 95% CI: 1.900–8.779, \( p < 0.001 \)), often (OR = 3.803, 95% CI: 1.479–9.780, \( p = 0.006 \)), or always (OR = 6.358, 95% CI: 1.396–28.946, \( p = 0.017 \)) were more likely to be anxious than those who did not drink at all.

Regarding the occurrence of depression symptoms, the results showed that participants with a monthly household income of 10,000 RMB or more were less likely to experience depressive symptoms than those who earned less than 5000 RMB (OR = 0.438, 95% CI: 0.204–0.940, \( p = 0.034 \)). Those who were unwilling to seek medical help were more likely to have depressive symptoms (OR = 3.549, 95% CI: 1.846–6.821, \( p < 0.001 \)). In addition, smoking seldom (OR = 4.792, 95% CI: 1.612–14.243, \( p = 0.005 \)), sometimes (OR = 5.049, 95% CI: 1.824–13.971, \( p = 0.002 \)), or always (OR = 5.107, 95% CI: 1.187–21.981, \( p = 0.029 \)) was a risk factor for the development of depression symptoms, with the risk level increasing with frequency.

4. Discussion

This study updates our understanding of the current anxiety and depression status of urban food delivery drivers in Shanghai. Very few studies have been conducted on this vulnerable population. The subjects of this study were mainly young and middle-aged men, mostly migrant workers who had been working in Shanghai for a short period of time and were performing this work part-time. The results showed that 46% of the participants reported anxiety symptoms and 18% reported depression symptoms. The prevalence of anxiety was much higher than that reported in previous studies [31,32]. Similar studies on Uber employees, who fill a role similar to that of food delivery drivers, have found the former group to be in a better state of psychological health [33]. This difference may be because Uber employees are not like Chinese food delivery drivers, who have a larger workload, poor transportation, and intense delivery time limits. In addition, different social contexts in different countries at the time of the COVID-19 pandemic may have led to different outcomes. Further comparative studies are needed to determine the exact differences.

In this study, females were more likely to have anxiety symptoms than males. Possible reasons may be that, with intense work and severe overwork, women who are less physically capable may be more stressed than men. Additionally, a study by Pereira-Morales et al. (2019) found that the association between perceived stress and anxiety symptoms is more evident in women [34]. Recent evidence specific to the gig economy finds a growing inequality due to the sex gap in earnings favoring men [35,36], which may further add to the anxiety of female food delivery drivers. Additionally, among our participants, a higher proportion of women than men were unwilling to seek medical care, which would also increase the probability of depression symptoms.

In terms of the work situation, our results showed that excessive daily floor climbing was a risk factor for anxiety symptoms, while longer working years and higher wages were protective factors for anxiety and depression symptoms, respectively. Consistent with Sanne’s view [37], physically harder work and lower income may lead to increased anxiety and depressive conditions. Conversely, longer years of service may help workers work more lightly, thereby reducing career anxiety [38] and perhaps even boosting earnings. However, more research is needed to distinguish the source of the emotional stressor and the occupational role to improve the psychological state of workers [39].
We found that the presence of effective communication channels with the upper echelons of the company was significantly associated with lower rates of both anxiety and depression symptoms. However, 19.8% of our respondents clearly indicated a lack of upward communication. Possible reasons were as follows: (1) while food delivery drivers, as a new form of employment, are distinguished by their flexible working style due to the weakening of subordinate labor relations, they also have the side-effects of weakened organizational relations and a lack of collective consciousness due to their autonomous work habits, unlike traditional workers who have stable work and close organizational relations [20]; (2) in line with Jin’s study (2020) [20], our study found that only 31.1% of subjects had attended university; they had a low level of education overall, and 69.9% were migrant workers who were less socially adjusted than local residents, which may lead to ineffective use of the possible communication channels. Companies should consider the actual situation of these young migrant workers to open up simple and efficient communication channels for them. It is necessary for leaders to value food delivery drivers’ feedback while also guiding them to affirm their value and speak up for themselves.

Consistent with previous studies [40,41], sleep quality influenced both the anxiety and the depression dimensions, and people who experienced anxiety and depression were also more likely to lose sleep [14]. However, in this study, the variable of daily sleeping time was related only to anxiety, probably because the mere length of sleep does not determine the state of life as long as habits are formed. However, the guidelines recommend 7–9 h of sleep per day for healthy adults, and insufficient sleep can certainly have health consequences [42]. Xiao’s study (2019) in China pointed to higher levels of burnout among delivery workers [43] due to severe overwork and lack of rest; consistent with the results of our study, this may be an important risk factor for developing anxiety [10,43,44]. To address this problem, the current takeaway industry should limit working hours [38].

We found that having the habit of eating breakfast and eating fruit 1–2 times a week were risk factors for anxiety symptoms, contradicting the findings of previous studies [45,46]. In addition, our findings support the conclusions that smoking and alcohol abuse are risk factors for anxiety and depression symptoms [47,48]. However, the associations between alcohol consumption and depression symptoms and between smoking and anxiety symptoms were not statistically significant, which may have been due to the characteristics of food delivery drivers or our sample. More research needs to be conducted to explore these issues. However, there is a need to improve the working conditions of food delivery drivers so that they have more room to change their lifestyles.

Several limitations present opportunities for potential research. First, the current cross-sectional questionnaire survey was conducted in one setting, Shanghai. This may limit the generalizability to other geographic regions. Second, respondents may have overestimated or underestimated their degree of anxiety and depression because of the subjective investigation. Third, although the questionnaire controlled for many covariates, the possibility of some residual confounding caused by unmeasured factors should be included, such as a test for perceived stress.

5. Conclusions

This study sought to explore anxiety and depression indicators among food delivery drivers. Quantitative analysis was conducted to analyze the results and influencing factors. The subjects of this study were mainly young and middle-aged men; 46% of the participants reported anxiety symptoms, and 18% reported depression symptoms. Female respondents were more likely to have anxiety symptoms than men because of the intense work and inequality in the market. The existence of communication channels with leaders was a protective factor for anxiety and depressive symptoms. Daily sleeping time was related to anxiety, and smoking and alcohol abuse were risk factors for anxiety and depression symptoms. Society should improve the respect for and understanding of service providers and enhance their occupational status and social security.
Author Contributions: Conceptualization, J.S. and J.C.; data curation, Y.S., Y.P., Z.L., R.C., X.B. and C.Q.; formal analysis, Y.P., Y.S.; investigation, Y.S., Y.P., R.C., X.B. and C.Q.; methodology, Q.C., Y.S. and Y.P.; supervision, Z.L., Q.C., J.C. and J.S.; writing—original draft, Y.S. and Y.P.; writing—review and editing, J.C. and J.S. All authors have read and agreed to the published version of the manuscript.

Funding: The study design was supported by Shanghai Jiao Tong University School of Medicine “Student Innovation Training Program” Project (1521Y043) and the Soft Science Project of Shanghai Science and Technology Commission (22692107200). Data extraction was financially funded by the Natural Science Foundation of China (71603182 and 72004133). The writing and revision, including language improvement, were sponsored by the Shanghai Education Science Research Project (C2021039) and Shanghai Pujiang Program (2020PJC080).

Institutional Review Board Statement: The studies involving human participants were reviewed and approved by the Ethics Committees of Tongji University (ref: LL-2018-WSJ-007). The participants provided written informed consent to participate in this study.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are openly available in [FigShare] at [https://doi.org/10.6084/m9.figshare.21322071.v1].

Acknowledgments: The authors would like to thank all field investigators and participants involved in this survey.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Moffitt, T.E.; Caspi, A.; Taylor, A.J.; Kokaua, J.; Poulton, R. How Common Are Common Mental Disorders? Evidence that Lifetime Prevalence Rates Are Doubled by Prospective Versus Retrospective Ascertainment. Psychol. Med. 2010, 40, 899–909. [CrossRef] [PubMed]

2. David, S.; Hui, E.L.A.; Tariq, A.M.; Francine, N.; Richard, K.; Osman, D.; Giuseppe, I.; Timothy, D.M.; Ziad, A.M.; Christian, D.; et al. The Continuing 2019-nCoV Epidemic Threat of Novel Coronaviruses to Global Health—The Latest 2019 Novel Coronavirus Outbreak in Wuhan, China. Int. J. Infect. Dis. 2020, 91, 264–266.

3. Folkman, S. Stress, Appraisal, and Coping. In Encyclopedia of Behavioral Medicine; Gellman, M.D., Turner, J.R., Eds.; Springer: New York, NY, USA, 2013; pp. 1913–1915.

4. Tokuyama, M.; Nakao, K.; Seto, M.; Watanabe, A.; Takeda, M. Predictors of First-Onset Major Depressive Episodes among White-Collar Workers. Psychiatry Clin. Neurosci. 2003, 57, 523–531. [CrossRef] [PubMed]

5. Wieclaw, J.; Agerbo, E.; Mortensen, PB.; Burr, H.; Tüchsen, F.; Bonde, J.P. Work Related Violence and Threats and the Risk of Depression and Stress Disorders. J. Epidemiol. Community Health 2006, 60, 771–775. [CrossRef]

6. Lorant, V.; Deliege, D.; Eaton, W.W.; Robert, A.; Philippot, P.; Anseau, M. Socioeconomic Inequalities in Depression: A Meta-Analysis. Am. J. Epidemiol. 2003, 157, 98–112. [CrossRef]

7. Fernanda, F.M.; Mutch, D.M.; Leri, F. The Relationship Between Fatty Acids and Different Depression-Related Brain Regions, and their Potential Role as Biomarkers of Response to Antidepressants. Nutrients 2017, 9, 298. [CrossRef]

8. Moazzami, K.; Lima, B.B.; Sullivan, S.; Shah, A.; Brenner, J.D.; Vaccarino, V. Independent and Joint Association of Obesity and Metabolic Syndrome with Depression and Inflammation. Health Psychol. 2019, 38, 586–595. [CrossRef]

9. Martinez-Gonzalez, M.A.; Sanchez-Villegas, A. Food Patterns and the Prevention of Depression. Proc. Nutr. Soc. 2016, 75, 139–146. [CrossRef]

10. Marriana, V.; Stansfeld, S.A.; Rebecca, F.; Ferrie, J.E.; Mika, K.; Marriana, M. Overtime Work as a Predictor of Major Depressive Episode: A 5-year Follow-Up of the Whitehall II Study. PloS ONE 2012, 7, e30719.

11. Kuper, H.; Nicholson, A.; Kivimaki, M.; Ai'tsi-Sehmi, A.; Cavalleri, G.; Deanfield, J.E.; Heuschmann, P.; Jouven, X.; Malyutina, S.; Mayosi, B.M. Evaluating the Causal Relevance of Diverse Risk Markers: Horizontal Systematic Review. Br. Med. J. 2009, 339, 1240–1241. [CrossRef]

12. Fried, E.L.; Nesse, R.M.; Zivin, K.; Guille, C.; Sen, S. Depression Is More than the Sum Score of its Parts: Individual DSM Symptoms Have Different Risk Factors. Psychol. Med. 2014, 44, 2067–2076. [CrossRef] [PubMed]

13. Véga-López, O.; Schweier, F.; Wang, S.; Heimgerg, R.; Liu, S.M.; Hasin, D.S.; Blanco, C. Gender Differences in Generalized Anxiety Disorder: Results from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). J. Clin. Psychiatry 2008, 69, 1606–1616. [CrossRef] [PubMed]

14. Watson, N.F.; Badr, S.; Belenky, G.; Bitwise, D.L.; Buxton, O.M.; Buyse, D.; Dinges, D.F.; Gangwisch, J.; Grandner, M.A.; Kushida, C.; et al. Recommended Amount of Sleep for a Healthy Adult: A Joint Consensus Statement of the American Academy of Sleep Medicine and Sleep Research Society. Sleep 2015, 38, 843–844. [CrossRef] [PubMed]
15. Virtanen, M.; Ferrie, J.E.; Singh-Manoux, A.; Shipley, M.J.; Stansfeld, S.A.; Marmot, M.G.; Ahola, K.; Vahtera, J.; Kivimäki, M. Long Working Hours and Symptoms of Anxiety and Depression: A 5-year Follow-up of the Whitehall II study. *Psychol. Med.* 2011, 41, 2485–2494. [CrossRef]

16. Apouey, B.; Roulet, A.; Solal, I.; Stabile, M. Gig Workers during the COVID-19 Crisis in France: Financial Precarity and Mental Well-Being. *J. Urban Health* 2020, 97, 776–793. [CrossRef]

17. Smith, A. Gig Work, Online Selling and Home Sharing. Washington, D.C.: Pew Internet & American Life Project. Available online: http://www.pewinternet.org/2016/11/17/gig-work-online-selling-and-home-sharing/ (accessed on 27 November 2016).

18. Hünefeld, L.; Gerstenberg, S.; Hüffmeier, J. Job Satisfaction and Mental Health of Temporary Agency Workers in Europe: A Systematic Review and Research Agenda. *Work. Stress* 2020, 34, 82–110. [CrossRef]

19. Dütsch, M. Wie prekär ist Zeitarbeit?: Eine Analyse mit dem Matching-Ansatz (How Precarious Is Temporary Agency Employment?: An Analysis Utilizing the Matching-approach). *Z. Arb. J. Labour Mark. Res.* 2011, 43, 299–318. [CrossRef]

20. Jin, Q.; Zhao, J. Triple Disembedded: The Structural Dilemma of Take-away Riders Based on Analysis of 671 Questionnaires in Shanghai. *Youth Res.* 2020, 3, 8.

21. Huang, A.L. A Study on the Social Integration of Migrant Population and its Influencing Factors in Shanghai. Master’s Thesis, Shanghai Normal University, Shanghai, China, 2018.

22. Tu, Y.Q.; Xie, W.X.; Xiong, Y. Occupational Safety of Workers in Platform Economy—Based on the Sociological Survey of the Labor of Food Delivery Riders at X Site in Beijing. *J. Wenzhou Univ.* 2021, 34, 26–38.

23. Meituan Financial Report. Available online: http://media.meituan.todayjr.com/2022041916400210010215763_tc.pdf (accessed on 24 August 2022).

24. Spitzer, R.L.; Kroenke, K.; Williams, J.B.; Löwe, B. A Brief Measure for Assessing Generalized Anxiety Disorder: The GAD-7. *Arch. Intern. Med.* 2006, 166, 1092–1097. [CrossRef]

25. Kroenke, K.; Spitzer, R.L. The PHQ-9: A New Depression Diagnostic and Severity Measure. *Psychiatr. Ann.* 2002, 32, 509–521. [CrossRef]

26. Xu, W.F.; Peng, Y.; Chen, B.Q.; Peng, Z.Y.; Zhao, J.L.; Yu, G.L. Assessment of Anxiety and Depression by Self-rating Scales of GAD-7 and PHQ-9 in Cardiovascular Outpatients. *World Latest Med. Inf.* 2018, 18, 12–14.

27. Martin, A.; Rief, W.; Klaiberg, A.; Braehler, E. Validity of the Brief Patient Health Questionnaire Mood Scale (PHQ-9) in the General Population. *Gen. Hosp. Psychiatry* 2006, 28, 71–77. [CrossRef] [PubMed]

28. Levis, B.; Benedetti, A.; Thombs, B.D. Accuracy of Patient Health Questionnaire-9 (PHQ-9) for Screening to Detect Major Depression: Individual Participant Data Meta-analysis. *Br. Med. J.* 2019, 365, I1476. [CrossRef]

29. Löwe, B.; Decker, O.; Müller, S.; Brähler, E.; Schellberg, D.; Herzog, W.; Herzberg, P.Y. Validation and Standardization of the Generalized Anxiety Disorder Screener (GAD-7) in the General Population. *Med. Care* 2008, 46, 266–274. [CrossRef] [PubMed]

30. Negeri, Z.F.; Levis, B.; Benedetti, A.; et al. Depression Screening Data (DEPRESSD) PHQ Group. Accuracy of the Patient Health Questionnaire-9 for Screening to Detect Major Depression: Updated Systematic Review and Individual Participant Data Meta-Analysis. *Br. Med. J.* 2021, 375, n2183. [CrossRef] [PubMed]

31. Choi, E.; Hui, B.; Wan, E. Depression and Anxiety in Hong Kong during COVID-19. *Int. J. Environ. Res. Public Health* 2020, 17, 3740. [CrossRef]

32. Liu, Y.; Chen, H.; Zhang, N.; Wang, X.; Fan, Q.; Zhang, Y.; Huang, H.; Lu, B.; Li, M. Anxiety and Depression Symptoms of Medical Staff Under COVID-19 Epidemic in China. *J. Affect. Disord.* 2021, 278, 144–148. [CrossRef] [PubMed]

33. Apouey, B.; Stabile, M. The Effects of Uber Diffusion on the Mental Health of Drivers. *Health Econ.* 2022, 31, 1468–1490. [CrossRef]

34. Pereira-Morales, A.J.; Adan, A.; Forero, D.A. Perceived Stress as a Mediator of the Relationship between Neuroticism and Depression and Anxiety Symptoms. *Curr. Psychol.* 2019, 38, 66–74.

35. Schor, J.B. Does the Sharing Economy Increase Inequality within the Eighty Percent? Findings from a Qualitative Study of Platform Providers. *Camb. J. Reg. Econ. Soc.* 2017, 10, 263–279. [CrossRef]

36. Cody, C.; Rebecca, D.; Jonathan, V.H.; John, A.L.; Paul, O. The Gender Earnings Gap in the Gig Economy: Evidence from over a Million Rideshare Drivers. In *Review of Economic Studies*; Oxford University Press: Oxford, UK, 2021; Volume 88, pp. 2210–2238.

37. Sanne, B.; Mykletun, A.; Moen, B.E.; Dahl, A.A.; Tell, G.S. Farmers Are at Risk for Anxiety and Depression: The Hordaland Health Study. *Occup. Med.* 2004, 54, 92–100. [CrossRef] [PubMed]

38. Huang, C.; Zhang, W.Y.; Yang, Y.L.; Tang, C.Z.; Sun, M. Study on Anxiety Degree and its Basic Factors in Physical Workers. *Mod. Prev. Med.* 2009, 36, 2620–2622.

39. Duarte, J.; Berthelsen, H.; Owen, M. Not All Emotional Demands Are the Same: Emotional Demands from Clients’ or Co-Workers’ Relations Have Different Associations with Well-Being in Service Workers. *Int. J. Environ. Res. Public Health* 2020, 17, 7738. [CrossRef] [PubMed]

40. Baglioni, C.; Battagliese, G.; Feige, B.; Spiegelhalder, K.; Nissen, C.; Voderholzer, U.; Lombardo, C.; Riemann, D. Insomnia as a Predictor of Depression: A Meta-analytic Evaluation of Longitudinal Epidemiological Studies. *J. Affect. Disord.* 2011, 135, 10–19. [CrossRef]
42. Hertenstein, E.; Feige, B.; Gmeiner, T.; Kienzler, C.; Spiegelhalder, K.; Johann, A.; Jansson-Fröjmark, M.; Palagini, L.; Rücker, G.; Riemann, D.; et al. Insomnia as a Predictor of Mental Disorders: A Systematic Review and Meta-analysis. *Sleep Med. Rev.* 2019, 43, 96–105. [CrossRef]
43. Xiao, H.X. Analysis on the Correlation between the Psychological Authorization, Turnover Intention and Job Burnout of Couriers in Fujian Province. *Med. Soc.* 2019, 32, 93–96.
44. Li, R.; Chen, Y.; Lv, J.; Liu, L.; Zong, S.; Li, H.; Li, H. Anxiety and Related Factors in Frontline Clinical Nurses Fighting COVID-19 in Wuhan. *Medicine* 2020, 99, e21413. [CrossRef]
45. Chang, Z.S.; Boolani, A.; Conroy, D.A.; Dunietz, T.; Jansen, E.C. Skipping Breakfast and Mood: The Role of Sleep. *Nutr. Health* 2021, 27, 373–379. [CrossRef] [PubMed]
46. Conner, T.S.; Brookie, K.L.; Carr, A.C.; Mainvil, L.A.; Vissers, M.C. Let them Eat Fruit! The Effect of Fruit and Vegetable Consumption on Psychological Well-being in Young Adults: A Randomized Controlled Trial. *PLoS ONE* 2017, 12, e0171206. [CrossRef] [PubMed]
47. Breslau, N.; Peterson, E.L.; Schultz, L.R.; Chilcoat, H.D.; Andreski, P. Major Depression and Stages of Smoking. A Longitudinal Investigation. *Arch. Gen. Psychiatry* 1998, 55, 161–166. [CrossRef] [PubMed]
48. Lee, S.B.; Chung, S.; Lee, H.; Seo, J.S. The Mutual Relationship between Men’s Drinking and Depression: A 4-Year Longitudinal Analysis. *Alcohol Alcohol. Int. J. Med. Counc. Alcohol.* 2018, 53, 597–602. [CrossRef] [PubMed]