



Alcohol consumption and physical activity among healthcare workers

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Abstract

Aims The study analysed the relation between consumption of wine/beer/hard liquor and the practice of physical activity in everyday life for healthcare professionals.

Methods A descriptive survey design was used. A representative sample (n=914) of healthcare practitioners who work in a teaching hospital have participated. Data were collected through the distribution of self-reported questionnaires.

Results 47.4% drank wine/beer occasionally. 16% consumed approximately half a litre daily, while 1.3% had a daily consumption of one litre or more. Fewer consumed hard liquor occasionally and only 1% on a regular basis. 26.1% declared to not practise physical activity, while 71.2% affirmed to do it occasionally and 2.1% regularly. Reporting no performed physical activity were associated to wine/beer consumption but not to hard liquor consumption.

Conclusion Health promotion programs should not only target the general population, but also target the health care personnel.

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Introduction

The international literature has provided evidence that excessive consumption of alcohol leads to an increase in diseases and an aggravation on injury outcomes (1). Also sedentary behaviour and physical inactivity as well as alcohol consumption are associated with adverse health outcomes (2). The word “sedentary” is applied to people who spend most of their day either sitting or lying down without doing any kind of physical activity (3). Physical inactivity is defined as “doing no or very little physical activity at work, at home, for transport, or in discretionary time” (4). Knowing the epidemiological data related to healthcare professionals’ lifestyles is a critical step towards supporting a culture of health promotion. For both staff and patients in the last two decades a lot of researchers have dedicated themselves to the study of alcohol consumption among physicians and medical students (5-11) and among healthcare professionals (12-15). Despite evidence showing the impacts of alcohol consumption on global health, studies have documented the existence of different attitudes and habits among physicians, and a relation to the risk of alcohol consumption (16-18).

Unsurprisingly, also among doctors, men have a higher alcohol consumption than women; they drink more frequently, consume a higher amount of alcohol per occasion and at a more hazardous or harmful level (6;11;19).

The research on healthcare workers’ physical activity, however, is much rarer (20-22). The few studies that have been carried out have highlighted that despite the significant education of healthcare workers on health promotion and healthy lifestyles, this knowledge is not always transferred to their own behaviour.

The aim of the study was to explore the relation between consumption of alcohol and the practice of physical activity in everyday life for healthcare professionals.

Materials and Methods

Survey design

The survey was anonymous. Each of 3150 staff members were contacted through the intranet with an invitation to participate in the study. No financial or material incentives were offered in exchange for participation. The questionnaire was administered by the Parma University Hospital from January to April 2013. The results were distributed to all pro-



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professionals, managers/coordinators, and other involved services.

Sample

The Academic Hospital of Parma is a teaching general hospital with 1250 beds, located in the Parma Province (which has about 447.000 inhabitants). The sample of n=914 respondents was considered representative (CI=99%) compared to the reference population (n=3.150).

Questionnaire

A brief self-report questionnaire was administered to investigate the alcohol consumption behaviours and physical activity. The questionnaire was distributed in 2013 in order to explore the phenomenon for the first time in the Parma University Hospital, and the survey has not been repeated since then.

The questionnaire consisted of two parts: Part A collected demographic information: gender, age, profession (physicians, nurses, health technicians, health workers, other employees), marital status (married/cohabitant, single, separated/divorced, widower), instruction degree (primary school, secondary school, high school diploma, bachelor degree) and workplace (clinical unit/service, office, other/vehicle). Part B reported the frequency of alcohol consumption and physical activity through the following questions:

1. "Do you do any physical activity?" (1 = No, 2 = Yes, occasionally, 3 = Yes, I play sport at a competitive level),
2. "Can you indicate your habits with respect to the assumption of wine/beer?" (1 = I don't consume neither wine nor beer, 2 = I consume them only occasionally, 3 = I consume them with an approximately 1/2 litre daily dose, 4 = I consume a wine/beer daily dose equivalent or higher than 1 litre)
3. "Can you indicate your habits with respect to the assumption of hard liquor?" (1 = No, 2 = Yes, occasionally, 3 = Yes, regularly).

Statistical analysis

The demographic information of the respondents (gender, age, marital status, instruction degree, profession, and workplace) was descriptively expressed as numbers and percentages (Table 1). The association of demographic variables as gender and age with the drinking behaviours and physical activity was analysed through Mann-Whitney's test and χ^2 test in order to obtain the risk estimate and the crude Odd Ratios values (OR with 95% CI).

A multinomial logistic regression method was used for verifying which of the respondents' demographic characteristics were found to be significant predictors for

Table 1 Characteristics of the healthcare personnels

	n = 914	%
Gender *		
Women	685	74.9
Men	225	24.6
Missing	4	0.4
Age *		
20-30	85	9.3
31-65	829	90.7
Marital status †		
Married/cohabitant	532	58.2
Single	251	27.5
Separated/divorced	109	11.9
Widower	17	1.9
Missing	5	0.5
Education †		
High school diploma	440	48.1
Bachelor degree	373	40.8
Secondary school	92	10.1
Primary school	4	0.4
Missing	5	0.5
Profession †		
Nurses	400	43.8
Health technicians	109	11.9
Health workers	108	11.8
Employees	92	10.1
Physicians	86	9.4
Other	117	12.8
Missing	2	0.2
Workplace †		
Clinical Unit / Service	772	84.5
Office	118	12.9
Vehicle	3	0.3
Other	16	1.8
Missing	4	0.4
Total	914	100.0

the dependent variables (wine/beer consumption, hard liquor consumption, and physical activity). All dependent variables (wine/beer consumption, hard liquor consumption, and physical activity) have been recoded into dichotomous (presence/absence of consumption or activity) and the adjusted OR values have been reported. The relation between healthcare workers' drinking behaviours and their physical activity has been evaluated according to the Pearson χ^2 test. All statistical analyses were performed through SPSS 17.0 software. 95% CI not including the value one and p-value <0.05 were considered statistically significant.

Results

Overall, 28.2% declared that they were not consuming beer or wine, while 71.3% declared that they did not consume hard liquor at all. Furthermore, 26.1% declared that they were not physical active (Table 2).



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Table 2 Level of physical activity and drinking habits

1. "Do you do any physical activity?"			
	No	239	26.1
	Yes, occasionally	651	71.2
	Yes, I play sport at a competitive level	19	2.1
	No reply	5	0.6
2. "Can you indicate your habits with respect to the consumption of wine/beer?"			
	I don't consume neither wine nor beer	258	28.2
	I consume them only occasionally	433	47.4
	I consume them with an approximately ½ litre daily dose	146	16.0
	I consume a wine/beer daily dose equivalent or higher than 1 litre	12	1.3
	No reply	65	7.1
3. "Can you indicate your habits with respect to the consumption of hard liquor?"			
	No	652	71.3
	Yes, occasionally	180	19.7
	Yes, regularly	9	1.0
	No reply	73	8.0

* Crude OR calculated through the Pearson Chi-Square Risk Estimate

† Adjusted OR calculated through the Multinomial Logistic Regression

Drinking behaviour

Table 3 shows that wine/beer consumption was significant more frequent among women (OR 1.272; 95% CI 1.186-1.363). More women also declared an occasional consumption of hard liquor (OR 1.339; 95% CI 1.182-1.517). A subanalysis on the physicians reported contrary results, however, with men consuming more alcohol both in relation to hard liquor ($p < 0.014$) and to wine/beer ($p < 0.022$). Age was not related to wine/beer consumption, but staff members of 31 years and older seemed more likely to consume hard liquor than their younger colleagues ((OR 1.112; 95% CI 1.038-1.190). Marital status was not a significant predictor of wine/beer consumption, but showed higher risk of consuming hard liquor (OR 1.405; 95% CI 1.185-1.665). Furthermore, single healthcare workers seem more likely not to consume hard liquor compared to the other groups (OR 0.540; 95% CI 0.435-0.671). Living alone was associated to no consumption of hard liquor.

Physical activity

Table 3 shows the sample characteristics that are associated with physical activity. There was no relation to gender (OR 1.061 95% CI 0.979-1.149).

Hospital staff of 31 years and older were more probable to be physically active than their younger colleagues (OR 1.066; 95% CI 1.025-1.109).

The marital status variable is not associated with health care practitioners' physical activity.

Health workers were more likely to be physically active (OR 1.877; 95% CI 1.039-3.390) than other professionals.

The workplace variable was a significant predictor for physical activity; working in an office (OR 0.256; 95% CI 0.101-0.645) and in clinical units (OR 0.208; 95% CI 0.076-0.570) were associated with physical inactivity.

Drinking behaviours and physical activity

People who were physically inactive had a higher risk (Pearson $\chi^2=5.136$, $p < .023$) of consuming wine/beer (OR 1.314; 95% CI 1.041-1.659), but not hard liquor consumption (Pearson $\chi^2=2.241$, $p < .134$).

Discussion

This study explored the reported lifestyle behaviours and physical activity of healthcare professionals working in the north of Italy.

Women declared a higher consumption of both wine/beer and hard liquor than men, except for physicians where more men reported higher alcohol consumption. This is in agreement with the majority of the literature (6;11), which has, however, not homogeneous results. (8). A recent survey of 3,213 Canadian doctors found that only 1.3% of men and 0.8% of women had consumed five or more drinks at the same occasion within a year (11). However, the literature also highlights alcohol consumption for other healthcare workers, such as nurses and pharmacists (12-15). In 2007/2008 a survey showed that 95% of nursing students consumed alcohol and 19% of the female students had exceeded the recommended weekly limit in Ireland (15). A recent study on 1691 health workers in a hospital located in the north of Italy affirmed that the prevalence of at risk alcohol consumption among hospital workers was low (14). However, health workers who work in inpatient wards showed tendencies of hazardous alcohol consumption. The result showing that hospital staff members who are 31 years or older have a higher prevalence of consuming hard liquor than younger healthcare workers is in agreement with a study from 1985 which showed that younger doctors drank less and were more conscious of alcohol as a public health problem than their older colleagues (28).

The literature on physicians' alcohol intake indicates that the surgical specialty might be a risk factor for hazardous drinking among German and Norwegian doctors (9) but not for Australian doctors (29). This difference could be seen as a difference between countries with different cultural background. A recent Italian study (14) indicated that health care workers who work in inpatient wards display at risk alcohol consumption. This result could not be repeated in the present study, as the questionnaire did not distinguish between any alcohol intake and hazardous drinking or between professional occupations and workplaces for alcohol



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Table 3 Characteristics associated with healthcare personnels' drinking behaviors and physical activity

	HARD LIQUOR CONSUMPTION (Yes)			WINE/BEER CONSUMPTION (Yes)			PHYSICAL ACTIVITY (Yes)		
	OR	95% CI	p	OR	95% CI	p	OR	95% CI	p
Gender *									
Women	1.339	1.182-1.517	0.001	1.272	1.186-1.363	0.001	1.061	0.979-1.149	0.166
Men	0.507	0.403-0.637							
Missing									
Age *									
20-30									
31-65	1.112	1.038-1.190	0.001	1.028	0.983-1.075	0.250	1.066	1.025-1.109	0.000
Marital status †									
Married	1.405	1.185-1.665	0.001	1.025	0.909-1.157	0.684	0.751	0.273-2.066	0.579
Single	0.540	0.435-0.671	0.001	0.855	0.664-1.100	0.217	0.517	0.183-1.461	0.213
Separated/divorced	0.918	0.597-1.410	0.697	1.020	0.686-1.516	0.924	0.496	0.166-1.485	0.210
Widower	.	.		.	.		.	.
Missing									
Education †									
High school diploma	1.327	0.945-1.863	0.103	1.186	0.870-1.617	0.281	1.270	0.914-1.764	0.154
Bachelor degree	.	.		.	.		.	.
Secondary school	1.341	0.725-2.481	0.350	1.202	0.703-2.057	0.502	3.031	1.872-4.908	0.001
Primary school	0.682	0.061-7.609	0.756	.	.		.	.
Missing									
Profession †									
Nurses	0.716	0.370-1.385	0.321	0.774	0.414-1.446	0.422	1.299	0.746-2.117	0.294
Health technicians	1.143	0.674-1.937	0.621	1.035	0.656-1.633	0.884	0.845	0.443-1.612	0.609
Health workers	0.940	0.488-1.810	0.853	0.607	0.328-1.123	0.112	1.877	1.039-3.390	0.037
Administrative personnel	0.871	0.444-1.709	0.688	1.131	0.627-2.040	0.682	1.400	0.746-2.628	0.295
Physicians	0.223	0.345-1.282	0.223	0.610	0.318-1.169	0.136	1.131	0.586-2.182	0.714
Other	0.950	0.580-1.555	0.838	0.893	0.579-1.376	0.607	1.288	0.810-2.046	0.285
Missing									
Workplace †									
Clinical Unit / Service	0.595	0.132-2.685	0.499	0.893	0.302-2.644	0.839	0.208	0.076-0.570	0.002
Office	0.461	0.097-2.181	0.329	0.699	0.220-2.215	0.543	0.256	0.101-0.645	0.004
Vehicle	.	.		.	.		.	.
Other	.	.		.	.		.	.
Missing									

* Crude OR (Chi-Square test)

† Adjusted OR (Multivariate Logistic Regression)



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drinking behaviours. Another interesting result is that variables such as professional occupation and workplace are not significant predictors for healthcare practitioners' alcohol consumption but rather predictors for physical inactivity.

Our results confirmed that high intensity physical activity is a rare characteristic (16;17), but the majority of our hospital staff exercised occasionally or regularly (2.1%). In line with the literature, our results on physical activity are not related to gender but to age (17;25).

Physical inactivity among healthcare workers

An Egyptian study involving 382 physicians found that 84% declared to be sedentary with no or irregular physical activity (16). One study (25) found that only around 25% of the hospital staff in South Africa was engaged in regular exercise and/or physical activity. A recent study conducted among n=798 nurses and community healthcare workers in Brazil (18), reported that >95% needed additional information on physical activity guidelines. Another study conducted with Polish healthcare workers (17) found that the prevalence of competitive sports was low. However, no significant gender differences were found when considering the division into different professional groups. A high level of physical activity was a rare characteristic for the majority of the healthcare workers studied. One independent risk factor for low physical activity was found to be working as a doctor.

The healthcare workers' lifestyles and health promoting practices

Recent studies have found strong associations between doctors' personal habits and their related counselling practices (26;27). The deeper insight into their own health and health habits physicians gain, the more realistic and effective their advice to patients will be (28). In general, health professionals' own alcohol use may also play an important role in their interaction with their patients (22;29).

Most of the cross-sectional evidence (11;15;26) showed that higher level of personal physical activity were associated with greater promotion of physical activity practices from the healthcare personnel. These findings suggest that an empirical link exists between health professionals' physical activity habits and their promotion of physical activity to patients with health issues. Studies and interventions on prevention and health promotion issues have to focus on the population of the healthcare workers in order to explore their attitudes and behaviours (13). In fact, the healthy lifestyles of healthcare workers have a double importance: They matter both for the professionals' personal health

and for the quality of the prevention practices that they recommend to their patients.

Our results indicate that healthcare personnel of 31-years and older were most likely to be engaged in some kind of physical activity, while other studies found the younger persons to be more active. The profession variable seems to be a significant predictor for physical activity in our study, where health workers were more likely than other workers to be physically active. Interestingly, our research shows that staff members who consume wine/beer also have a higher risk of being sedentary. However, this association was not found for hard liquor.

Another recent study (12) investigating the health behaviours of pre-registered nurses found that 40% of the respondents reported binge drinking and were not physically active enough to benefit their health.

A study based on a sample of pre-registered nurses indicated that those who were physically inactive were more likely to report any type of alcohol consumption than their active counterparts (13). On the other hand, a recent literature review has indicated a positive association between alcohol consumption and physical activity across all ages (30). For both studies on alcohol consumption and on physical activity, different definitions and categorisations are used, why comparison across the literature can be difficult.

Limitations of the study

Our study included a large sample of healthcare staff, but with a low inclusion rate, which could cause over-interpretation of the results, and thus limit the generalisability to other settings locally, nationally, and internationally. The associated model of alcohol intake behaviour and physical activity narrowly focused on six important factors, including personal characteristic and workplace (job, working setting), but without controlling for other relevant factors also associated with a healthy work life; such as smoking and overweight, as well as experience of stress and burn-out amongst others, which may add further restrictions to the generalisability.

The data are self-reported, based on the individual recall memory, and the adopted questionnaire was not a validated instrument. Usually, alcohol intake is under-reported (31), and this may also be an issue in this study. The questionnaire scale was too simple a tool to detect the details of lifestyles of alcohol consumption and physical activity, for example, by considering the behaviours' frequencies. However, the use of a self-reported instrument can be a strategy to increase



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professionals' involvement in and attention to health and safety issues. Furthermore, when the study do not distinguish between the levels of alcohol consumed on a weekly basis, it is difficult to interpret the results and to compare to literature where the weekly dose is often the alcohol measurement.

Further research must be carried out in order to explore the epidemiology of alcohol drinking behaviours and physical activity among different health professionals.

Conclusion

The results of the present research indicate that the majority of the participating staff declared to consume alcohol, especially wine/beer, and only a minority of the personnel have declared to engage in physical activity regularly. Furthermore, it seems that healthcare personnel consuming wine/beer also were more likely to have a sedentary lifestyle, but this association was not significant for consumption of hard liquor. The health promotion programs focussing on alcohol consumption and physical activity should target not only the general population but also specific groups, such as healthcare personnel, in order to raise their awareness of own risk behaviour and the benefits of leading a healthy lifestyle. The healthcare professionals own healthy lifestyles are at the base of their personal and professional choices.

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Conflicts of interests

None declared

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