Int J High Risk Behav Addict. 2016 December; 5(4):e27555. doi: 10.5812/ijhrba.27555.

Published online 2016 May 10. **Research Article**

Predictors of High-Risk Behaviors in Municipal Workers and Staff in Zahedan, South-East of Iran

Alireza Ansari-Moghaddam,[1] Hossein Ansari,[1] Mahdi Mohammadi,[1,*] Soheila Khosravi,[2] Esmail Sanei-Moghaddam,[2] and Mahmodreza Miri-Bonjar[1]

[1]Health Promotion Research Center, Zahedan University of Medical Sciences, Zahedan, IR Iran
[2]Blood Transfusion Research Center, High Institute for Research and Education in Transfusion Medicine, Zahedan Blood Transfusion Center, Zahedan, IR Iran

[*]*Corresponding author*: Mahdi Mohammadi, Health Promotion Research Center, Zahedan University of Medical Sciences, Zahedan, IR Iran. Tel: +98-9156407880, Fax: +98-5433425375, E-mail: memohammadi@yahoo.com

Received 2015 February 19; **Revised** 2015 May 23; **Accepted** 2015 September 13.

Abstract

Background: In addition to the direct effect on health, high-risk behaviors expose people to a variety of disorders and affect their activities. Despite the importance of investigating the prevalence of high-risk behaviors among municipal workers, no comprehensive study has yet been conducted in this area.
Objectives: The aim of the present study was to assess the predictors of high-risk behaviors among municipal workers in Zahedan city, Iran.
Patients and Methods: This cross-sectional study was carried out on a total of 671 municipal workers and staff from different parts of Zahedan city in 2013. Information was collected through face to face interviews and registering answers in data forms. Data were analyzed in stata.12 software using chi-square and multivariate regression analysis at a significant level of 0.05.
Results: Fifty-seven participants (8.5%) reported previous high-risk behaviors. According to the logistic regression test, only ethnicity and education variables were significantly related to the prevalence of high-risk behavior ($P < 0.05$). Although those with a longer work history had greater odds of high-risk behaviors than newly employed workers, this variable had no significant relationship with high-risk behaviors, and only improved the fitness and remained in the final model.
Conclusions: High-risk behaviors are not highly prevalent among municipal workers and staff, and have no relationship with the occupation type. Given the higher prevalence of high-risk behaviors among more educated workers, there should be no concern about high-risk behaviors in less-educated ones. In conclusion, the ethnicity and educational level revealed as important predictors of high-risk behaviors among municipal workers.

Keywords: Risk Behaviors, Municipal, Staff, Iran, Zahedan

1. Background

Any behavior that can increase risk of diseases or discomfort, or directly impair the organs is considered a high-risk behavior (1). Various studies have shown an increased prevalence of high-risk behaviors in different occupational groups (2-8).

Street cleaners and municipal staff are among occupational groups with essential role in keeping towns clean and tidy; yet they are exposed to a variety of high-risk behaviors that may affect their performance. They are also highly exposed to infections such as AIDS and hepatitis (3, 7), which doubles the importance of studying this group.

During young and active ages, committing one high-risk behavior like drug use potentially increases odds of committing others, and possible membership in groups that commit such behaviors (9, 10). Several studies have shown that the potential for committing multiple high-risk behaviors is greater than committing one particular high-risk behavior (11-13), which indicates the importance of the issue. Municipal workers are usually young and active, indicating a greater tendency toward multiple high-risk behaviors.

Previous studies have reported the prevalence of high risk behaviors such as smoking, alcohol use, drug use, tattoo, high-speed driving, unprotected sex, non-use of seat belt, as 6 - 31% in hospital staff (14), 17% - 31% in prisoners (15), 31% - 52% in high-school students (16) and 5% - 51% in adolescents (17, 18).

Some studies have shown that high-risk behaviors are closely related to the way peers commit them and the relationship among peers (5, 18). This point has great relevance because municipal workers have to spend long hours together.

To the best of our knowledge, no comprehensive study of the subject has been conducted in this group, nationally.

2. Objectives

Given the importance of high-risk behaviors in terms of more severe consequences in municipal workers, this study aimed to investigate the prevalence of high-risk behaviors and related factors among this group in Zahedan city, Iran. The results may be used by relevant authorities for planning and identification of the high- risk groups.

3. Patients and Methods

This cross-sectional study was conducted on 671 municipal male workers and staff from different areas of Zahedan city located in south-east of Iran in 2013. Information was obtained through face to face interviews and the participants' answers were collected in data forms. These forms contained demographic data including age, work history, ethnicity, marital status and education level and history of high-risk behaviors. Explanations were provided about study objectives and assurances about confidentiality, thus the participants entered the study with informed consents. The participants were studied in terms of 5 high-risk behaviors, including tattoo, drug injection or use, needle stick, alcohol use, and self-injury. Any participant with at least one of these behaviors was considered in the high-risk behavior group and accordingly analyzed. Data were analyzed in Stata.12 software using chi-square, exact chi-square and multivariate regression tests. Variables were modeled according to the Hosmer-Lemshow method. $P < 0.05$ was considered statistically significant.

4. Results

A total of 671 municipal workers and staff were studied, including 297 (44.3%) administrative personnel, 192 (28.6%) street cleaners, and 182 (27.1%) drivers. Mean age of the participants (all male) was 42.6 $\pm$ 9.1. Fifty-seven cases (8.5%) reported previous high-risk behaviors (95% confidence interval: 3.8 - 13.4), of whom, 22 (7.4%) were staff, 20 (10.9%) were drivers, and 15 (7.8%) were street cleaners and manual workers. Table 1 presents demographic details and a history of high-risk behaviors in municipal workers and staff in Zahedan.

In this study, the relationship between high-risk behaviors and every single independent variable was examined in a univariate analysis. Chi-square test showed a significant relationship only between committing high-risk behaviors and ethnicity ($P = 0.007$), and a greater prevalence of high-risk behaviors was found in the Balooch than in Fars ethnicity. Although the prevalence of high-risk behaviors was greater in married people than in singles and also

Table 1. Frequency Distribution of Demographic Details and History of High-Risk Behaviors in Municipal Workers and Staff in Zahedan in 2013

Variables	No. (%)
Demographic Details	
Age, y	
Less than 29	45 (6.7)
30 - 39	205 (30.6)
40 to 49	251 (37.4)
Over 50	170 (25.3)
Work History, y	
Less than 9	258 (38.5)
10 to 19	119 (17.7)
Over 20	294 (43.8)
Ethnicity	
Fars	529 (78.8)
Balooch	142 (21.2)
Marital Status	15 (2.2)
Single	656 (97.8)
Married	
Education	
Illiterate	29 (4.3)
Junior High	333 (49.6)
Senior High	162 (24.1)
University	147 (29.9)
History of High-Risk Behaviors	
Tattoo	
Yes	45 (6.7)
No	626 (93.3)
Alcohol Use	
Yes	2 (0.3)
No	669 (99.7)
Drug Injection or Use	
Yes	1 (0.1)
No	670 (99.9)
History of Needle Stick	
Yes	77 (11.5)
No	594 (88.5)
Self-Injury	
Yes	8 (1.2)
No	663 (98.8)
General History of High-Risk Behavior	
Yes	57 (8.5)
No	614 (91.5)

in drivers than in staff and workers, no significant relationship was found between high-risk behaviors and marital status or type of job ($P > 0.05$). Moreover, no significant relationship was found between high-risk behaviors and age or work experience ($P > 0.05$).

To control confounding factors and assess variables together, multivariate logistic regression test was used, which showed a significant relationship between high-risk behaviors and only variables of ethnicity and education ($P < 0.05$). Although those with a longer work history had greater odds of committing high-risk behaviors than newly employed workers, this variable had no significant relationship with high-risk behaviors, and only improved the fitness and remained in the final model (Table 2).

Participants were also studied in terms of body mass index (BMI), and 52 (8.1%) were low weight (BMI < 18.5), 255 (39.5%) were overweight (BMI > 25), and the rest were normal (Table 3). The chi-square test showed that distribution of BMI and obesity was not unrelated to job status in the municipality ($P = 0.001$), and workers and street cleaners were least obese (15.9%).

Furthermore, only workers reported coming across needles on the streets, of whom, 9 cases (1.3%) had a history of imprisonment, 22 (3.3%) history of blood transfusion, and 24 (3.6%) history of phlebotomy.

5. Discussion

The present study showed that the prevalence of high-risk behaviors among municipal workers and staff in south-east Iran was not very high compared to other groups such as prisoners, hospital staff and school adolescents. Previous studies have reported the prevalence of high-risk behaviors such as smoking, alcohol use, drug use, tattoo, high-speed driving, unprotected sex, non-use of seat belt, in hospital staff up to 31% (14), female prisoners up to 31% (15), and adolescents up to 50% (17, 18).

In the current study, only few workers and staff reported previous high-risk behaviors, but even this exceeded expectations, and requires planning and education for further reduction. Low prevalence of high-risk behaviors in this group may be attributed to participants' inaccurate answers, leading to low estimates. Since committing one high-risk behavior paves the way for committing others (19, 20), even low prevalence in this group may turn high in the future. Some participants had committed multiple high-risk behaviors concurrently. Therefore, although a low prevalence of high-risk behaviors in this group is a positive point, preventive actions should be taken to prevent recurrence of high-risk behaviors in this group.

The highest prevalence of high-risk behaviors among study participants pertained to tattoo, which was more observed in younger workers. Thus, educating younger workers and staff seems particularly important. Contrary to expectation of higher prevalence of high-risk behaviors in workers, municipal drivers showed a higher prevalence compared to other groups. Therefore, preventive programs should focus more on drivers. As the religion may decrease risky behaviors, thus periodically religion classes could prevent high-risk behaviors among all occupational groups such as municipal workers and drivers (21).

Furthermore, only variables of education and ethnicity affected high-risk behavior in municipal workers and staff, and the Balooch committed more high-risk behaviors. Given the higher prevalence of high-risk behaviors among more educated people, there should be no concern about high-risk behaviors in less-educated ones. What is important is changing people's attitude toward this issue, especially at the recruitment stage.

Considering that work history remained in the final model, and that the odds of committing high-risk behaviors are greater in those with shorter work history, it can be inferred that in recent years, high-risk behaviors are generally more prevalent, and more committed by youths, as was emerged in this occupational group.

The study also showed that most participants were overweight. Although obesity is not a behavior, it may be induced by high-risk dietary behaviors, such as consuming high-fat foods and lack of exercise. Data suggest that obesity was less prevalent in workers and street cleaners than in staff and drivers. Although these people may have had a good weight before employment, their physical activity along with proper diet seems to make them healthy individuals. On the other hand, considering a high prevalence of obesity among staff and drivers, they must be advised to exercise more to prevent excess weight. The increasing rate of obesity prevalence is related to changes in the life style, especially dietary habits and inadequate daily activity in both rural and urban regions (22, 23). As the consumption of unhealthy outdoor foods and overeating among municipal workers is low; so, it seems that the physical activity is a main factor to decrease obesity among them.

Additionally, 11.5% of the participants amongst workers reported exposure to needle sticks and needles in the streets. In a study conducted in Tehran (24), this was reported 16%. Thus, municipal workers in Zahedan were less exposed to this problem, which may be due to the type of garbage and how they work. In their study, Alavian et al. (24) also found that workers such as street cleaners are exposed to risk of direct contact with uncovered needles and needle sticks, and reported the prevalence of exposure to

Table 2. Coefficients of Multivariate Logistic Regression in Assessing Factors Related to High-Risk Behaviors in Municipal Workers and Staff

Independent Variables	β	SE (β)	OR	95% CI	P Value
Ethnicity					
Fars			1		
Balooch	0.83	0.299	2.3	1.28 - 4.1	0.005
Education					
Illiterate			1		
Primary School or Junior High	-1.8	7.4	0.01	0.001 - 7.6	0.999
Senior High	0.89	0.43	2.45	1.05 - 5.7	0.037
University	0.88	0.47	2.42	0.96 - 6.1	0.06
Work History, y					
Less than 9			1		
10 to 19	-0.32	0.46	0.6	0.3 - 2.1	0.12
Over 20	0.43	0.54	0.15	0.15 - 4.7	0.08

Table 3. Frequency Distribution of Obesity in Municipal Workers, Staff and Drivers

Job Position	Body Mass Index			Total
	$\leq$ 18.4	18.5 - 24.9	$\geq$ 25	
Staff	13 (4.6)	132 (46.8)	137 (48.6)	282 (100)
Street Cleaners	32 (17.6)	121 (66.5)	29 (15.9)	182 (100)
Drivers	7 (3.9)	85 (47.0)	89 (49.2)	181 (100)
Total	52 (8.1)	338 (52.4)	255 (39.5)	645 (100)

needle sticks in municipal street cleaners 16%, which is 81 times higher than in other municipal occupations. In a study by Turnberg and Frost (25), 21% of workers reported previous needle injury.

To sum up, the prevalence of high-risk behaviors in municipal workers and staff of Zahedan was not high, and had no relationship with the type of job they did. Given a higher prevalence of high-risk behaviors among more educated workers, there should be no concern about high-risk behaviors in less educated ones. Considering their position, municipal street cleaners enjoy more appropriate weights than other job groups in this organization, which is an advantage of this job. In conclusion, the ethnicity and educational level revealed as important predictors of high-risk behaviors among municipal workers. However, it must be mentioned that beyond the demographic variables, the high-risk behaviors should be also considered psychologically and socially in different groups in societies (26).

Acknowledgments

Authors sincerely thank all participants in this study, and all related individuals for their cooperation in data collection.

Footnote

Authors' Contribution: All authors read and approved final version of this manuscript.

References

1. Brewer NT, Weinstein ND, Cuite CL, Herrington JE. Risk perceptions and their relation to risk behavior. *Ann Behav Med.* 2004;**27**(2):125–30. doi: 10.1207/s15324796abm2702_7. [PubMed: 15026296].
2. Baskin-Sommers A, Sommers I. The co-occurrence of substance use and high-risk behaviors. *J Adolesc Health.* 2006;**38**(5):609–11. doi: 10.1016/j.jadohealth.2005.07.010. [PubMed: 16635777].
3. Hassan MM, Ahmed SA, Rahman KA, Biswas TK. Pattern of medical waste management: existing scenario in Dhaka City, Bangladesh. *BMC Public Health.* 2008;**8**:36. doi: 10.1186/1471-2458-8-36. [PubMed: 18221548].

4. Khajehdaluee M, Zavar A, Alidoust M, Pourandi R. Smoking among high school students of an area with medium socioeconomic status. *J Pak Med Assoc.* 2014;**64**(3):291–5. [PubMed: 24864602].
5. Laguna-Torres VA, Aguayo N, Aguilar G, Ampuero JS, Galeano A, Barboza A, et al. HIV infection and high-risk behaviours in a Paraguayan military population. *Int J STD AIDS.* 2014;**25**(12):866–77. doi: 10.1177/0956462414523741. [PubMed: 24598975].
6. Murphy DA, Durako SJ, Moscicki AB, Vermund SH, Ma Y, Schwarz DF, et al. No change in health risk behaviors over time among HIV infected adolescents in care: role of psychological distress. *J Adolesc Health.* 2001;**29**(3 Suppl):57–63. [PubMed: 11530304].
7. Nadal M, Inza I, Schuhmacher M, Figueras MJ, Domingo JL. Health risks of the occupational exposure to microbiological and chemical pollutants in a municipal waste organic fraction treatment plant. *Int J Hyg Environ Health.* 2009;**212**(6):661–9. doi: 10.1016/j.ijheh.2009.06.002. [PubMed: 19586797].
8. Stojanovic D, Barbir A, Kralj V, Malatestinic D, Cattunar A, Cerovic R. Increasing smoking prevalence among pupils of several Croatian secondary medical schools between 1990 and 2006. *Coll Antropol.* 2011;**35**(3):695–700. [PubMed: 22053543].
9. Swahn MH, Bossarte RM. Gender, early alcohol use, and suicide ideation and attempts: findings from the 2005 youth risk behavior survey. *J Adolesc Health.* 2007;**41**(2):175–81. doi: 10.1016/j.jadohealth.2007.03.003. [PubMed: 17659222].
10. Tapert SF, Aarons GA, Sedlar GR, Brown SA. Adolescent substance use and sexual risk-taking behavior. *J Adolesc. Health.* ;**28**(3):181–9. doi: 10.1016/S1054-139X(00)00169-5.
11. Gower AL, Shlafer RJ, Polan J, McRee AL, McMorris BJ, Pettingell SL, et al. Brief report: Associations between adolescent girls' social-emotional intelligence and violence perpetration. *J Adolesc.* 2014;**37**(1):67–71. doi: 10.1016/j.adolescence.2013.10.012. [PubMed: 24331306].
12. Wechsler H, Kuo M. Watering down the drinks: The moderating effect of college demographics on alcohol use of high-risk groups. *Am J Public Health.* 2003;**93**(11):1929–33. [PubMed: 14600068].
13. Zuckerman M, Kuhlman DM. Personality and risk-taking: common biosocial factors. *J Pers.* 2000;**68**(6):999–1029. [PubMed: 11130742].
14. Saberi H, Nabi MR, Joda KM. Paper: Frequency of high risk behaviours in health care of Kashan shahid beheshti hospital. *Journal of Tebbe Kar.* ;**3**(4):39–43.
15. Ataei B, Khorvash F, Azadeh S, Nokhodian Z, Kassaian N, Babak A. The prevalence of high risk behaviors among women prisoners in isfahan, iran. *J. Isfahan Med. Sch.* 2011;**29**(150):1070–7.
16. Haghdoost A, Abazari F, Abbaszadeh A, Rabori ED. Family and the risky behaviors of high school students. *Iran. Red. Crescent. Med. J.* 2015;**16**(10):1–7.
17. Barikani A. High risk behaviors in adolescent students in Tehran. *Iranian J. Psychiat and Clin Psychol.* 2008;**14**(2):192–8.
18. Haghdoost A, Abazari F, Abbaszadeh A, Dortaj Rabori E. Family and the risky behaviors of high school students. *Iran Red Crescent Med J.* 2014;**16**(10):eee15931. doi: 10.5812/ircmj.15931. [PubMed: 25558380].
19. Prinstein MJ, Boergers J, Spirito A. Adolescents' and their friends' health-risk behavior: factors that alter or add to peer influence. *J Pediatr Psychol.* 2001;**26**(5):287–98. [PubMed: 11390571].
20. Brener ND, Kann L, Garcia D, MacDonald G, Ramsey F, Honeycutt S, et al. Youth risk behavior surveillance–selected steps communities, 2005. *MMWR Surveill Summ.* 2007;**56**(2):1–16. [PubMed: 17318115].
21. Mojahed A. Religiosity and preventing risky behaviors. *Int J High Risk Behav Addict.* 2014;**3**(3):eee22844. doi: 10.5812/ijhrba.22844. [PubMed: 25593894].
22. Iannotti RJ, Wang J. Trends in physical activity, sedentary behavior, diet, and BMI among US adolescents, 2001-2009. *Pediatrics.* 2013;**132**(4):606–14. doi: 10.1542/peds.2013-1488. [PubMed: 24043281].
23. Marinou K, Tousoulis D, Antonopoulos AS, Stefanadi E, Stefanadis C. Obesity and cardiovascular disease: from pathophysiology to risk stratification. *Int J Cardiol.* 2010;**138**(1):3–8. doi: 10.1016/j.ijcard.2009.03.135. [PubMed: 19398137].
24. Alavian MAM, Dezfoli Negad M, Asari S. Prevalence and needle stick risk factors in municipal personnel of Tehran in 2005. *Journal of Infec Trop Dis.* 2006;**35**(4):19–24.
25. Turnberg WL, Frost F. Survey of occupational exposure of waste industry workers to infectious waste in Washington State. *Am J Public Health.* 1990;**80**(10):1262–4. [PubMed: 2400042].
26. Bakhshani NM. Impulsivity: a predisposition toward risky behaviors. *Int J High Risk Behav Addict.* 2014;**3**(2):eee20428. doi: 10.5812/ijhrba.20428. [PubMed: 25032165].