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Research Paper

Health-Related Quality of Life Among Hospitality Workers in Egypt: A Cross-Sectional Study

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ABSTRACT

Egypt's hospitality sector employs a large workforce exposed to well-documented occupational stressors, including physical demands, shift work, emotional labor, and job insecurity, yet their health-related quality of life (HRQoL) remains poorly characterised. This cross-sectional study surveyed hotel employees across multiple Egyptian establishments using the validated Arabic SF-36, with non-parametric statistics applied given non-normal score distributions. General health perception scores were critically low, with the vast majority of workers falling below the scale midpoint, a finding more characteristic of populations managing serious chronic conditions than of those in active employment. Functional area emerged as the strongest determinant of HRQoL across all eight domains, producing distinct role-specific profiles. Gender and position level were also significant predictors. These findings identify Egyptian hospitality workers as an underserved population carrying a substantial health burden, warranting mandatory occupational health screening and role-differentiated clinical referral pathways.

Keywords: *Health-Related Quality of Life, SF-36, Hospitality Workers, Egypt, Occupational Health*

The hospitality and tourism sector is one of the fastest-growing industries in Egypt, contributing approximately 10% to the national gross domestic product and employing millions of workers across hotels, resorts, and related establishments. (World Travel and Tourism Council, 2023) Despite this economic prominence, the health and well-being of hospitality workers have received limited scholarly attention, particularly in low- and middle-income settings where labor protections may be insufficient and occupational health services are often absent. (Baum et al., 2020)

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Health-related quality of life (HRQoL) is a multidimensional construct encompassing physical functioning, emotional well-being, social participation, and vitality. (Ware & Sherbourne, 1992; Kumar et al., 2023) Unlike disease-specific endpoints, HRQoL captures subjective health experience across life domains, making it sensitive and policy-relevant in occupational settings. In workplaces characterized by high physical or psychosocial demand, HRQoL measures can detect subclinical health deterioration before it manifests as diagnosed illness or formal sickness absence, making them particularly valuable as early-warning indicators for workforce health management and preventive intervention targeting. (Valderas & Alonso, 2008; Mahirah et al., 2020) Impaired HRQoL among workers is associated with absenteeism, reduced productivity, increased healthcare utilization, and premature exit from the labor force, with substantial implications for both individuals and employers. (Aronsson et al., 2017)

Hospitality work involves multiple occupational stressors known to adversely affect HRQoL, including irregular hours, physical demands, emotional labor, and limited autonomy. These stressors are not uniformly distributed: kitchen and security roles carry disproportionate physical burdens, while guest-facing roles impose high emotional demand through the sustained management of interpersonal interactions, often referred to as surface or deep acting. The cumulative effect of these exposures on subjective health status has been demonstrated in hospitality cohorts across diverse national contexts, yet evidence from the Arab world and wider Middle East and North Africa region remains sparse relative to the scale of the workforce these countries employ. (Karatepe et al., 2006; Abdou et al., 2024; O'Neill & Davis, 2011; Saito et al., 2024) In Egypt specifically, the sector has faced intermittent economic disruption, most notably from political instability following 2011 and the COVID-19 pandemic, that has compounded occupational pressures through job insecurity and workforce restructuring. Tourism receipts, which represent a critical source of foreign exchange earnings, fell precipitously during these periods, forcing widespread temporary layoffs, pay cuts, and redeployment across roles, experiences that are known to amplify psychological distress and erode subjective health perceptions among affected workers. (Lee et al., 2014) Despite these contextual vulnerabilities, no published study has systematically evaluated HRQoL across the full spectrum of Egyptian hospitality occupations using a validated, internationally benchmarked instrument.

The SF-36 Health Survey is the most widely used generic HRQoL instrument globally, with established validity in Arab populations and extensive normative data enabling cross-national comparisons. Its multidimensional structure, covering both physical and mental health domains, makes it particularly suited to occupational settings where the health impact of work may manifest differently across functional areas, as is the case in the heterogeneous role demands of hospitality employment. (McHorney et al., 1993; Wu et al., 2023; El Miedany et al., 2003) It assesses eight health domains: physical functioning (PF), role limitations due to physical health (RP), bodily pain (BP), general health perceptions (GH), vitality (VT), social functioning (SF), role limitations due to emotional health (RE), and mental health (MH).

The present study addresses this evidence gap by characterizing the HRQoL profile of Egyptian hospitality workers using the SF-36 and identifying key sociodemographic and occupational determinants of HRQoL variation, with the aim of informing occupational health policy and future longitudinal research in this underserved workforce.

METHODS

Study Design and Setting

This was a cross-sectional study conducted among employees in Egyptian hotel establishments. Egypt's hotel sector spans a wide range of property types, from internationally branded five-star resorts concentrated in Red Sea and Mediterranean coastal destinations to mid-range urban business hotels in Cairo and Alexandria, and traditional Nile Valley properties serving cultural tourists. This diversity in property type is mirrored by heterogeneity in working conditions, staff-to-guest ratios, and the physical and emotional demands placed on employees across departments. The SF-36 Health Survey questionnaire was self-administered and distributed across six hospitality departments: guest services, food and beverage, security and safety, housekeeping and maintenance, events and banquets, and spa and wellness services.

Participants and Recruitment

Participants were recruited through a convenience sampling approach with the assistance of local hoteliers who agreed to distribute the SF-36 questionnaire to their staff across multiple Egyptian hotel establishments. Hotel managers and owners were contacted directly, briefed on the study purpose and confidentiality guarantees, and invited to participate voluntarily. Those who agreed acted as site coordinators, distributing and collecting completed questionnaires from their employees during non-peak working hours to minimize response burden.

Eligible participants were adults aged 18 years or older currently employed in the Egyptian hospitality industry. Workers were excluded if they were on extended medical leave at the time of the survey or unable to complete the questionnaire independently. The final analytic sample comprised 405 participants after exclusion of incomplete responses. A sensitivity power analysis using G*Power (version 3.1) confirmed that a sample of 405 provides greater than 80% statistical power (1 - beta = 0.82) to detect small-to-medium effect sizes (Cohen's f = 0.15) at an alpha level of 0.05 for the primary Kruskal-Wallis comparisons, supporting the adequacy of the sample for the planned analyses.

The analytic sample comprised 405 workers who were predominantly male (88.1%), with a mean age of 40.6 years (SD = 10.2), and the majority were married (70.4%). Detailed sociodemographic and occupational characteristics of the sample are presented in Table 1 (see Table 1 for sample characteristics).

Table 1 Sociodemographic and Occupational Characteristics of the Sample (N = 405)

Characteristic	n	%
Sex		
Male	357	88.1
Female	48	11.9
Age, years (M ± SD; range)	40.6 ± 10.2; 21–62	
Marital Status		
Married	285	70.4
Single	112	27.7
Divorced	8	2.0
Department		
Security and Safety	120	29.6
Guest Services	103	25.4

Characteristic	n	%
Food and Beverage	96	23.7
Housekeeping and Maintenance	78	19.3
Event and Banquets	6	1.5
Spa and Wellness	2	0.5
Seniority Level		
Staff/Associate	182	44.9
Supervisor/Manager	88	21.7
Director/Executive	69	17.0
Lead/Senior Staff	66	16.3

Note. M = mean; SD = standard deviation.

Instrument

HRQoL was assessed using the SF-36 Health Survey (version 1.0), a validated 36-item instrument generating domain scores from zero to 100, with higher scores indicating better health. (Ware et al., 1993; Shayan et al., 2020) Physical and mental composite summary scores (PCS and MCS) were computed as unweighted means of the four physical (PF, RP, BP, GH) and four mental health domains (VT, SF, RE, MH), respectively. As Egyptian hospitality-specific normative data are unavailable, these proxies are used descriptively only, not as official norm-based composites. The Arabic-language version of the SF-36 has been validated for use in Egyptian and broader Arab populations and demonstrates satisfactory reliability and construct validity. (El Miedany et al., 2003)

Sociodemographic and occupational data collected concurrently included: age (continuous, years), gender (male/female), marital status (married/single/divorced), functional area, and position level (staff/associate level; lead/senior staff; supervisor/manager; director/executive).

Statistical Analysis

Data were analyzed using Python (version 3.11; Python Software Foundation) with the SciPy (version 1.11) and pandas (version 2.0) libraries. Descriptive statistics were reported as means and standard deviations (SD) for continuous variables, and frequencies with proportions for categorical variables. The prevalence of low HRQoL was operationalized as the proportion of respondents scoring below the scale midpoint (< 50) on each SF-36 domain, consistent with established literature on SF-36 interpretation in occupational cohorts. (Hopman et al., 2000; Choi et al., 2018)

All eight SF-36 domain scores departed significantly from normality (Shapiro-Wilk test; all $P < 0.001$), consistent with documented floor and ceiling effects; non-parametric methods were therefore employed throughout. Between-group differences by gender were evaluated using the Mann-Whitney U test. Differences across functional areas, position levels, and marital status categories were analyzed using the Kruskal-Wallis H test. Where Kruskal-Wallis tests were significant, results are reported with H statistics and exact P values. Spearman's rank correlation coefficient (ρ) was used to examine the association between age and SF-36 domain scores. A Bonferroni correction was applied within each grouping variable (corrected alpha = 0.05/8 = 0.006). Effect sizes were computed as rank-biserial correlation (r) for Mann-Whitney U tests and eta-squared (eta2) for Kruskal-Wallis tests (small: $r < 0.30$, $eta2 < 0.06$; medium: 0.30-0.50, 0.06-0.14; large: > 0.50, > 0.14). A two-tailed $P < 0.05$ threshold was applied throughout, with Bonferroni-corrected findings noted.

Ethics

This study was conducted in accordance with the ethical principles of the Declaration of Helsinki. Ethical approval was granted by the Institutional Review Board (IRB) of the International Executive School, Strasbourg, France. All participants provided written informed consent prior to enrollment, and confidentiality of responses was maintained throughout the data collection process. No identifying information was recorded on the questionnaire.

RESULTS

SF-36 Domain Scores: Overall Sample

Table 2 presents SF-36 domain scores for the full sample. The lowest-scoring domain was general health (mean 26.4, SD 12.1), followed by social functioning (mean 47.5, SD 13.8) and physical functioning (mean 53.7, SD 33.6). Role emotional (mean 84.7, SD 28.8) and role physical (mean 78.3, SD 27.2) recorded the highest mean scores.

The prevalence of low HRQoL (score < 50) was highest for general health, where 94.1% of respondents fell below the midpoint. Physical functioning was impaired in 46.2% of the sample. Social functioning was below threshold in 31.1%, bodily pain in 21.2%, role emotional in 16.8%, and vitality in 15.8%. Scores below the midpoint were least common for role physical and mental health, at 9.4% and 8.4%, respectively (see Table 2 for SF-36 domain scores and prevalence of low HRQoL).

Table 2 SF-36 Domain Scores for Egyptian Hospitality Workers (N = 405)

SF-36 Domain	Mean	SD	Median	IQR	% < 50*
Physical Functioning (PF)	53.7	33.6	50.0	20–90	46.2%
Role Physical (RP)	78.3	27.2	75.0	75–100	9.4%
Bodily Pain (BP)	76.1	32.6	100.0	60–100	21.2%
General Health (GH)	26.4	12.1	25.0	20–35	94.1%†
Vitality (VT)	72.8	25.1	80.0	55–90	15.8%
Social Functioning (SF)	47.5	13.8	50.0	37.5–50	31.1%
Role Emotional (RE)	84.7	28.8	100.0	66.7–100	16.8%
Mental Health (MH)	78.3	19.0	84.0	64–96	8.4%
Physical Composite (PCS)	59.3	21.1	—	—	—
Mental Composite (MCS)	70.5	16.8	—	—	—

*Note. *Proportion scoring below the scale midpoint (< 50), indicating low HRQoL. †Critically high prevalence. IQR = interquartile range; MCS = mental composite score; PCS = physical composite score; SD = standard deviation.*

Effect of Gender on HRQoL

Nominally significant differences were observed in three domains, though only physical functioning survived Bonferroni correction (see Table 3 for SF-36 domain scores by gender). Women reported higher physical functioning scores than men (mean 74.4 vs. 50.9; $P < 0.001$, $r = 0.36$, medium effect), representing the only gender difference robust to correction. Role physical ($P = 0.018$, $r = 0.20$) and bodily pain ($P = 0.022$, $r = 0.19$) showed small, uncorrected differences. No significant gender differences were observed in general health, vitality, role emotional, or mental health domains.

Table 3 SF-36 Domain Scores by Gender (Mann-Whitney U Test; N = 405)

Domain	Men, mean (SD)	Women, mean (SD)	Mann-Whitney U	P value
PF	50.9 (34.2)	74.4 (27.6)	—	< 0.001*
RP	77.7 (27.8)	82.3 (23.4)	—	0.018*
BP	77.4 (32.9)	66.2 (30.1)	—	0.022*
GH	27.0 (12.2)	24.6 (11.5)	—	0.106
VT	72.0 (25.4)	70.2 (23.8)	—	0.480
SF	47.1 (13.9)	50.5 (12.6)	—	0.049*
RE	85.2 (28.3)	80.5 (31.2)	—	0.393
MH	78.5 (19.1)	77.0 (18.4)	—	0.424

*Note. *P < 0.05 (statistically significant). Values are mean (SD). BP = bodily pain; GH = general health; MH = mental health; PF = physical functioning; RE = role emotional; RP = role physical; SF = social functioning; VT = vitality.*

Effect of Functional Area on HRQoL

Functional area was the strongest occupational determinant of HRQoL in the present sample. Kruskal-Wallis tests revealed statistically significant between-functional-area differences across all eight SF-36 domains (all P < 0.001, all surviving Bonferroni correction), with H statistics ranging from 26.49 (SF) to 212.80 (VT). Effect sizes were large for six of eight domains (eta2 range: 0.20 to 0.53), medium for general health (eta2 = 0.12), and small for social functioning (eta2 = 0.06). Two departments had very small subsamples (events and banquets: n = 6; spa and wellness: n = 2) and their results are descriptive only; substantive conclusions are confined to the four main departments. A notable pattern of domain dissociation was evident among security and safety workers, who recorded the lowest physical functioning scores of any department (mean 21.5) yet the highest mental health (mean 93.9) and role emotional scores (mean 99.4). Food and beverage workers showed uniformly low scores across both physical and mental health composites (PCS 54.0; MCS 63.6), suggesting broad HRQoL impairment rather than domain-specific deficits. Guest services and housekeeping and maintenance workers showed intermediate profiles, with physical composites of 63.5 and 63.9, respectively. Notably, the largest between-functional-area effect was observed for vitality (H = 212.80, eta2 = 0.53), indicating that subjective energy and fatigue levels vary more dramatically by functional area than any other domain. This is consistent with the highly differentiated shift structures, physical exertion demands, and psychosocial climates that characterize different hospitality roles, and underscores the inadequacy of treating hospitality workers as a homogeneous occupational group in health research or policy.

Effect of Position Level on HRQoL

Significant differences by position level were observed for physical functioning (H = 31.99, P < 0.001, eta2 = 0.07, medium effect) and vitality (H = 15.82, P = 0.001, eta2 = 0.03) and mental health (H = 10.09, P = 0.018, eta2 = 0.02). Both composite scores also differed significantly (PCS: H = 21.56, P < 0.001; MCS: H = 17.12, P < 0.001). However, effect sizes for most position-level comparisons were small, and none survived Bonferroni correction, meaning these findings should be treated as exploratory. Directors and executives reported the highest physical composite (mean 62.7) compared with lead/senior staff, who recorded the lowest (mean 52.3). An inverse pattern was observed for the mental composite, where lead/senior staff recorded the highest MCS (mean 75.5), possibly reflecting autonomy associated with experienced non-managerial roles.

Age and Marital Status

Age was significantly correlated with bodily pain ($\rho = 0.248$, $P < 0.001$), the only age correlation surviving Bonferroni correction. Older workers paradoxically reported higher bodily pain scores, indicating less rather than more pain interference with advancing age. Nominally significant associations were also observed for vitality ($\rho = 0.125$, $P = 0.012$) and social functioning ($\rho = -0.109$, $P = 0.029$), though these should be interpreted cautiously. The negative direction of the social functioning correlation is noteworthy: older workers reported somewhat lower social functioning scores, suggesting that accumulated tenure in a physically demanding environment may erode participation in social activities outside work even as bodily pain interference diminishes. Marital status showed no statistically significant association with any SF-36 domain (all $P > 0.05$).

DISCUSSION

The general health perception scores documented in this study are, by any clinical or epidemiological standard, severe. In the SF-36 literature, scores of this magnitude are characteristic of patients managing serious chronic conditions, not of individuals in active employment. Regional normative data for Egyptian and Middle Eastern working-age adults place expected values between 50 and 65 for this domain, and even cohorts of medically ill outpatients in the region frequently report higher scores than those observed here. (Jenkinson et al., 1993; Karaiskos et al., 2025; Sabbah et al., 2013; AboAbat et al., 2020; El-Shahawy et al., 2017) The implication is not simply that this workforce reports poor health, but that the degree of impairment places them outside the range ordinarily associated with occupational populations altogether.

This matters beyond the SF-36 scale itself. Poor self-rated general health is among the most robust and consistently replicated predictors of adverse health outcomes in longitudinal population research, including incident cardiovascular disease, musculoskeletal conditions, and common mental health disorders, as well as earlier exit from the workforce and increased demand on healthcare services. If the scores documented here reflect the true health experience of Egypt's hospitality workforce, they represent not merely a cross-sectional burden but a trajectory: without structured occupational health intervention, a substantial proportion of these workers can be expected to present to clinical services with preventable conditions in the coming years.

What makes this finding particularly significant from an occupational health standpoint is that it coexists with preserved role functioning. Workers in this sample continue to perform their occupational duties at high levels despite carrying a subjective health burden that most clinicians would regard as grounds for further assessment. This pattern is consistent with presenteeism, and in Egypt's hospitality labor market the structural conditions that sustain it are well established. (Lohaus & Habermann, 2019; Johns, 2010; Ashour et al., 2023) Limited formal employment protections, low unionization, and a labor market characterized by high worker replaceability mean that the perceived cost of absence is prohibitive for most. Those who disclose illness risk their positions; those who do not accumulate untreated health problems that will eventually surface acutely, most likely at the emergency department or occupational health clinic rather than in a primary care setting where earlier intervention remains possible. (Aronsson et al., 2017) The health burden in this workforce is not being reported: it is being absorbed.

The social functioning data reinforce this picture. When occupational demands consume the physical and emotional resources necessary for role performance, insufficient reserves

remain for life outside work, and it is social participation that is typically the first casualty. Nearly a third of workers in this sample reported health-related interference with their ordinary social activities, a proportion that goes beyond individual variation and points to a systematic depletion of personal resources at the population level. Social participation is not merely a quality-of-life endpoint: it functions as a protective health resource, and its erosion is prospectively linked to deteriorating mental health and elevated burnout risk. The contrast with relatively preserved vitality scores in the same sample is telling. These workers retain enough energy to meet the demands of their roles, but apparently not enough to sustain the social connections that buffer long-term health. In this context, health-related social withdrawal is better read as an early marker of future psychological deterioration than as an incidental observation.

Functional area is the most powerful structural determinant of HRQoL variation in this sample, and what is important is not simply that differences exist across roles, but that the nature of health risk differs qualitatively by functional context. Security and safety workers present a striking dissociation: their physical health scores are the lowest across all functional areas, consistent with the well-documented musculoskeletal consequences of prolonged static postures, yet their mental health and role emotional scores are the highest. The psychological demands of security work, which require sustained alertness, emotional self-regulation, and a clearly defined professional identity, appear to confer a form of psychological structure that buffers mental wellbeing even as the body bears the physical cost of the role. Food and beverage workers present a contrasting profile. Their burden is broad and undifferentiated, spanning both physical and mental domains, shaped by the convergence of physical exertion, thermal stress, customer-facing emotional labor, and irregular shift patterns. Where security workers need targeted physical intervention, food and beverage workers require a comprehensive, multi-component approach. Treating the hospitality workforce as a homogeneous group in occupational health planning would obscure precisely the distinctions that matter most for targeted intervention. (Karatepe et al., 2006)

Among the determinants examined alongside functional area, gender differences in this sample are best understood as a structural artifact rather than a biological finding. The apparent physical functioning advantage among women most plausibly reflects occupational sex segregation: men are concentrated in the physically demanding roles of security and kitchen operations, women in guest-facing roles with lower physical loading. Occupational segregation of this kind is well documented in global hospitality research and is known to generate health differences that are frequently misread as individual or biological when functional area is not accounted for in analysis. (International Labour Organization, 2018) The absence of any significant gender difference across mental health domains supports this interpretation: the disparity is physically situated and role-specific, not generalized. This has a direct methodological implication for future research in this setting, where failure to control for functional area risks misattributing structurally produced inequalities to individual characteristics.

The positive association between age and bodily pain scores, where older workers report less rather than more pain interference, is most plausibly explained by the healthy worker effect: those with the greatest physical burden selectively exit hospitality employment over time, leaving a survivor population with above-average resilience. (Li & Sung, 1999; Samir, 2022) This has an important cautionary implication for cross-sectional research in occupational settings: apparently favorable age gradients in physical health should not be

interpreted as evidence that the job is tolerable over a working lifetime. They may instead reflect systematic attrition of the most affected workers from the sample. Taken alongside the null findings for position level and marital status, a consistent pattern emerges: in this workforce, the nature of one's role and the conditions under which it is performed account for far more HRQoL variance than sociodemographic or hierarchical characteristics. This has a straightforward implication for intervention design: occupational health programs targeting this population should be anchored in the specific physical and psychosocial demands of each functional area, not in the demographic profiles of the individuals who fill them.

Taken together, these findings describe a workforce in which health deterioration is structural in origin, role-differentiated in character, and clinically consequential in trajectory. The hospitality sector in Egypt, and in comparable tourism-dependent economies, has not yet developed the occupational health infrastructure necessary to detect, triage, or respond to this burden. The evidence presented here suggests that this gap carries costs that extend beyond the individual worker to encompass healthcare systems, labor productivity, and the long-term sustainability of the sector itself.

Implications

The functional area HRQoL profiles identified in this study have direct organizational implications, arguing against generalized wellness programs in favor of role-differentiated intervention strategies tailored to the distinct burden profile of each occupational group. (Karatepe et al., 2006; Saito et al., 2024) For security and safety personnel, who exhibit severe physical health deficits alongside preserved mental health, the priority is musculoskeletal: structured movement breaks, ergonomic assessment of static guard posts, and access to physiotherapy services would address the accumulated physical toll of prolonged sedentary duty. For food and beverage workers, whose burden spans both physical and mental domains, a more comprehensive approach is required, encompassing shift rotation to reduce cumulative thermal and physical exposure, structured emotional labor training and debriefing protocols, and access to confidential psychosocial support. (Abdou et al., 2024) Guest services and housekeeping staff, presenting intermediate profiles, represent an important preventive opportunity: proactive HRQoL monitoring in these groups could facilitate early intervention before health deterioration reaches the severity observed in higher-risk functional areas.

At the policy and regulatory level, the scale of general health impairment documented in this study constitutes a public health signal warranting institutional response. Egypt's hotel classification and labor inspection frameworks do not currently mandate periodic occupational health screening for hospitality workers. (Ministry of Manpower / WHO-EMRO, 2022) This study provides an evidence base for introducing such requirements. Policymakers should consider incorporating minimum occupational health standards into hotel licensing renewal processes, including access to health screening, employee assistance programs, and shift scheduling frameworks consistent with established ergonomic guidelines. (Leka & Jain, 2010) Such measures would align Egypt's regulatory framework with international occupational health standards and position the tourism sector as a responsible employer in a competitive global market.

The presenteeism pattern documented in this study carries direct managerial implications that extend beyond health to organizational performance. Sustained presenteeism is associated with declining productivity trajectories, elevated error rates, and eventual long-

term sickness absence, generating costs that accrue to employers as well as to workers and the health system. (Lohaus & Habermann, 2019; Johns, 2010) Research in Egyptian hotel contexts has similarly documented the productivity costs of presenteeism mediated through job stress, (Ashour et al., 2023) underscoring the relevance of these dynamics in this specific setting. Hotel managers should interpret high role-physical and role-emotional scores in the context of very low general health perception not as reassuring indicators of workforce resilience, but as early warning signals of health debt that will, if unaddressed, manifest in productivity losses, increased staff turnover, and avoidable clinical costs. Routine HRQoL monitoring using validated instruments such as the SF-36 is a practical and low-cost mechanism for detecting this accumulating burden before it reaches crisis level.

Limitations and Future Research Directions

Several limitations should be considered. The cross-sectional design precludes causal inference, and convenience sampling introduces selection bias, as participating establishments may differ from those that declined. Recruitment was restricted to hotel settings, which, while representing a major segment of Egypt's hospitality industry, does not encompass the full range of hospitality employment, including restaurants, catering, cruise tourism, and event management; the HRQoL patterns documented here may not generalize to these contexts. The analytic sample was heavily male (88.1%), which constrains the generalizability of gender subgroup analyses, and key occupational variables including working hours, salary, and contract type were not captured. Reliance on self-report introduces the possibility of social desirability bias, which may be amplified in contexts of employment precarity where workers fear that health disclosures could jeopardize their positions.

Future research should build on these findings in several directions. Longitudinal designs are needed to establish the direction and magnitude of causal relationships between occupational exposures and HRQoL outcomes, and to determine whether the severe general health deficits observed here are progressive or stable over time. Studies should incorporate objective clinical endpoints alongside self-report measures, including biomarkers of cardiovascular and musculoskeletal health, to validate the subjective burden documented here and quantify its clinical translation. Gender-balanced and stratified sampling, with sufficient representation across all functional areas, would enable more robust examination of the role-segregation hypothesis and allow multivariable models to isolate the independent contributions of functional area, seniority, and individual-level factors to HRQoL. (Abdou et al., 2024; Saito et al., 2024) Broadening sampling beyond hotels to encompass restaurants, catering operations, cruise tourism, and event management would enable a more representative characterization of occupational health burden across the hospitality sector as a whole. Finally, intervention studies evaluating the effectiveness of role-differentiated occupational health programs, particularly for food and beverage workers and security personnel, are urgently needed to move the evidence base from description to action. (Leka & Jain, 2010; Ministry of Manpower / WHO-EMRO, 2022)

CONCLUSION

This study is one of the first to systematically characterize health-related quality of life across the full spectrum of Egyptian hospitality occupations using a validated, internationally benchmarked instrument. The findings reveal substantially compromised health-related quality of life across nearly all domains, with general health perception scores falling into ranges typically associated with chronic disease patients rather than the employed general population. Functional area is the dominant structural determinant of this

burden, producing role-specific profiles that map directly onto the differing physical and psychosocial demands of hospitality work and that call for differentiated clinical and occupational health responses. The pattern of preserved role functioning alongside severely compromised subjective health points to a workforce absorbing significant health costs invisibly, with implications not only for individual wellbeing but for healthcare utilization and workforce sustainability in Egypt's tourism sector. Future research should employ longitudinal designs with objective clinical endpoints, gender-balanced sampling, and multivariable modeling to establish the prospective health consequences of the burden documented here and evaluate the effectiveness of targeted occupational health interventions in this underserved workforce.

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Conflict of Interest

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