

Screening for Common Mental Disorders and Substance Abuse among Temporary Hired Cleaners in Egyptian Governmental Hospitals, Zagazig City, Sharqia Governorate

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Abstract

Background: Informal employment is common in developing countries, including Egypt. This type of employment may have significant consequences on mental health.

Objectives: To determine the prevalence and risk factors of common mental disorders and substance abuse among temporary hired hospital cleaners.

Methods: A cross-sectional study was conducted on 242 adult temporary cleaners and 209 permanent cleaners working in 4 governmental hospitals in Zagazig City, Sharqia Governorate, Egypt. All participants were invited to complete a structured questionnaire through a semi-structured interview which included the self-reporting questionnaire 20 items (SRQ-20) and the work stress scale. Assessment of drug use included urine-based screening tests for common substances abused.

Results: The prevalence of job stress, common mental disorders and substance abuse, particularly tramadol and cannabis (Bango), was significantly higher in the studied temporary cleaners compared to permanent cleaners. Risk factors associated with increased susceptibility of the temporary cleaners to common mental disorders were family history of substance abuse, high crowding index, history of physical illness, low educational level, and smoking; while being unmarried, male sex, family history of mental disorder, age ≥ 40 years, smoking, and length of service ≥ 8 years, were associated with substance abuse among the same group.

Conclusion: Temporary hired hospital cleaners suffered from impaired mental health more than permanent cleaners. Therefore, expanding the coverage of current laws and occupational safety and health standards to cover workers in the informal sector especially in developing countries is recommended.

Keywords: Employment; Substance-related disorders; Mental disorders; Mental health

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Introduction

Work and mental health are in constant interplay. Work can be therapeutic and plays an important role in a person's life as it is a dominant time consuming and rewarding activity; thus, it is a primary source for income, identity, and mental health.¹ It is consistently found that the unemployed and their families have much poorer health when compared with those in employment in developed societies.² In Egypt, unemployment has been acknowledged as an important determinant of mental disorders for both men and women.³

In many industrially developing countries, such as Brazil and Thailand, working informally without the social and legislative protection accorded to those in the "formal" labor market, has become an increasingly common escape route from unemployment. Informal work is also considered as an important source of work for those who have little education and limited skills.^{2,4,5} In Egypt, according to the 2006 census figures, informal workers are a heterogeneous group, including those who are temporary hired (n=1 580 323), seasonally hired (n=821 397), and irregularly hired (n=3 584 095), constituting an underprivileged group without protection from labor or social regulations.⁶

In developing countries, working outside the protection of employment legislations may have important physical and psychological consequences. Moreover, safety and health measures are very poor in informal workplaces. However, informal workers do not have occupational health services due to limited budget and resources allocated to these services.^{2,4,5}

In many countries, common mental disorders (CMDs) have emerged as a major public and occupational health problem.⁷ Mental health problems can nega-

tively impact work. They can impair work functioning when being at work, reducing productivity as well as lead to absenteeism from work.⁸⁻¹⁴

In Egypt, drug abuse is also considered one of the most serious public health problems, especially among the young people at working ages. Other than many negative consequences such as social adaptation and decreased productivity at work, it may also increase the incidence of workplace accidents.^{15,16}

In Middle Eastern Arab countries, there is scarce information on mental health issues, including drug dependence.^{3,15,16} Little is known also about the mental health consequences of the growth in the informal sector. Therefore, we conducted this study to assess the prevalence and risk factors of CMDs and substance abuse among a group of temporary hired hospital cleaners, compared with a sample of permanent cleaners, and to describe the current pattern of substance abuse among them.

Materials and Methods

Study design and setting

This analytical cross-sectional study was conducted between January 1, and March 31, 2012 in all Governmental Hospitals in Zagazig City, Sharqia Governorate (The General, Al-Ahrar, Zagazig University, and Health Insurance Hospitals).

Study sample and procedure

The total number of adult temporary hired cleaners (18–60 years) in the four studied hospitals at the time of the study was 500 workers. The estimated sample size was 242 workers that was calculated using EPI-INFO ver 6,¹⁷ assuming confidence interval of 95%, test power of 80%, and an overall prevalence of mental disorders of 16.93% among Egyptian adults (18–64

For more information on occupational stress and mental health see www.theijoem.com/ijoem/index.php/ijoem/article/view/67/146 and www.theijoem.com/ijoem/index.php/ijoem/article/view/27/60

years) estimated from a recent national survey of mental disorders in Egypt.³ A stratified random sampling technique was used; where 197 men and 45 women were included in the study. Another group of adult permanent cleaners (n=209) including 171 men and 38 women who were hired for a period of two consecutive years or more were included in the study as the comparison group. Both groups of workers were age and sex matched. Workers in both groups who gave past history of mental disorders or substance abuse before joining the current job were excluded from the study. Moreover, workers with history of taking medications (two weeks prior to the study) that may cause false positive results with urine drug testing were also excluded.¹⁸

Participants were invited by the investigators to an interview where they were asked to give their consent after explaining the purpose and the steps of the study. Questionnaires were administered and urine specimens were collected by the investigators after clarifying the confidentiality of the data. This step took part in a 30-min interview using a semi-structured interview schedule.

Ethical issues

Permission was obtained from the managers of the hospitals. Proposal acceptance was obtained from the Research Ethics Committee (REC) in Zagazig Faculty of Medicine. Moreover, informed consent was obtained from all participants.

Data collection and measures

Questionnaire

A structured questionnaire was constructed based on those of other relevant studies.^{2,3,19} The questionnaire composed of four main parts:

Part one included socio-demographic and occupational data such as age, sex, marital status, residence, education,

number of persons/bedroom (crowding index), length of service, working hours per week, shift work, monthly wage in Egyptian Pounds (EGP), health insurance, paid sick/annual leave, and second or another job.

For the purpose of this work, “temporary workers” or “informal wage workers” were defined as workers who are temporary hired in the formal sector without formal contract, specific health and pension benefits, and social security coverage;²⁰ “permanent workers” or “formal workers” were defined as workers who are permanently hired by the government, where wages and daily working hours are under the labor regulations.⁶ Excessive working hours were defined as working more than 50 hrs/week. Fair monthly wage was considered at (>390 to <522 EGP) and poor wage at (<390 EGP).²¹

Part two included present self-reported history of chronic organic diseases/conditions and substance abuse (*i.e.*, tobacco smoking, alcohol, and other addicting drugs). Also, history of major life events that were faced by the participants during the past 12 months²² was obtained. Relevant family history of chronic mental disorders and substance abuse was also included in this part.

Part three concerned with measuring the job stress using the workplace stress scale. It included five negative statements and three positive statements. Job stress was categorized according to job stress scores—dose ≤ 15 was considered “not stressful”, and scores 16–40 was considered “stressful.”²³

Part four: Participants were assessed for CMDs using the self-reporting questionnaire 20 items (SRQ-20) that was recommended by the WHO.²⁴ It has been used by many researchers as a screening instrument for psychiatric epidemiological studies.²⁵ A cutoff point between 6 and 7 was found to yield a sensitivity of 93%, a

specificity of 70%, and a misclassification rate of 19%.²⁶ Accordingly, those with <7 points were categorized as “not suspected” and those with ≥ 7 points were considered “suspected.”

For the purpose of this study, CMDs were considered as the most common types of mental disorders in the Egyptian community that include mood and anxiety disorders.³

Pilot study: The questionnaire was translated into Arabic language and modified after being tested on 10 temporary hired adult hospital cleaners to assess the clarity of the questions and to identify any logistic problem. Those workers were not included in the main survey.

Drug testing

Urine samples collection technique: Urine samples were collected in the workplace during the interviews without previous announcement to avoid substitution of drug free specimens or *in vivo* or *in vitro* adulteration.²⁷ Urine specimens were collected in a room without a sink, water flush toilet, detergents, or other potential adulterants.²⁸ Workers were asked to collect their urine samples in sterile containers that were labelled, sealed properly, and sent to the laboratory for drug testing.

Drugs testing technique: In the laboratory, adulterant testing (specific gravity and creatinine) was done to check the integrity of urine specimens. Urine specimens were screened for amphetamine, barbiturates, benzodiazepines, cocaine, cannabis (Bango), and morphine using multi-drugs one step test and for tramadol using tramadol one step test (Dia Spot TRA). The multi-drugs one step test panel (urine) and the tramadol (TRA) one step test device (urine) are immunoassay tests used for qualitative detection of drugs or their metabolites. They are rapid urine screening tests based on the principle of competitive binding and were

obtained from Acon Laboratories Inc. and Abon Biopharm Hangzhou Co. Ltd. During testing, a urine specimen migrates upward by capillary action. A drug, if present in the urine specimen below its cut-off concentration, will not saturate the binding sites of its specific antibody. The antibody will then react with the drug-protein conjugate and a visible colored line will show up in the test line region of the specific drug strip. The presence of drug above the cut-off concentration will saturate all the binding sites of the antibody. Therefore, the colored line will not form in the test line region. To serve as a procedural control, a colored line will always appear at the control line region, indicating that proper volume of specimen has been added and membrane wicking has occurred.²⁹

Data management

The collected data was analyzed by SPSS ver 19.³⁰ Comparison between group means was done using *Student's t* test; comparison between categorical variables was done by χ^2 test. Univariate analysis was carried out initially to identify risk factors in terms of unadjusted odds ratios (OR) with their 95% confidence intervals (CIs). Subsequently, stepwise multiple logistic regression analysis was carried out to identify independent determinants whilst adjusting results by potential confounders. A p value <0.05 was considered statistically significant.

Results

Socio-demographic and occupational characteristics

There were no significant differences between temporary and permanent hospital cleaners regarding age, sex, marital status, residence, education, and crowding index. Permanent cleaners had signifi-

Table 1: Socio-demographic and occupational characteristics of participants

Demographic and occupational variables	Temporary cleaners (n=242)	Permanent cleaners (n=209)	p value
	n (%)	n (%)	
Mean±SD age (range) (yrs)	46.6±9.2 (28–55)	47.7±8.9 (32–59)	0.19
Sex			0.91
Male	197 (81.4%)	171 (81.8%)	
Female	45 (18.6%)	38 (18.2%)	
Marital status			0.42
Married	206 (85.1%)	172 (82.3%)	
Single/divorced/widowed	36 (14.9%)	37 (17.7%)	
Residence			0.09
Urban	56 (23.1%)	63 (30.1%)	
Rural	186 (76.9%)	146 (69.9%)	
Education			0.15
Illiterate/read and write	209 (86.4%)	170 (81.3%)	
School	33 (13.6%)	39 (18.7%)	
Crowding index			0.08
<3	200 (82.6%)	185 (88.5%)	
≥3	42 (17.4%)	24 (11.5%)	
Mean±SD length of service (range) (yrs)	8.1±2.2(2–13)	18.7±5.6(5–32)	<0.001
Mean±SD working hours/week (range)	68.5±16.03 (56–105)	47.8±1.2 (42–49)	<0.001
Shift work			<0.001
Yes	157 (64.9%)	42 (20.1%)	
No	85 (35.1%)	167 (79.9%)	
Mean±SD monthly wage (range) (EGP)	334.0±21.6 (200–380)	695.1±83.1 (450–850)	<0.001
Second/another job			<0.001
Yes	99 (40.9%)	0 (0.0%)	
No	143 (59.1%)	209 (100.0%)	

cantly ($p < 0.001$) longer length of service and higher monthly wages compared to temporary cleaners. Temporary cleaners had significantly ($p < 0.001$) longer working hours/week compared to permanent workers (mean±SD of 68.5±16.0 vs 47.8±1.2). Moreover, a significantly high-

er proportion of temporary cleaners were involved in shift work (64.9% vs 20.1%) and had second jobs (40.9% vs 0.0%) compared to permanent cleaners. None of the studied temporary cleaners reported having health insurance or paid sick/annual leave (Table 1).

TAKE-HOME MESSAGE

- Informal employment may have significant consequences on mental health.
- Temporary hired cleaners have more job stress and common mental disorders.
- Being unmarried, male sex, family history of mental disorder, age ≥ 40 years, smoking, and length of service ≥ 8 years were associated with substance abuse among temporary cleaners.
- Tramadol, cannabis and benzodiazepines abuse are common in temporary hired workers in Egypt.

Relevant present and family history

There were no significant differences between temporary and permanent hospital cleaners regarding history of physical illness, history of personal stressful life events, smoking status, and history of

substance abuse. Moreover, there were no significant differences between temporary and permanent cleaners regarding family history of mental disorder or substance abuse (Table 2).

Measuring job stress

Temporary hired cleaners reported more job stress (83.9%) compared to permanent cleaners (70.3%) (OR: 2.2, 95% CI: 1.36–3.54).

Screening for CMDs and substance abuse

The SRQ-20 revealed that a significantly higher proportion of temporary cleaners (59.1%) scored above the threshold for CMDs compared to permanent cleaners (29.7%) (OR: 3.4, 95% CI: 2.27–5.17).

Urine-based screening test for common multiple substances abuse revealed that higher proportions of temporary hired cleaners used tramadol (39.7% vs 20.6%), amphetamine (1.2% vs 0.96%), cannabis (Bango) (35.9% vs 24.4%), morphine (8.7% vs 4.3%), and benzodiazepines (17.8% vs 14.8%) compared to permanent cleaners. However, these differences were not of statistical signifi-

Table 2: Relevant present and family history of participants

Present and family history	Temporary cleaners (n=242)	Permanent cleaners (n=209)	p value
	n (%)	n (%)	
History of physical illness	79 (32.6%)	81 (38.8%)	0.18
History of life events	22 (9.1%)	13 (6.2%)	0.26
Smoking status			
Current/ex-smoker	82 (33.9%)	62 (29.7%)	0.34
Non-smoker	160 (66.1%)	147 (70.3%)	
History of substance abuse	11 (4.5%)	3 (1.4%)	0.06
Family history of mental disorder	19 (7.9%)	17 (8.1%)	0.91
Family history of substance abuse	21 (8.7%)	12 (5.7%)	0.23

Table 3: Risk factors associated with common mental disorders (CMDs) among temporary workers; results of univariate and stepwise multiple logistic regression analysis

Risk factors of CMDs	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Positive family history of substance abuse	4.6 (1.2–20.3)	4.8 (1.03–22.6)
Crowding index (≥ 3)	4.3 (1.7–11.1)	2.9 (1.2–7.4)
Positive history of physical illness	3.04 (1.6–5.8)	2.9 (1.6–5.6)
Education (illiterate/read and write)	2.9 (1.3–6.8)	2.4 (1.1–5.4)
Smoking status (current/ex-smoker)	2.3 (1.3–4.3)	2.3 (1.2–4.2)
Shift work (yes)	4.0 (2.2–7.3)	1.03 (0.4–2.5)
Age (≥ 40)	1.7 (0.9–3.1)	—
Female sex	1.7 (0.8–3.6)	—
Marital status (married)	1.04 (0.5–2.3)	—
Residence (rural)	1.1 (0.6–2.1)	—
Length of service (< 8 years)	1.5 (0.8–2.6)	—
No second job	1.5 (0.9–2.6)	—
Positive history of life events	1.0 (0.4–2.7)	—
Positive family history of mental disorder	2.8 (0.9–11.9)	—

cance except for tramadol (OR: 2.5, 95% CI: 1.63–3.96) and cannabis (OR: 1.7, 95% CI: 1.13–2.68). None of the participants from both studied groups consumed cocaine or barbiturates.

Risk factors associated with CMDs and substance abuse among temporary hired cleaners

Univariate analysis showed that illiteracy/low education, crowding index ≥ 3 , history of physical illness, smoking, family history of substance abuse, and shift work were significant risk factors of CMDs among temporary cleaners. Stepwise logistic regression analysis showed that family history of substance abuse, high crowding index, history of physical

illness, low educational level, and smoking were significant independent risk factors of CMDs among the same group (Table 3). Moreover, univariate analysis showed that age ≥ 40 years, male sex, being unmarried, urban residence, length of service ≥ 8 years, history of physical illness, smoking, family history of mental disorder, and family history of substance abuse were significant risk factors of substance abuse among temporary cleaners. Stepwise logistic regression analysis revealed that being unmarried, male sex, family history of mental disorder, age ≥ 40 years, smoking, and length of service ≥ 8 years were significant risk factors associated with substance abuse among the same group (Table 4).

Table 4: Risk factors associated with substance abuse among temporary workers. Results of univariate and stepwise multiple logistic regression analysis

Risk factors of substance abuse	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Marital status (not married)	2.5 (1.1–5.8)	80.9 (58.1–96.1)
Male sex	4.3 (1.9–9.4)	65.7 (40.3–91.6)
Positive family history of mental disorder	4.9 (1.3–21.9)	20.4 (2.3–34.6)
Age (≥40)	5.43 (2.8–10.5)	18.9 (6.8–53.2)
Smoking status (current/ex-smoker)	6.5 (3.3–13.1)	6.9 (2.5–18.9)
Length of service (≥8 yrs)	2.0 (1.2–3.5)	3.3 (1.3–8.1)
Positive family history of substance abuse	3.9 (1.2–14.3)	2.9 (0.5–16.3)
Positive history of physical illness	2.4 (1.3–4.3)	0.8 (0.3–1.9)
Residence (urban)	2.1 (1.1–4.1)	1.04 (0.4–2.6)
Education (illiterate/read and write)	1.2 (0.5–2.6)	—
Crowding index (≥3)	1.9 (0.9–3.9)	—
Shift work (yes)	1.2 (0.7–2.1)	—
Second job (yes)	1.5 (0.9–2.6)	—
No history of life events	1.2 (0.5–3.2)	—

Discussion

In Egypt, people still prefer to work in any job even with poor quality and high level of stress rather than being unemployed as the estimated unemployed adults (15 years old and over) in Sharqia Governorate in relation to nationwide is 7.5%; while the unemployment rate all over the country is 11.9%.³¹ People residing in rural areas in Sharqia Governorate represented about 76.9% of the total population and it was documented that people from those areas especially those of low educational level are usually involved in temporary or seasonal jobs available in cities and towns.^{21,31} However, there are few stud-

ies of the psychological consequences of informal work in all developing countries including Egypt.

The results of this study revealed that there were no significant differences between temporary hired and permanent hospital cleaners regarding socio-demographic characteristics. However, the occupational characteristics showed that permanent cleaners had significantly longer length of service compared to temporary cleaners (mean±SD of 18.7±5.6 vs 8.1±2.2 yrs). This result is attributed to the nature of formal work; where workers are permanently hired by the government.⁶ Moreover, our results revealed that permanent cleaners had

significantly higher monthly wages compared to temporary cleaners (mean±SD of 695.1±83.1 vs 334.0±21.6 EGP). It was also noticed that temporary cleaners had significantly longer working hours/week compared to permanent cleaners (mean±SD of 68.5±16.0 vs 47.8±1.2 hrs/week). None of the studied temporary cleaners reported having health insurance or paid sick/annual leave. Our findings coincide with those of another Egyptian study; the average number of hours worked in the informal economy was 51.6 hrs/week compared to 44.6 hrs/week on average worked in the formal economy. Moreover, informal workers were found to earn significantly lower wages than those in the formal sector.²⁰ These findings can also be attributed to the nature of formal work where wages and daily working hours are under the labor regulations.^{6,32}

In the present study, a significantly higher proportion of temporary cleaners was involved in shift work and had second jobs compared to permanent cleaners (64.9% vs 20.1%, and 40.9% vs 0.0%, respectively). Assad, *et al*,²¹ classified jobs in Egypt according to job quality index into “good jobs,” “fair jobs” and “poor jobs.” Most good jobs have contracts, paid vacations, and paid sick leaves and all offer regular employment. Poor jobs have virtually none of the above features and are mostly irregular. Good jobs are also more highly paid. The median monthly wage is about 522 EGP in good jobs, compared to 390 EGP for fair jobs, and 260 EGP for poor jobs. Therefore, according to these findings, the studied temporary hospital cleaners can be considered to have poor quality jobs as they were fulfilling their features. So, it is reasonable for the majority of them to be involved in second jobs and in shift work due to lack of income security.

In the present study, a significantly

higher proportion of temporary cleaners reported job stress compared to permanent cleaners (OR: 2.2, 95% CI: 1.36–3.54). This result can be attributed to the poor quality of informal work and lack of income security.²¹ Also, this finding is in keeping with that of another study where lack of employment and income security, poor working conditions together with low earnings and lack of health and pension benefits were suggested to increase work stress.²

Review of literatures revealed that informal workers were more susceptible to CMDs than formal workers. Two Brazilian studies that used the same instrument (SRQ-20) found that informal workers had a higher prevalence of CMDs compared to those with formal work (35.4% vs 20.7%, and 44.7% vs 33.6%, respectively).^{2,33} Similarly, the present study revealed that a significantly higher proportion of temporary cleaners (59.1%) can be considered as suspects for CMDs compared to permanent cleaners (29.7%) (OR: 3.4, 95% CI: 2.27–5.17. The detected prevalence of CMDs is higher than that detected by a recent Egyptian national survey that included 14 640 adults in five regions where the overall prevalence of mental disorders was found to be 16.93%.³ This discrepancy may be attributed to the difference in the studied sample in both studies regarding the nature of job—where in our study hospital cleaning work is a highly hazardous and difficult work with low social and financial benefits.

Urine testing for drug use in the workplace was documented to be widespread, with the prevalence of positive drug tests in the workforce reaching up to 15%.¹⁸ Many survey studies carried out in the USA revealed that drug abuse has extended into all levels of society including the workplace.¹⁸ Furthermore, it was suggested that unfavorable working conditions make substance abuse very common.³⁴

In the present study, urine-based screening test for common multiple substances abuse revealed that higher proportions of temporary cleaners abused tramadol, amphetamine, cannabis (Bango), morphine, and benzodiazepines compared to permanent cleaners. However, the differences were not of statistical significance except for tramadol (OR: 2.5, 95% CI: 1.63–3.96) and cannabis (Bango) (OR:1.7, 95% CI: 1.13–2.68). It must be noticed that, in the present study much lower proportions of temporary and permanent cleaners reported (by history taking) abusing one substance or more with no significant difference between both groups compared to those detected by urine testing for drugs. This finding is related to the context of the conservative nature of the Egyptian society that rejects disclosing about drug intake.^{19,35}

Considering the finding that, temporary hospital cleaners reported more job stress compared to permanent cleaners, it may be suggested that temporary work can be an important risk factor of CMDs and substance abuse. Such finding should be a warning sign to policymakers and occupational health care providers. These results coincide with those of other studies where unemployment, certain aspects of jobs, or unfavorable working conditions were found to have strong influence on the psychological functioning of workers causing many mental disorders such as stress, mild depression, and anxiety disorders, often referred as CMDs.^{2,3,36} The direction of causality cannot be determined by the design of this study, but the results are consistent with an effect of temporary work, as the two samples did not differ in terms of past mental health problems. However, further prospective studies are needed.

Regarding the current pattern of drug abuse among the studied temporary hired hospital cleaners, the present study re-

vealed that tramadol and cannabis (Bango) were the most commonly abused drugs, followed by benzodiazepines and morphine. Abusing amphetamine was less prevalent among the studied workers. Moreover, none of the participants from both studied groups consumed cocaine or barbiturates. In Egypt in the 1980s, the pattern of drug availability and addiction was different; the most commonly used drugs were cannabis, opium, hypnotoseditives, heroin, and cocaine. During the 1990, synthetic psychoactive drug use increased markedly to become the third most commonly available drug following cannabis and alcoholic beverages. From the second half of the 1990s, cannabis became prevalent in the form of Bango which is prepared from leaves of *Cannabis sativa*. This plant is increasingly widely cultivated in Egypt, especially in Sinai Peninsula.¹⁶ The revealed pattern of drug abuse among the studied hospital cleaners coincides with that reported by a recent Egyptian study; where an increasingly alarming phenomenon of tramadol (tramal, amadol, tramax, contramal, trama SR, ultradol, tramundin) drug abuse, a synthetic opioid painkiller similar to morphine, although milder, has been demonstrated in the Egyptian community in the last four years. This may be due to the fact that tramadol is easily accessible and readily provided at cheap costs despite of it is being a scheduled drug. Also, its popularity and massive use, especially among Egyptian men, may be due to the fact that it can be used as a remedy for premature ejaculation and for extended orgasm and increase sexual pleasure. Students, laborers and even professionals are buying large quantities of tramadol from the black market. There are no exact figures, but one researcher estimated that up to 30% of males aged between 14 and 30 years use it regularly.³⁷

Stepwise logistic regression analysis

showed that family history of substance abuse, high crowding index, history of physical illness, low educational level, and smoking were significant risk factors for development of CMDs in temporary cleaners. This finding partially agrees with that of Ghanem, *et al*,³ who showed that mental disorders were associated with low educational level, crowding index >3, and the presence of co-morbidities, while having ≤3 children and being a current smoker were protective factors. The results of the present study also partially match with that of De Silva, *et al*,³³ who showed that minor psychiatric disorders were more common among those of lower economic level, smokers and alcoholics. Our results suggest that physical illness without health insurance support, family history of substance abuse, and smoking may constitute financial burden on informal workers whose wages are very low which may endanger their mental health. Moreover, high crowding index reflects the poor socioeconomic status; while illiteracy/low education contributes to low socioeconomic status of the studied temporary cleaners, it also lowers the ability of those workers to cope with their life and work circumstances. Therefore, reduced work productivity can be expected with increased risk of losing even their temporary jobs. In many studies a significant relationship between CMDs and long term sickness absence and work disability was reported.^{8,11,13,14} On the contrary to our results, shift work, major life events, and being a female informal worker were found to be associated with increased risk of developing different mental disorders.^{5,38,39} This discrepancy may be attributed to communities' differences regarding living and working circumstances as well as workers' coping abilities.

Stepwise logistic regression analysis revealed that being unmarried, male sex, family history of mental disorder, age

≥40 years, smoking, and length of service ≥8 years were significant risk factors of substance abuse among temporary hired cleaners; while, family history of substance abuse, history of physical illness, and urban residence were not significantly associated with substance abuse among the same group. These findings partially coincide with those of another Egyptian study carried out on 457 patients of drug dependence; the majority of the studied addicts were males (70.0%), from urban areas (75.7%), current smokers (95.6%), not married (single, divorced, and widowed) (70.0%), aged 20–40 years (81.4%), and of low educational level.¹⁹ Moreover, in another study it was revealed that substance abuse were more common among males and unmarried or separated individuals.⁴⁰ It was suggested that gender-based differences in drug abuse may originate from a biomedical (*i.e.*, genetic, hormonal, anatomical and physiological), and/or psychosocial (*i.e.*, population-based risk factors) outlook.⁴¹

The current study is one of the unique studies so far conducted in a developing country, Egypt, that assessed mental health consequences of informal work. However, there were some limitations; positive results by the initial screening methods used for the diagnosis of CMDs and substance abuse were not confirmed subsequently in this study.

In conclusion, temporary hired hospital cleaners suffered from job stress, CMDs, and substance abuse more than permanent cleaners. So, there is a need to expand the coverage of current laws and occupational safety and health standards to cover workers in the informal economy. Moreover, there is a significant demand for innovative approaches to enable systematic access to informal workers where primary care units can provide basic occupational health services including mental health services. Improving the

economic position of informal workers is a potentially powerful strategy for raising living standards and reducing poverty.

Adopting effective prevention or intervention strategies, particularly drug-free workplace program, is crucial. Social support and positive coping mechanisms as protective factors for workers should be enhanced. Also, it is recommended to address impairment from CMDs and substance abuse in workplace and to plan an employee assistance program.

To rid the workplace of drugs, the prevalence and current pattern of drug abuse needs to be known as well as whether such abuse is directly related to workplace outcomes such as productivity, safety, and product integrity. Furthermore, drug screening for tramadol should be added to all employees' drug testing programs.

Moreover, investing in research concerned with workers in the informal sector should be given the priority in our country with emphasizing on analytical and interventional studies.

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