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Original Article

Worklife Resources and Engagement Across National and Organizational Contexts: A Pilot Cross-Sectional Study of Two Sites of a Multinational Company in Hungary and Sweden

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Abstract

Introduction: Workplace health promotion (WHP) in multinational companies often relies on shared programs, yet employees may experience work resources differently across national and organizational settings. We examined worklife resource and engagement patterns at Hungarian and Swedish sites of one multinational company and considered implications for locally adapted WHP.

Methods: A pilot cross-sectional survey included 121 employees (Sweden n = 80; Hungary n = 41). Work engagement was assessed with the UWES-9 and worklife conditions with the 29-item Areas of Worklife Scale (AWS). Analyses included Pearson correlations, Welch t-tests, sensitivity analysis, and pooled hierarchical regressions with a binary country/site indicator entered before all six AWS domains.

Results: Swedish employees reported higher dedication (M = 4.46 vs 3.98, $P = .035$, d = 0.42) and value alignment (M = 3.92 vs 3.62, $P = .045$, d = 0.41). These between-site mean differences should be interpreted cautiously because cross-language measurement equivalence was not established. In pooled models, the country/site indicator plus the AWS domains explained 31.4% of vigor, 32.4% of dedication, and 19.4% of absorption. After adjustment, control and values were positively associated with vigor, values with dedication, and community with absorption; a negative fairness coefficient for absorption was treated cautiously as a possible suppression pattern. Given the modest sample, multivariable models were exploratory, and country moderation was not tested.

Conclusion: Engagement was used as a positive indicator relevant to burnout prevention, not a direct burnout measure. Findings support shared WHP principles, with implementation adapted to fit local work systems.

Introduction

Burnout is an occupational and public health concern because it develops from prolonged unmanaged workplace stress and can affect workers' health, functioning and participation in work. The World Health Organization describes burn-out in ICD-11 as an occupational phenomenon rather than a medical condition, characterized by exhaustion, mental distance or cynicism related to work, and reduced professional efficacy.[1] A harmonized international definition similarly emphasizes occupational burnout as a work-related phenomenon resulting from prolonged exposure to work-related stressors.[2] This makes burnout prevention a core issue for workplace health promotion (WHP). Effective action must address work organization, psychosocial resources and the conditions that make healthy work possible.

In multinational companies, WHP programs are often developed around shared corporate principles, including leadership support, communication, employee participation and supportive work environments. These principles are important because burnout has health, productivity, sickness absence and organizational cost implications.[3] However, standardized programs may assume that the same resources will be understood and used similarly across countries. This assumption may not hold because employees are embedded in national cultural and institutional contexts that shape expectations concerning autonomy, hierarchy, predictability, participation and work-life boundaries.

Burnout and work engagement are commonly examined through frameworks that focus on person-job fit and job resources. The Areas of Worklife model identifies workload, control, reward, community, fairness and values as central domains of fit between employees and their work environment.[4,5] Mismatches in these domains increase burnout risk, whereas better alignment supports engagement. The Job Demands-Resources model similarly emphasizes that job resources, including autonomy,

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social support, feedback and value alignment, can foster engagement and buffer the effects of demands.[6] These models offer useful WHP intervention targets because they point to modifiable organizational conditions rather than locating burnout solely within the individual. Work engagement and burnout are related but conceptually distinct constructs: although higher engagement is generally associated with lower burnout, engagement is not simply the inverse of burnout and cannot be used as a direct measure of it.

These models may operate differently across national and organizational contexts. Cross-national research indicates that national cultural dimensions, including individualism-collectivism and uncertainty avoidance, may moderate relationships between job demands, job resources and employee outcomes.[7,8] Comparative studies also show that the link between job characteristics and employee attitudes varies across countries.[9] These findings suggest that job resources may be understood and used differently across cultural contexts. Autonomy, for example, may be experienced as empowering in contexts where discretion is expected, but as ambiguous in contexts where predictability and clear procedures are more valued.

This issue is particularly important for WHP in multinational companies. Such organizations may share corporate values, HR systems and health promotion policies across subsidiaries, but employees may interpret these practices through local cultural and institutional expectations. A standardized intervention that appears well designed at headquarters level may therefore require local adaptation to become credible, usable and health-promoting in everyday work.

Hungary and Sweden offer a relevant comparison for examining this question. A cross-national analysis of European Working Conditions Survey data has reported substantial geographical variation in burnout across Europe.[10] The underlying survey provides broader comparative evidence on working conditions across European countries.[11]

The present pilot study examines employees of a multinational industrial company operating in Hungary and Sweden. By comparing employees working within a shared corporate context but embedded in different national and organizational environments, the study explores patterns of association between areas of worklife and engagement across sites. Work engagement is used as a positive indicator related to burnout prevention. It is not treated as a direct substitute for burnout measurement. The study therefore does not diagnose burnout, but examines how organizational resources associated with engagement can inform WHP implementation across local work systems.

The research question guiding the study was: How are worklife resources and work engagement patterned across Hungarian and Swedish sites embedded in different national and organizational contexts, and how can these insights inform local workplace health promotion implementation? The aim was to identify which worklife resources were most strongly associated with engagement in the pooled sample, describe exploratory cross-site patterns, and translate these findings into practical implications for WHP design in multinational organizations.

Methods

Study Design and Reporting

This pilot study used a cross-sectional survey design and was prepared with attention to the STROBE recommendations for observational studies.[12] The aim was to examine associations between perceived organizational conditions and work engagement at two sites embedded in different national and organizational contexts within the same multinational company, and to derive implications for locally adapted WHP implementation. Because of the cross-sectional design, the analyses identify associations only. No causal or temporal effects can be inferred.

Setting and Sample

Data were collected from employees of a multinational industrial technology company operating in Sweden and Hungary. The company develops and manufactures industrial tools and energy-related equipment. Studying two national sites within the same multinational organization provided a partially shared corporate context while allowing comparison of employees embedded in different national and organizational environments.

The survey was distributed via email by local human resources teams in both countries using an online questionnaire. Participation was voluntary. All employees with a corporate email address were eligible to participate, and no additional inclusion criteria were applied. The number of eligible employees invited to participate was not available to the research team; therefore, a response rate could not be calculated and non-response and selection bias could not be quantified. Voluntary participation may also have introduced self-selection. No additional site-level information on the number or composition of invited employees was available; consequently, the representativeness of the achieved samples relative to the underlying site workforces cannot be assessed.

The final analytic sample consisted of 121 respondents; Sweden and Hungary contributed 80 and 41 employees, respectively. In both countries, most respondents were full-time employees (Sweden: 96.3%; Hungary: 92.7%). The Swedish sample included a relatively high proportion of employees with long tenure; 40% had worked at the company for more than 10 years. The Hungarian sample showed a more even distribution across tenure categories, indicating a more heterogeneous employment structure.

Organizational Context

The two sites were part of the same multinational company but did not perform identical organizational functions. The Swedish operation functioned primarily as the technology owner and development center. Although manufacturing was also present, global strategic planning, large-scale research and development (R&D), and patenting of new

technologies were concentrated there. The Hungarian operation functioned primarily as an implementation and manufacturing site, adapting global products and technologies developed in Sweden to practical production. No R&D function was located at the Hungarian site during the study period. The sites therefore shared corporate values and broad policies but differed in proximity to strategic decision-making, technology development and production implementation. No leadership change, major restructuring, or other major organizational change occurred during data collection. Because each country was represented by a single site and the two sites also differed in organizational function, national and site-specific organizational explanations cannot be separated in the present design. Accordingly, national context, site function and job design are treated as intertwined contextual features, and the study does not attempt to assign observed patterns to any one of them.

Measures

Areas of worklife were assessed using the 29-item Areas of Worklife Scale (AWS), which captures person-job fit across workload, control, reward, community, fairness and values.[5] Items are rated on a five-point scale. All negatively worded items were reverse-scored before domain means were calculated (AWS items 1, 3, 4, 6, 12, 16, 17, 18, 22 and 29). Consequently, higher scores consistently represent greater congruence between the employee and the work environment. For the workload domain specifically, higher scores therefore indicate a more manageable workload rather than greater workload demand. Scores above 3.00 were interpreted as relative congruence and lower scores as greater mismatch.

Work engagement was measured using the Utrecht Work Engagement Scale, short version (UWES-9).[13] Items are rated from 0 (never) to 6 (always). Subscale scores were calculated as item means for vigor (items 1, 2 and 5), dedication (items 3, 4 and 7) and absorption (items 6, 8 and 9). A total UWES-9 mean was also calculated for reliability assessment. Higher scores indicate higher engagement. Engagement was interpreted as a positive indicator relevant to burnout prevention and was not treated as a direct measure of burnout. The AWS uses a 1-5 response scale and the UWES-9 a 0-6 response scale; domain and subscale scores were calculated as item means and interpreted within their respective instruments, rather than compared numerically across instruments.

The Swedish site received the original English-language questionnaire. For administration at the Hungarian site, the same English-language questionnaire was translated into Hungarian by the authors and subsequently reviewed by bilingual experts for clarity, comprehensibility and conceptual correspondence. An independent back-translation procedure, cognitive interviewing and formal cross-cultural psychometric validation were not conducted. Therefore, equivalent item interpretation across the Hungarian and Swedish language versions cannot be assumed. Item-level data allowed internal consistency to be estimated in the present sample. In the total sample, Cronbach's alpha was 0.756 for vigor, 0.821 for dedication, 0.629 for absorption and 0.872 for the UWES-9 total score. AWS domain alphas ranged from 0.715 to 0.833. Country-specific coefficients are reported in Supplementary Table S1.

Cross-language measurement equivalence was not established; accordingly, between-site mean comparisons are treated as provisional. The lower internal consistency of the three-item absorption subscale should also be considered when interpreting absorption findings. Reliability estimates do not establish measurement equivalence across languages. Differential item functioning could not be ruled out or adequately tested with the available country sample sizes; therefore, observed mean differences may partly reflect translation-related differences in item interpretation rather than substantive between-site differences.

Data Analysis

Data were analyzed using Python 3.13.5. The analytic sample comprised 80 Swedish and 41 Hungarian respondents, with no missing item-level responses. Descriptive statistics and Cronbach's alpha were calculated for the UWES-9 and AWS domains. Pearson correlations assessed bivariate associations between AWS domains and engagement dimensions. Welch independent-samples t-tests compared site means because the two groups were unequal in size and homogeneity of variance was not assumed. Cohen's d, calculated using the pooled standard deviation, was reported as the effect-size estimate. All correlation, mean-comparison and regression-coefficient tests were two-sided with $\alpha = 0.05$. Because the analyses were exploratory and hypothesis-generating, no formal adjustment for multiple comparisons was applied; *P* values were therefore interpreted cautiously, with emphasis on effect sizes and the overall pattern of results. Given the modest sample size and cross-sectional design, the multivariable analyses were treated as exploratory estimates rather than as confirmatory predictive models.

For each engagement dimension, hierarchical linear regression was used. A binary country/site indicator was entered in Step 1 (Hungary/Hungarian site = 0, Sweden/Swedish site = 1), followed in Step 2 by all six AWS domains entered simultaneously. The six domains were retained together because they represent theoretically distinct but related areas of worklife. The models were treated as exploratory estimates of unique associations rather than confirmatory predictive models. They estimate associations adjusted for the country/site indicator across the combined sample. Country-by-resource moderation was not tested, so the pooled coefficients do not establish equality of slopes between the two sites. For every predictor in the full Step 2 model, unstandardized B, HC3 heteroskedasticity-robust standard error, standardized beta, 95% confidence interval, *P* value, tolerance and variance inflation factor (VIF) are reported. R^2, adjusted R^2 and change in R^2 were calculated and are reported in the Results. Residual diagnostics indicated departures from normality across the models

and evidence of heteroskedasticity in the vigor model. HC3 heteroskedasticity-robust standard errors were therefore used for coefficient inference across all models; substantive conclusions were unchanged from conventional OLS inference. A compact regression-diagnostic summary is provided in Supplementary Table S2.

To characterize the statistical sensitivity of the available sample, a noncentral-F sensitivity analysis was used. Rather than reporting observed post hoc power, which is determined by the observed test statistics and adds little information beyond the obtained result, the sensitivity analysis quantified the smallest overall fixed-model effect detectable with 80% power at $\alpha = 0.05$. With $N = 121$, the sample could detect approximately $f^2 = 0.119$ (equivalent overall $R^2 = 0.106$) for a six-predictor AWS model and $f^2 = 0.126$ (overall $R^2 = 0.112$) for the seven-predictor model including the country/site indicator. Six-predictor country-specific models would require approximately $f^2 = 0.185$ (overall $R^2 = 0.156$) in Sweden and $f^2 = 0.398$ (overall $R^2 = 0.285$) in Hungary. These values refer to overall model R^2 (R^2 deviation from zero) for the specified predictor set. They are not ΔR^2 values attributable to a second block. Country-specific multivariable models and country-by-resource interaction models were therefore not interpreted. Country-stratified correlations were retained as descriptive, hypothesis-generating analyses in the Supplementary Material. The calculation parameters, including N, predictor count and numerator/denominator degrees of freedom, are provided in Supplementary Table S3.

Results

Descriptive Findings

Complete item-level responses were available for all 121 participants. After standard AWS reverse scoring, all six AWS domain means were above 3.00 in both countries (Table 1), indicating average scores on the congruent side of the scale. In the total sample, mean (SD) scores were 3.28 (0.81) for manageable workload, 3.99 (0.76) for control, 3.67 (0.87) for reward, 3.85 (0.74) for community, 3.54 (0.78) for fairness and 3.82 (0.72) for values. Internal consistency was adequate for most scales, although absorption showed lower reliability ($\alpha = 0.629$) and is interpreted cautiously (Supplementary Table S1).

At the unadjusted $\alpha = 0.05$ level, Swedish employees reported higher dedication than Hungarian employees ($M = 4.46$, $SD = 1.13$ vs $M = 3.98$, $SD = 1.20$; Welch $t(76.42) = 2.15$, $P = 0.035$, $d = 0.42$) and higher value alignment ($M = 3.92$, $SD = 0.68$ vs $M = 3.62$, $SD = 0.77$; Welch $t(72.64) = 2.04$, $P = 0.045$, $d = 0.41$). Because cross-language measurement equivalence was not established, these mean differences should be interpreted cautiously. No other between-site differences reached the unadjusted $\alpha = 0.05$ level (Table 1).

Bivariate Associations Between Worklife Areas and Engagement

In the total sample, each of the six worklife domains showed at least one nominally significant bivariate association with an engagement dimension at the unadjusted $\alpha = 0.05$ level, although the pattern differed by outcome (Table 2, Supplementary Table S4). Vigor was positively associated with control ($r = 0.455$, $P < 0.001$), values ($r = 0.441$, $P < 0.001$), community ($r = 0.415$, $P < 0.001$), reward ($r = 0.327$, $P < 0.001$), manageable workload ($r = 0.239$, $P = 0.008$) and fairness ($r = 0.202$, $P = 0.026$). Dedication was most strongly associated with values ($r = 0.494$, $P < 0.001$), reward ($r = 0.452$, $P < 0.001$), community ($r = 0.420$, $P < 0.001$) and control ($r = 0.414$, $P < 0.001$). Absorption showed smaller positive associations with community ($r = 0.328$, $P < 0.001$), reward ($r = 0.249$, $P = 0.006$), control ($r = 0.246$, $P = 0.007$) and values ($r = 0.243$, $P = 0.007$).

Manageable workload showed a modest positive association with vigor but was not significantly associated with dedication or absorption. This pattern is consistent with manageable workload being relevant primarily to the energetic component of engagement in the present sample, whereas relational and value-based resources showed broader associations across engagement dimensions.

Exploratory Country-Stratified Associations

Country-stratified correlations are presented in Supplementary Tables S5 and S6 and are treated as descriptive only, hypothesis-generating analyses rather than inferential tests of between-country differences because the subgroup analyses were underpowered. Coefficients were generally larger and more consistently positive in Sweden.

Table 1. Descriptive statistics and independent-samples comparisons between Swedish (n = 80) and Hungarian (n = 41) employees

Variable	Sweden M (SD)	Hungary M (SD)	Welch t (df)	*P*	Cohen's d
Vigor	3.92 (1.20)	3.51 (1.14)	1.82 (84.32)	0.073	0.34
Dedication	4.46 (1.13)	3.98 (1.20)	2.15 (76.42)	0.035	0.42
Absorption	4.12 (1.21)	4.02 (1.01)	0.48 (94.10)	0.629	0.09
Workload	3.34 (0.85)	3.16 (0.73)	1.19 (91.33)	0.237	0.22
Control	4.05 (0.74)	3.87 (0.80)	1.24 (75.60)	0.220	0.24
Reward	3.75 (0.83)	3.50 (0.93)	1.47 (72.63)	0.147	0.29
Community	3.93 (0.71)	3.68 (0.78)	1.75 (75.14)	0.084	0.35
Fairness	3.49 (0.77)	3.65 (0.80)	-1.10 (77.57)	0.276	-0.21
Values	3.92 (0.68)	3.62 (0.77)	2.04 (72.64)	0.045	0.41

Note. Welch independent-samples t-tests were used; degrees of freedom are shown in parentheses. Positive Cohen's d values indicate higher scores in the Swedish sample; d was calculated using the pooled standard deviation. Higher AWS workload scores indicate a more manageable workload. All tests are two-tailed.

Table 2. Pearson correlations between areas of worklife and engagement dimensions in the total sample (N = 121)

Engagement dimension	Area of worklife	r	*P*
Vigor	Workload	.239	.008
Vigor	Control	.455	< .001
Vigor	Reward	.327	< .001
Vigor	Community	.415	< .001
Vigor	Fairness	.202	.026
Vigor	Values	.441	< .001
Dedication	Workload	.111	.224
Dedication	Control	.414	< .001
Dedication	Reward	.452	< .001
Dedication	Community	.420	< .001
Dedication	Fairness	.263	.004
Dedication	Values	.494	< .001
Absorption	Workload	-.025	.783
Absorption	Control	.246	.007
Absorption	Reward	.249	.006
Absorption	Community	.328	< .001
Absorption	Fairness	.038	.678
Absorption	Values	.243	.007

Note. Higher AWS scores indicate greater worklife congruence; for workload, higher scores indicate a more manageable workload. Two-tailed *P* values are shown.

In Hungary, only the values-dedication association reached the unadjusted $\alpha = 0.05$ level ($r = 0.369$, $P = 0.018$). However, statistical significance in one country but not the other does not demonstrate that the country-specific coefficients differ, and no country-by-resource moderation is inferred.

Regression Analyses

In the Step 1 models, the country/site indicator accounted for 2.6% of the variance in vigor, 3.9% in dedication and 0.2% in absorption. Adding all six AWS domains increased explained variance to 31.4% for vigor (adjusted $R^2 = 0.272$; $\Delta R^2 = 0.288$, $P < 0.001$), 32.4% for dedication (adjusted $R^2 = 0.282$; $\Delta R^2 = 0.285$, $P < 0.001$) and 19.4% for absorption (adjusted $R^2 = 0.145$; $\Delta R^2 = 0.193$, $P < 0.001$). VIF values ranged from 1.19 to 2.36 and tolerance from 0.424 to 0.843, providing no indication of problematic multicollinearity (Table 3).

In the fully adjusted vigor model, control ($B = 0.396$, $\beta = 0.253$, HC3 $P = 0.015$) and values ($B = 0.505$, $\beta = 0.307$, HC3 $P = 0.016$) remained independently associated with higher vigor. In the dedication model, values remained independently associated with dedication ($B = 0.476$, $\beta = 0.294$, HC3 $P = 0.023$), whereas reward did not retain statistical significance after simultaneous adjustment for the other AWS domains (HC3 $P = 0.109$). In the

Table 3. Hierarchical regression models predicting work engagement dimensions in the pooled sample (N = 121)

Outcome	Predictor	B	HC3 SE	β	95% CI	*P*	Tol.	VIF
Vigor	Manageable workload	.188	.125	.128	[-.060,.436]	.136	.821	1.22
Vigor	Control	.396	.160	.253	[.079,.714]	.015	.590	1.69
Vigor	Reward	-.013	.162	-.009	[-.333,.307]	.937	.424	2.36
Vigor	Community	.313	.201	.195	[-.085,.711]	.122	.527	1.90
Vigor	Fairness	-.347	.228	-.228	[-.799,.106]	.132	.439	2.28
Vigor	Values	.505	.207	.307	[.094,.916]	.016	.449	2.23
Vigor	Country/site indicator: Sweden/Swedish site	.017	.266	.007	[-.511,.545]	.949	.843	1.19
Dedication	Manageable workload	-.048	.153	-.033	[-.352,.255]	.752	.821	1.22
Dedication	Control	.222	.181	.144	[-.138,.581]	.224	.590	1.69
Dedication	Reward	.297	.184	.220	[-.067,.662]	.109	.424	2.36
Dedication	Community	.216	.189	.137	[-.159,.591]	.256	.527	1.90
Dedication	Fairness	-.258	.204	-.172	[-.662,.147]	.209	.439	2.28
Dedication	Values	.476	.206	.294	[.068,.885]	.023	.449	2.23
Dedication	Country/site indicator: Sweden/Swedish site	.143	.247	.058	[-.346,.632]	.563	.843	1.19
Absorption	Manageable workload	-.147	.160	-.105	[-.465,.171]	.361	.821	1.22
Absorption	Control	.166	.193	.111	[-.216,.548]	.391	.590	1.69
Absorption	Reward	.255	.191	.194	[-.124,.634]	.185	.424	2.36
Absorption	Community	.495	.217	.322	[.066,.924]	.024	.527	1.90
Absorption	Fairness	-.516	.242	-.353	[-.994, -.037]	.035	.439	2.28
Absorption	Values	.184	.261	.116	[-.334,.701]	.484	.449	2.23
Absorption	Country/site indicator: Sweden/Swedish site	-.234	.272	-.097	[-.772,.304]	.391	.843	1.19

Note. Step 1 entered the binary country/site indicator (reference category: Hungary/Hungarian site = 0; Sweden/Swedish site = 1); Step 2 entered all six AWS domains simultaneously. Table rows group the six AWS domains together for readability, with the country/site indicator shown separately within each outcome. B = unstandardized coefficient; HC3 SE = HC3 heteroskedasticity-robust standard error; β = standardized coefficient; Tol. = tolerance; VIF = variance inflation factor. Coefficient p values and 95% confidence intervals are based on HC3 robust inference. The pooled models estimate average associations across the two sites and do not test country-specific slopes.

absorption model, community was positively associated with absorption (B = 0.495, β = 0.322, HC3 $P = 0.024$). Fairness showed a negative adjusted coefficient (B = -0.516, β = -0.353, HC3 $P = 0.035$), although its bivariate association with absorption was near zero (r = 0.038, $P = 0.678$). Because the negative sign emerged only after simultaneous adjustment for correlated AWS domains, it was treated as a possible suppression pattern rather than as a substantively interpretable negative association. This absorption result warrants additional caution because the three-item absorption subscale had lower internal consistency (α = 0.629).

After the six AWS domains were added, the country/site indicator coefficient was not statistically significant for vigor (HC3 $P = 0.949$), dedication (HC3 $P = 0.563$) or absorption (HC3 $P = 0.391$). The country/site indicator was therefore not independently associated with engagement in the adjusted models. Country moderation was not tested because the sample was not adequately powered for country-by-resource interactions.

Discussion

Principal Findings

This pilot study examined how six areas of worklife relate to employee engagement within two sites of the same multinational industrial technology company embedded in different national and organizational contexts, and what the findings imply for WHP implementation across local work systems. Three findings are central. First, control, values, reward and community showed the strongest pooled bivariate associations with engagement, and manageable workload was positively related to vigor after standard congruence-direction scoring. Second, at the unadjusted α = 0.05 level, Swedish employees reported higher dedication and value alignment than Hungarian employees, but after adjustment for all six worklife domains, the models did not detect an independent association of the country/site indicator with any engagement dimension. Third, exploratory country-stratified correlations were generally larger in Sweden, but country moderation was not tested.

The first finding is consistent with the Areas of Worklife model and the Job Demands-Resources model, both of which emphasize that autonomy, recognition, supportive relationships and value alignment are important resources for engagement and well-being.[4-6] For WHP, this supports an organizational approach to burnout prevention: programs should address work design, communication and relational resources, not only individual health behaviors or coping skills. The apparently selective association of manageable workload with vigor should be tested in larger samples before being interpreted as specific to the energetic component of engagement.

These results shift the interpretation away from a simple country-difference account. The unadjusted Swedish-Hungarian difference in dedication was attenuated after adjustment for the AWS domains, indicating statistical overlap between site membership and measured worklife conditions in relation to dedication. The pooled models do not determine whether resource-engagement slopes differ across countries. The findings therefore support the importance of organizational resources in the combined sample while leaving open how these resources may operate across local work systems.

Interpretation in Relation to National and Organizational Context

A cross-national analysis using European Working Conditions Survey data reported substantial geographical variation in burnout across Europe.[10] The underlying survey provides broader comparative evidence on European working conditions.[11] Such patterns may reflect multiple influences, including economic conditions, governance, institutional arrangements, organizational practices and cultural expectations. These influences provide relevant context for interpreting WHP evidence in multinational workplaces. Hofstede's framework is considered here only as a post hoc contextual lens rather than a measured causal mechanism.[14,15] Within this country-level framework, Sweden is characterized by lower uncertainty avoidance and a more feminine orientation than Hungary.[14,15] Because these cultural dimensions were not prespecified as explanatory variables and individual cultural values were not measured, the descriptive correlations cannot test or confirm a Hofstede-based explanation. Sweden's lower uncertainty avoidance could nevertheless offer one possible post hoc context for interpreting the stronger descriptive associations of control with vigor (r = 0.609 in Sweden and r = 0.133 in Hungary) and dedication (r = 0.501 and r = 0.232, respectively; Supplementary Tables S5-S6). These patterns are hypothesis-generating and require direct testing in larger samples.

A second post hoc interpretation concerns Hofstede's masculinity-femininity dimension; however, the present data cannot test this mechanism.[14,15] Community showed larger descriptive associations with vigor (r = 0.499 vs 0.212) and dedication (r = 0.481 vs 0.266) in Sweden than in Hungary. These descriptive patterns should not be taken as confirmation of a Hofstede-based explanation. Organizational context provides an equally plausible explanation; the Swedish site concentrated global strategic planning and R&D, roles in which discretion, collaborative knowledge work and employee influence may be especially central, whereas the Hungarian site primarily adapted and manufactured technologies developed elsewhere. Because each country is represented by one organizationally distinct site, the study cannot determine whether the observed patterns reflect national culture, organizational function, job design, workforce composition, or some combination of these factors.

The multivariable results are consistent with this more contextual interpretation. After adjustment, values remained associated with vigor and dedication, control with vigor, and community with absorption, whereas the country/site indicator was not statistically significant in any of the models. The negative adjusted fairness coefficient

for absorption is best regarded as a possible suppression pattern because the bivariate association was near zero and the sign appeared only after simultaneous adjustment. The lower reliability of the three-item absorption subscale further limits fine-grained interpretation of this outcome. Finally, the model R^2 values leave substantial engagement variability unexplained, indicating that factors such as leadership practices, specific job characteristics, occupational role, personality and organizational climate may also contribute. Given both the possible suppression pattern and the lower reliability of absorption, neither the negative fairness coefficient nor the precise absorption pattern should be overinterpreted.

Implications for Workplace Health Promotion

For WHP practice, the findings caution against relying exclusively on one-size-fits-all intervention models in multinational companies. Standardized corporate programs may define common principles, but implementation should account for how employees can use autonomy, feedback, communication and community within their actual work systems. The recommendations below have two evidentiary levels: the general priorities are grounded primarily in pooled associations, whereas the site-specific suggestions are hypothesis-generating extensions that combine exploratory stratified patterns with documented organizational context.

Four intervention priorities can be considered in light of the findings. First, autonomy should be supported through clear decision rights and participation in work design. Second, feedback and recognition should be regular, visible and locally meaningful. Third, communication should reduce ambiguity by clarifying expectations, changes and available support. Fourth, community-building should strengthen supportive team relationships and shared values.

In light of the study findings and the site's organizational function, WHP at the Swedish site may build on the salience of autonomy, value alignment and community by preserving meaningful employee influence, participatory decision-making and collaborative work design. These priorities fit both the exploratory Swedish correlation pattern and the site's concentration of strategic planning, technology ownership and R&D. The design cannot attribute them specifically to Swedish culture.

In light of the study findings and the site's organizational function, WHP at the Hungarian site, where work was more strongly centered on implementation and manufacturing, may need to combine autonomy with clear decision boundaries, predictable procedures, transparent communication and visible managerial support. Regular team briefings, structured feedback and opportunities to influence practical work organization may make organizational resources more usable without assuming that a headquarters-style autonomy model can be transferred unchanged.

Value alignment merits attention across both sites. Values showed the strongest bivariate association with dedication and remained independently associated with both vigor and dedication in the adjusted models. WHP should therefore extend beyond benefits or individual health programs and address whether organizational values are credible, locally meaningful and reflected in everyday decisions, communication and management practice.

Contribution to Health Promotion Research

This study contributes to health promotion research in three ways. First, it reframes burnout prevention in multinational companies as a challenge of fit between organizational resources and local work systems. The question is not only whether job resources exist, but whether they are usable, credible and supportive in everyday work. Second, it provides descriptive evidence from a real organizational setting that worklife-engagement patterns may vary across sites embedded in different national and organizational contexts. Third, it extends WHP-oriented use of the Areas of Worklife and Job Demands-Resources models by showing why local implementation matters when shared organizational principles are applied across sites.

The study does not claim that national culture alone explains engagement differences, nor that Hofstede scores can substitute for direct measurement of cultural values. Instead, it highlights the need to consider organizational resources together with site function and local expectations. For practitioners, this means evaluating not only which interventions are offered, but also how they fit the work system and are communicated, legitimized and embedded in daily work.

Limitations and Future Research

Several limitations should be considered. The most important limitation is the cross-sectional design. The results identify associations between organizational conditions, country context and engagement, but cannot establish whether worklife areas cause engagement differences. Longitudinal and intervention studies are needed to examine causal pathways and program effects.

A second key limitation is the relatively small and uneven country sample, particularly the Hungarian subsample. The sensitivity analysis, based on overall fixed-model R^2 deviation from zero rather than observed post hoc power, showed that the pooled seven-predictor model could detect an overall effect of approximately $f^2 = 0.126$ ($R^2 = 0.112$) with 80% power, whereas a six-predictor model in Hungary would require a large effect of approximately $f^2 = 0.398$ ($R^2 = 0.285$). These are minimum detectable overall model effects, not ΔR^2 values for a second block. Country-specific multivariable models and country-by-resource interaction tests were therefore not adequately powered. Stratified correlations are descriptive and hypothesis-generating rather than evidence that relationships differ statistically between countries. In addition, because the number of eligible employees invited to participate was unavailable and participation was voluntary, the response rate could not be calculated and non-response and self-selection bias could not be quantified. The study was underpowered

to detect small-to-moderate effects in the Hungarian subsample, and null findings in that subgroup should not be interpreted as evidence of absence of associations. The absence of site-level sampling-frame information also precludes assessment of how representative the respondents were of the eligible workforces.

Third, the absence of independent back-translation and formal psychometric validation of the Hungarian questionnaire is an important limitation. Item-level data allowed internal consistency to be examined. Internal consistency was adequate for most scales, although absorption was lower ($\alpha = 0.629$). Reliability does not establish linguistic or measurement equivalence. Differential item functioning cannot be excluded, and scalar measurement invariance was not established; between-country mean comparisons should therefore be regarded as provisional. Accordingly, the observed mean differences in dedication and values may partly reflect translation-related differences in item interpretation or differential item functioning rather than true between-site differences. If particular items are interpreted or endorsed differently across language versions at the same underlying level of the construct, observed scale means may be shifted, potentially exaggerating, attenuating, or even producing apparent between-site differences. Future studies should use independent forward-backward translation, cognitive debriefing and adequately powered cross-cultural validation of the Hungarian AWS and UWES-9.

Fourth, the study relied on self-reported survey data, which may introduce common method bias. Both AWS and UWES-9 measure subjective perceptions, and these perceptions are relevant for WHP because intervention effectiveness depends partly on how employees experience the work environment. Nevertheless, future studies should combine survey data with objective indicators, qualitative interviews and organizational records such as absenteeism, turnover or participation in WHP programs.

Fifth, burnout was not measured directly. Work engagement was used as a positive indicator related to burnout prevention, but it does not substitute for a validated burnout measure. Future research should include direct burnout instruments, such as the Maslach Burnout Inventory or other validated burnout scales, alongside engagement measures.

Sixth, cultural context was interpreted post hoc at the country level and was not measured at the individual level. Hofstede's framework can generate contextual expectations but may oversimplify within-country diversity and should not be treated as an individual-level explanatory variable. Future studies should directly measure individual cultural values, organizational culture and institutional factors and examine their interaction with job resources.

Seventh, country and site identity were completely confounded in the present design, and the two sites also differed substantially in organizational function. The Swedish site combined manufacturing with global strategic planning, technology ownership, large-scale R&D and patenting, whereas the Hungarian site focused primarily on practical implementation and manufacturing and had no R&D function. Because only one site was studied in each country, the present design cannot disentangle national-context explanations from site-specific organizational differences, including differences in work content, decision latitude, professional composition or proximity to strategic decision-making. Future studies should include multiple sites within each country, ideally with more functionally comparable units, and should measure job function and organizational level directly. Accordingly, the study cannot determine whether observed patterns reflect national culture, organizational function, job design or a combination of these mechanisms.

Finally, the study focused on one multinational industrial company. Future research should test locally adapted WHP strategies across multiple sectors, organizations and countries and examine whether local adaptation improves engagement, reduces directly measured burnout symptoms and increases participation in health promotion initiatives.

Conclusion

This pilot study indicates that worklife resources are associated with engagement across two sites of the same multinational company. The observed between-site differences should not be attributed to national culture alone. At the unadjusted $\alpha = 0.05$ level, Swedish employees reported higher dedication and value alignment than Hungarian employees. However, after all six AWS domains were entered simultaneously, the fully adjusted models did not detect an independent association of the country/site indicator with any engagement dimension. Control and values were the clearest adjusted correlates of vigor, values of dedication, and community of absorption.

For workplace health promotion, the practical implication is to combine common organizational principles with local adaptation. Autonomy, feedback, recognition, communication and community should be designed around the actual work system in which employees operate. At the Swedish development-oriented site, this may emphasize employee influence and collaborative knowledge work; at the Hungarian implementation/manufacturing site, it may require equally meaningful influence embedded within clear roles, procedures and managerial support.

The study therefore contributes a cautious cross-context perspective on burnout prevention: health-promoting resources should be evaluated not only by whether they are formally available, but by whether they fit local job design, organizational position and employee expectations. Larger, functionally matched and psychometrically validated cross-national studies are needed before country-specific effects can be established. The practical implication of local adaptation does not depend on identifying a single national-cultural or organizational mechanism. In either case, WHP implementation should be assessed against the actual local work system.

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Competing Interests

The authors declare that they have no competing interests.

Data Availability Statement

The data underlying this study are not publicly available because of organizational confidentiality and the small country subsamples. Aggregated results are reported in the manuscript.

Declaration of AI-Assisted Tools in the Writing Process

The authors acknowledge the use of ChatGPT, GPT-5.5 Thinking, and Grammarly in 2026 to assist with language editing, readability improvement, sentence-level clarity and manuscript formatting. AI tools were used in the manuscript text only for linguistic refinement and clarity, including the abstract, introduction, methods, discussion and conclusion sections. All AI-assisted suggestions were reviewed, revised and approved by the authors, who take full responsibility for the accuracy, integrity and final content of the manuscript.

Ethical Approval

The study involved an anonymous, voluntary survey of adult employees. Formal ethics committee approval was not sought prior to data collection. The survey collected no direct personal identifiers or clinical health data and involved no intervention. Participants received written information about the study purpose, anonymity, voluntary participation and their right to withdraw before completing the questionnaire. Proceeding to and completing the questionnaire was taken as informed consent. Data were analyzed only in aggregated form.

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Supplementary Files

Supplementary file contains Tables S1-S6.

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