

Development and validation of the InEquality in organisations Scale (InE-S): a measure based on Acker's inequality regimes

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Abstract

Purpose – The purpose of this study was to develop a scale that can be used to assess inequality at work based on gender, age and ethnicity that is grounded in Acker's (2006) inequality regimes.

Design/methodology/approach – The authors used three representative samples (total $N = 1,806$) of Swedish teachers, nurses and social workers to develop and validate the scale. The validation process included the assessment of content validity, confirmatory factor analysis for factorial validity, internal consistency and associations with theoretically warranted outcomes and related constructs to assess criterion-related validity and convergent validity.

Findings – The authors found evidence supporting the content, factorial, criterion-related and convergent validity of the InEquality in organisations Scale (InE-S). Furthermore, the scale demonstrated high internal consistency.

Originality/value – The newly developed scale InE-S may be used to further the understanding of how inequality at work influences employees. This study makes a contribution to the current literature by providing a scale that, for the first time, can test Acker's hypotheses using quantitative methods to demonstrate the consequences of inequality at work.

Keywords Inequality at work, Acker's inequality regimes, Scale development, Multivariate quantitative methods

Paper type Research paper

Introduction

Increased globalisation has created more heterogeneous organisations all over the world. This development has underpinned the necessity of creating non-oppressive organisations and institutions. In the research field of gender and organisation, Joan Acker's theoretical contributions have been significant. Her work on gendered organisations and inequality regimes has inspired and influenced numerous scholars; however, most have focused their



work primarily on demonstrating the existence of gendered organisations and only to a lesser extent on theoretical developments for achieving equality and social justice (Nkomo and Rodriguez, 2017). With her groundbreaking article, “Hierarchies, jobs, bodies: A theory of gendered organizations”, Acker (1990) provided gender and organisation scholars with a powerful analytical tool for disrupting the idea of gender-neutral organisations, construed as rational entities, devoid of structural inequalities. However, unfortunately, the low frequency of Acker citations in mainstream management and organisation studies suggests that it has not been broadly adopted within this field of research. There is a need to bridge the gap between the research field of gender and organisation and mainstream management and organisation research to challenge the inequality regimes of organisations and institutions.

In this article, the aim is to develop and validate a scale based on Acker’s inequality regimes that can be used widely across a broad range of survey studies within the field of management and organisation. Such a scale begins with the assumption that all organisations are gendered and that inequality regimes are an intrinsic part of all institutions. This will enable us to move beyond these already frequently confirmed parts of Acker’s theory towards a theory that, with the help of additional methodological approaches, can grasp and demonstrate how these social structures have consequences for all organisations and the people who inhabit them. In the current article, we examine the consequences of inequality in terms of reduced employee well-being, as we expect that perceived inequality will have a negative impact on well-being.

Gendered organisations and inequality regimes

In her article published in 1990, Acker develops a systematic theory of gender and organisation, stipulating how the everyday processes and practices of organisations create and recreate those organisations as gendered (Acker, 1990). This theory marked the birth of the field of “gendered organisation” and has subsequently become a useful tool for analysing and understanding how gender plays a significant role in all kinds of organisations throughout the world. Some examples are: computing work in the UK (Panteli *et al.*, 2001); the organisation of Swedish forestry work (Johansson, 2020); the Australian parliament (Crawford and Pini, 2010); a Finnish political science department (Kantola, 2008); a military context (Carreiras, 2017); engineers in India’s information and technology sector (Maji and Dixit, 2020); and the careers of women managers in tourism organisations in Portugal (Carvalho *et al.*, 2019).

A basic starting point is that gender is a product of social doings and not a “natural” property or possession of an individual (West and Zimmerman, 1987). Hence, gender differences are constructed and used to reinforce the idea of essentialism, which posits natural differences between men and women. This logic legitimates hierarchical arrangements and naturalises power relations such as gender inequality. Understanding organisations as gendered means accepting that gender is an integral part of all organisational processes and constitutive elements (Acker, 2006). This means that advantages, disadvantages, exploitation, control, actions, emotions, meaning and identity are all patterned through and in terms of distinctions such as male and female or masculinity and femininity. Gender is created in the everyday processes and practices of organisations, in the gender segregation of work, in income and status differences and in organisational images. Often these processes are obscured through gender-neutral or asexual discourse.

With the concept of inequality regimes, Acker (2006) draws attention to and specifies an intersectional perspective; that is, the importance of considering the analytical category of gender as something more than just a socially constructed binary identity (see e.g. Connell, 1987; Harding, 1986; Scott, 1986). The bases for inequality can vary and, as Acker (2006, p. 443)

argues, gender, race and class are usually present, mutually produced and reproduced within organisations and defined as:

[...]systematic disparities between participants in power and control over goals, resources, and outcomes; workplace decisions such as how to organize work; opportunities for promotion and interesting work; security in employment and benefits; pay and other monetary rewards; respect; and pleasures in work and work relations.

These regimes are fluid and changing and are linked to inequalities in the surrounding society, its politics, history and culture (Acker, 2006). The visibility of these inequalities varies and is connected to the degree of awareness within organisations.

Empirical studies of inequality regimes

In our overview of empirical studies of inequality regimes, we include a selection of studies that can illustrate the different ways in which Acker's concept of inequality regimes is being used. To begin with, articles using inequality regimes as a theoretical framework have applied several different qualitative methods, such as interviews (Greene and Robbins, 2015; Handy and Rowlands, 2017; Healy *et al.*, 2011; Scala and Paterson, 2017; Turbine and Riach, 2012), focus-group interviews (Dahlkild-Öhman and Eriksson, 2013; Frenkel, 2008) and literature studies (Benschop and Doorewaard, 2012; Williams and Mavin, 2012), and also a combination of qualitative methods, such as interviews and observations (Grünenfelder, 2013; Wasserman and Frenkel, 2015).

According to Nkomo and Rodriguez (2017), Acker's framework has rarely been fully applied. In a review of how her theories have been used in management and organisation studies, they identified three different approaches. Firstly, there were articles that simply referred to Acker's concept, for example, when defining the concept of gender (Grünenfelder, 2013; Handy and Rowlands, 2017; Murray and Syed, 2010; Powell *et al.*, 2018; Scala and Paterson, 2017; Sharp *et al.*, 2012).

Secondly, researchers have applied Acker's theories to an underexplored context, industry or sample (Nkomo and Rodriguez, 2017). This way of using the concept of inequality regimes is more prevalent within mainstream studies. There are growing numbers of studies applying the concept of inequality regimes by including two or three of the outlined bases of such regimes, such as studies that focus on the intersections of ethnicity, gender and religion (Healy *et al.*, 2011), gender, race and class (Holvino, 2010), gender and class (Pringle *et al.*, 2017) or ethnicity and gender (Ressia *et al.*, 2017) while some studies have included neglected categories, such as age (Dahlkild-Öhman and Eriksson, 2013) or disability and non-disability (Williams and Mavin, 2012).

An example of the contributions made by these qualitative empirical studies would be the ways in which female Pakistani development practitioners build both physical and discursive strategies when negotiating existing gender relations to achieve the opportunity of gaining formal employment (Grünenfelder, 2013). Another example is how inequality regimes are sustained within health care, local government and higher education, which are all governed by the public sector (Healy *et al.*, 2011), despite the fact that the public sector is more sophisticated and has stronger policy development and legal duties than the private sector.

An additional example is a study focusing on how gendering and class impact the career progression of female lawyers. Here, the findings reveal hierarchical differences depending on whether the women were partners or working below the partner line (Pringle *et al.*, 2017). The latter group were frustrated by how their prerequisites at work limited their opportunities for career development, while the former accepted the hierarchical employment model of law. Finally, one study explores men's positions within professions in

which women dominate due to numbers (Dahlkild-Öhman and Eriksson, 2013). The findings reveal that men's positions as male social workers undermine constructions of masculinity as dominance. Furthermore, this study explores the ways in which age and gender relations are interwoven together with professional experience in the process of constructing men's positions within this context.

The third way in which Acker's concept is used is to link it to other theoretical concepts or to introduce a new construct. Although this approach is rare, one example includes the intersection of gender and class with Lefebvre's spatial theory as markers of inequality (Wasserman and Frenkel, 2015). This study scrutinises how work performed by managers and architects on the one hand and female employees on the other construct, reproduce and challenge gender and class identities through space-related means. The two types of social groups to which the women belonged were enacted differently depending on their habitus when aiming to distinguish themselves from others.

In their review of 457 articles on Joan Acker's influence on management and organisation studies taken from 47 journals published during the period 2000–2017, Nkomo and Rodriguez (2017) conclude that:

While Acker's inequality regimes centre on race, gender and class, the contribution of a few articles focused on what was positioned as neglected categories of inequality. That is to say, this notion of inequality regime was rarely picked up and only a few articles focused on neglected categories.

Acker (2006) states that, besides her triad, other bases for inequality can be found, depending on the organisational context. Above all, although several articles cite or apply Acker's concepts, her work is seldom identified as a major contribution to research (Carvalho *et al.*, 2019; Nkomo and Rodriguez, 2017). In our work, we contribute to this research field by applying quantitative methods and by not reproducing the category of class. Instead, we involve one neglected category, age, together with gender and ethnicity.

Inequality at work and consequences for well-being

During the scale development process, an important step is to demonstrate that the scale is related to meaningful outcomes. In our case, we propose that the experience of inequality at work will be negatively related to employee well-being. To the best of our knowledge, there are no studies that have explicitly measured Acker's (2006) inequality regime and its impact on well-being by applying a quantitative approach. However, empirical studies give us reason to believe that the lack of equality in relation to gender, ethnicity and age does have a negative impact on well-being. One empirical example is a longitudinal study based on survey data with a sample of female workers in Korea, which shows, among other things, that gender discrimination has negative effects on subjective well-being, such as job satisfaction and work engagement (Kim, 2015). The impact on well-being varies in relation to different dimensions of discrimination, and the study further reveals that personal resources and organisational support play a moderating role in reducing the negative effects of perceived discrimination.

Another example is a study by Furunes and Mykletun (2010), which shows that, in the future, a higher proportion of the workforce will consist of older workers at the same time as reports show increased age discrimination against this group of employees. By applying a quantitative approach, using data from Norway, Sweden and Finland, the study contributes with an analysis of the behavioural component of ageism, which produces negative feelings of uselessness, powerlessness and reduced self-esteem among older employees.

An additional study from Finland, using a nationwide sample of immigrants from the former Soviet Union, Russia and Estonia living in the country, examined the role of work-

specific, group-level control beliefs when explaining the negative impact of unemployment and perceived discrimination (Jasinskaja-Lahti *et al.*, 2007). The authors explained and discussed the negative impact and long-term consequences that unemployment and perceived discrimination in working life have for immigrants, addressing psychological well-being and self-rated health. Based on these findings, we suggest:

- H1. Inequality based on gender is negatively associated with well-being in terms of increases in stress and burnout and decreases in vigour and self-rated health.
- H2. Inequality based on age is negatively associated with well-being in terms of increases in stress and burnout and decreases in vigour and self-rated health.
- H3. Inequality based on ethnicity is negatively associated with well-being in terms of increases in stress and burnout and decreases in vigour and self-rated health.

The present study

Drawing on Joan Acker's (2006) work on inequality regimes, the aim of the present study was to develop a scale to measure perceptions of inequality at work based on gender, age and ethnicity. We used a confirmatory and validity-focused approach using three representative samples consisting of teachers (Sample 1), nurses (Sample 2) and social workers (Sample 3). The scale development consisted of four phases based on the procedures proposed by DeVellis (2011), Hinkin (1998) and Clark and Watson (1995). Phase 1 consisted of item generation and assessment of content validity. Phase 2 involved item selection, data collection and initial evaluation of the factor structure of the scale. In Phase 3, the factor structure was cross-validated and replicated. Finally, in Phase 4, we examined the criterion-related validity (i.e. correlations between perceptions of inequality at work and well-being), convergent validity (i.e. correlations with constructs that are similar) and discriminant validity (i.e. correlations with constructs that are intended to measure something different) of our newly developed scale.

Method

Procedure and participants

We collaborated with Statistics Sweden, a government agency that produces official statistics, to collect data. Statistics Sweden drew three (stratified and random) representative samples of teachers (Sample 1), nurses (Sample 2) and social workers (Sample 3) based on the Swedish Occupational Register in Sweden. Based on Statistic Sweden's selection of participants, we invited 3,498 respondents, consisting of 1,166 teachers, 1,166 nurses and 1,166 social workers working in Sweden, to participate in our study. The samples were selected as part of an ongoing study of the psychosocial work environment in female-dominated workplaces, and we used these three samples throughout the process of validation of our measure of inequality in organisations.

Paper-and-pencil surveys were sent to participants' home addresses with a prepaid return envelope (to Statistics Sweden). Participants were informed of the purpose of the study, that their participation was voluntary and that they could withdraw their participation in the study at any time. Out of 3,498 invited participants, 1,806 answered the questionnaire, and after the exclusion of 93 respondents who were no longer working, the final response rate was 52%. Sample 1 consisted of 592 elementary school teachers and school principals, Sample 2 included 645 nurses and managers in health care and Sample 3 consisted of 569 social workers and managers in social services. An overview of how the

samples were used throughout the four phases, along with demographic characteristics, is presented in [Table 1](#).

Measures

Inequality in organisations. Inequality in organisations based on gender, age and ethnicity was measured using our newly developed 21-item InEquality in organisations Scale (InE-S). This instrument consists of three subscales designed to measure inequality in organisations based on gender (seven items), age (seven items) and ethnicity (seven items) in work contexts. Responses were given on a five-point Likert scale, ranging from 1 (*completely disagree*) to 5 (*completely agree*). The inequality in organisation items is presented in [Figure 1](#).

Employee well-being. We measured employee well-being using four different scales, reflecting both positive and negative aspects, internal consistency of the scales is reported in [Table 3](#). We measured *vigour*, referring to high levels of energy and mental resilience at work, using the three-item subscale from the short version of the Utrecht Work Engagement Scale ([Schaufeli et al., 2006](#)). An example item is: “In my work, I feel bursting with energy”, and responses are given on a seven-point Likert scale, ranging from 0 (*never*) to 6 (*always/ every day*).

Burnout, defined as a three-component construct consisting of exhaustion, depersonalisation and decreased personal accomplishment ([Maslach et al., 2001](#)), was assessed using a four-item subscale from COPSOQ II ([Pejtersen et al., 2010](#)). An example

Sample characteristics	Sample 1	Sample 2	Sample 3
<i>N</i>	592	645	569
Occupation	Teachers	Nurses	Social workers
<i>Gender</i>			
Male (%)	24	11	18
Female (%)	76	88	82
<i>Age</i>			
Range	23–64	24–64	24–64
Mean	48.61	49.64	46.41
SD	9.51	10.49	11.40
<i>Tenure</i>			
Range	0–40 years	0–45 years	0–43 years
Mean (years)	7.95	11.20	9.97
SD (years)	7.89	10.82	8.42
<i>Hours worked</i>			
Full-time (%)	96	84	95
Part-time (%)	5	16	5
<i>Contract</i>			
Permanent (%)	95	97	98
Temporary (%)	5	3	2
Phase 1: Item generation and content validity			
Phase 2: Item selection and factorial validity	x	x	
Phase 3: Replication			x
Phase 4: Criterion-related and convergent validity			x

Table 1. Overview and demographic characteristics of the study samples

Source: Authors’ own work

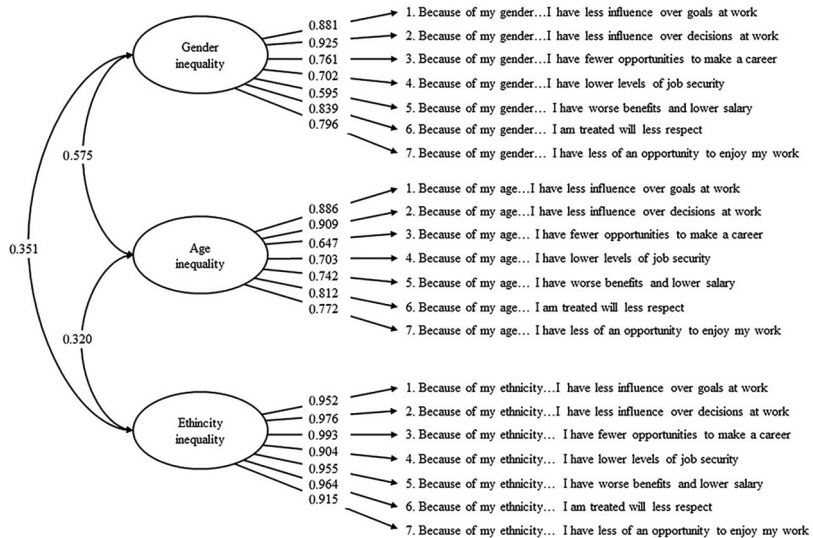


Figure 1.
Factor structure of
the InE-S

Source: Authors' own work

item is: "How often do you feel emotionally exhausted?" and responses are given on a five-point Likert scale, ranging from 1 (*never*) to 5 (*all the time*).

We measured *stress*, defined as an individual's appraisal of the environment as taxing or exceeding his or her resources (Lazarus and Folkman, 1984), using a four-item subscale from COPSOQ II (Pejtersen *et al.*, 2010). An example item is: "How often do you feel tense?" Responses are given on a five-point Likert scale ranging from 1 (*never*) to 5 (*all the time*).

Self-rated health was measured with the single item: "In general, how would you describe your health?" Responses are given on a five-point Likert scale, ranging from 1 (*bad*) to 5 (*Extremely good*).

Equality at work. We measured perceived equality at work based on gender, age and ethnicity using three single items. An example item is: "To what extent do you perceive equal treatment between the sexes at your workplace?" Responses are given on a five-point Likert scale, ranging from 1 (*to a very small extent*) to 5 (*to a very large extent*).

Results

Phase 1: Item generation and assessment of content validity

The overall aim of Phase 1 was to develop a large pool of items that reflect the breadth of the theorised content domains of interest: inequality in organisations in terms of gender, age and ethnicity based on Acker (1990). Based on Acker (2006), we defined inequality in organisations in terms of the following seven systematic disparities between participants:

- (1) power and control over goals, resources and outcomes;
- (2) workplace decisions such as how to organise work;
- (3) opportunities for promotion and interesting work;
- (4) security in employment and benefits;
- (5) pay and other monetary rewards;

- (6) respect; and
- (7) pleasure in work and work relations.

These seven aspects of inequality in organisations were covered in our item pool. In line with [Clark and Watson \(1995\)](#), we also conducted a comprehensive literature review, presented in the introduction, to ensure that our item pool would be broader than our own theoretical perceptions of the target constructs. Based on this literature review, we then developed a pool of items that reflected inequality in organisations based on gender, age and ethnicity.

Drawing on the work of [DeVellis \(2011\)](#), [Hinkin \(1998\)](#) and [Clark and Watson \(1995\)](#), we strove to develop items that were as simple and brief as possible, contained no ambiguity or redundancy and did not reflect antecedents or consequences of inequality in organisations. All the items were formulated as declarative statements. At this stage, the item pool consisted of 12 items reflecting inequality in organisations. The same 12 items were used for gender, age and ethnicity but with different item stems. The item stems were: “Because of my gender[. . .]”, “Because of my age[. . .]” and “Because of my ethnicity[. . .]”. Our item pool, therefore, consisted of 36 items in total.

Next, the content validity of our items was assessed ([Dunn et al., 1999](#)). One central aspect of content validity is item content relevance, which reflects the degree to which the content contained within an item is representative of the construct that the item is designed to measure ([Dunn et al., 1999](#)). Item content relevance is assessed by an expert panel consisting of expert judges, in our case researchers, who were invited to review the items. Although this is an important aspect of scale development and is recommended by the [American Psychological Association \(2014\)](#), it is often overlooked in applied research ([Dunn et al., 1999](#)). Three researchers who had expertise in work and gender research agreed to sit on our expert panel. They were professors in psychology, business administration and work science and specialised in gender or intersectional perspectives and they were all female. They were asked to review the item pool and, more specifically, to indicate the degree to which each of the 12 items was aligned with the definitions of inequality in organisations. They were given the opportunity to provide typed feedback on item wording or other concerns. After the assessment by the expert panel, a few items in the pool were reworded.

Phase 2: Item selection and factorial validity

Next, data on our 36 items was analysed using Sample 1. Initial item inspection and selection were based on item mean, variance, skewness, kurtosis, inter-item correlations and inter-scale correlations. Items with a relatively large variance ($SD > 0.50$), skewness and kurtosis between -1 and 1 ([Muthén and Kaplan, 1985](#)), and relatively large item-scale (> 0.30) and inter-item correlations (between 0.15 and 0.50) were selected and retained for further analysis ([Clark and Watson, 1995](#); [DeVellis, 2011](#); [Hinkin, 1998](#)). All items passed this initial item selection and were retained for further analysis.

Following this initial item selection, an exploratory factor analysis was performed using SPSS to further evaluate the items. In line with expectation, the EFA revealed a three-factor solution, reflecting the subscales of gender, age and ethnicity. Due to high cross-loading between factors (≈ 0.30), two items (Items 6 and 12) were deleted from each subscale (reflecting the same items in all three subdimensions), resulting in the exclusion of six items in total. For an overview of the exploratory factor analysis, see Table S1 in the supplemental material.

Next, CFA was performed on Sample 2 and further item evaluation was conducted based on substantive and theoretical meaning, model fit, factor loadings (≈ 0.50) and R^2 (≈ 0.50).

Based on our analysis, three items (Items 1, 3 and 10) on each subscale were excluded due to cross-loadings (≈ 0.30), and we retained the same seven items in all subscales for the final model (21 items in total), one for each of the seven aspects of inequality in organisations. The CFA models were estimated using the software Mplus, version 7.3 (Muthén and Muthén, 1998, 2012) and a robust maximum likelihood estimator (MLR in Mplus). The Chi-square test of exact fit is known to be oversensitive to sample size and minor model misspecifications (Marsh *et al.*, 2005). We, therefore, relied on goodness-of-fit indices to evaluate the models. Conventional cut-off criteria ($CFI > 0.90$, SRMR and $RMSEA < 0.08$) were used to evaluate model fit (Kline, 2015). The first model on Sample 2 demonstrated an almost acceptable model fit: $\chi^2(402) = 1,115.32$, $p < 0.001$, $CFI = 0.87$, $SRMR = 0.06$, $RMSEA = 0.05$, 90% CI [0.049–0.056]. The final model, with its 21 items, displayed acceptable model fit: $\chi^2(186) = 403.82$, $p < 0.001$, $CFI = 0.92$, $SRMR = 0.05$, $RMSEA = 0.04$, 90% CI [0.037–0.046].

Phase 3: Cross-validation

In the next phase, the final model, including 21 items (seven for each subdimension), was cross-validated and replicated in Sample 3. We performed cross-validation and replication to further examine the validity of the final model obtained during Phase 2 and to avoid capitalisation on chance due to single-sample analyses (Boomsma, 2000). Overall, the three-factor model displayed an almost acceptable model fit: $\chi^2(186) = 547.63$, $p < 0.001$, $CFI = 0.87$, $SRMR = 0.05$, $RMSEA = 0.06$, 90% CI [0.053–0.064]. However, CFI was below the 0.90 threshold. To improve model fit, the residual variances of Items 3 and 4 on the ethnicity inequality subscale were allowed to co-vary. The improved model showed acceptable model fit, $\chi^2(185) = 460.56$, $p < 0.001$, $CFI = 0.90$, $SRMR = 0.05$, $RMSEA = 0.05$, 90% CI [0.046–0.057].

To examine dimensionality in our scale, we estimated alternative one- and two-factor models, which in comparison to the three-factor model, provide information about the discriminant validity of our scale (see Table 2). We used the scaled Chi-square difference test (Satorra and Bentler, 2010), Akaike's Information Criterion (AIC), and Bayesian Information Criterion (BIC) to compare the one- and two-factor models against the three-factor model (West *et al.*, 2012). As presented in Table 2, the Chi-square difference tests indicated that the alternative one- or two-factor models had a worse model fit than the three-factor model. These findings were corroborated by lower AIC and BIC values for the three-factor model compared to the one- and two-factor models. In sum, these findings indicate that a three-factor model of our inequality regime scale provides the best fit to the data. The factor loadings for the final model are displayed in Figure 1. For reference, all final items, including instructions to participants, the complete item formulation and scale anchors, are presented in the Appendix.

We used the omega coefficient (ω) to assess internal consistency because it makes fewer and more realistic assumptions than coefficient alpha (McDonald, 1999), particularly the assumption of an underlying tau-equivalent reliability model (Dunn *et al.*, 2014 for an overview). Internal consistency [omega coefficient (ω)] (McDonald, 1999) was 0.90 for the gender inequality scale, 0.92 for the age inequality scale and 0.97 for the ethnicity inequality scale, supporting the reliability of the scale.

Phase 4: Criterion-related validity, convergent validity and discriminant validity

In the final phase, again using Sample 3, we assessed criterion-related validity by examining the association between the inequality in organisations subscales with employee well-being in terms of vigour, stress, burnout and self-rated health. As seen in Table 3, gender

Model	χ^2	df	p	RMSEA (90%CI)	CFI	SRMR	AIC	BIC	$\Delta\chi^2$	Δdf
One-factor model	6,431.59	189	0.001	0.13 [0.12–0.13]	0.40	0.25	15,634.86	15,908.07	4,972.49 ^b	4
Gender–Age ^a	3,236.51	188	0.001	0.09 [0.08–0.09]	0.71	0.09	12,441.74	12,719.18	1,777.41 ^b	3
Gender–Ethnicity ^a	4,207.89	188	0.001	0.10 [0.10–0.11]	0.61	0.21	13,413.72	13,691.16	2,748.79 ^b	3
Age–Ethnicity ^a	4,130.40	188	0.001	0.10 [0.10–0.11]	0.62	0.21	13,335.72	13,613.16	2,671.30 ^b	3
Three-factor model	1,459.10	185	0.001	0.05 [0.05–0.06]	0.90	0.05	10,670.34	10,960.79		

Notes: ^aItems for these two factors were combined into a single latent factor; ^bScaled Chi-square difference test against the hypothesised three-factor model. All comparisons were statistically significant at alpha = 0.001

Source: Authors' own work

Table 2. Model fit of alternative one- and two-factor models and the hypothesised three-factor model

Table 3.
Latent variable
correlations (Φ) and
reliability (α) for
the study variables
($N = 565$)

Variable	1	2	3	4	5	6	7	8	9	Omega coefficient (ω)
1. Gender inequality										0.90
2. Age inequality	0.58**									0.92
3. Ethnicity inequality	0.35**	0.32**								0.97
4. Vigour	-0.33**	-0.33**	-0.12*							0.83
5. Stress	0.33**	0.24**	0.14**	-0.46**						0.84
6. Burnout	0.37**	0.26**	0.13*	-0.60**	0.87**					0.89
7. Self-rated health	0.02	0.00	0.00	0.47**	-0.61**	-0.63**				-
8. Perception of gender equality	-0.47**	-0.06	-0.04	0.27**	-0.21*	-0.31**	0.15**			-
9. Perception of age equality	0.01	-0.50**	0.03	0.23**	-0.20*	-0.23**	0.14**	0.62**		-
10. Perception of ethnicity equality	-0.1	0.16*	-0.19**	0.16**	-0.18*	-0.18**	0.13**	0.58**	0.60**	-

Notes: ** $p < 0.01$; * $p < 0.05$
Source: Authors' own work

inequality was associated with vigour, stress and burnout but not with self-rated health, partially supporting *H1*. In line with *H2*, age inequality was negatively associated with vigour, positively related to stress and burnout and unrelated to self-rated health. Finally, ethnicity inequality was negatively related to vigour, positively related to stress and burnout and unrelated to self-rated health, partially supporting *H3*.

To establish convergent validity, correlations need to be demonstrated with constructs that measure similar things. We examined the correlations of our inequality scale with single items of perceived equality at work based on sex, age and ethnicity. As presented in Table 3, the correlations suggest that each subscale is significantly related to its respective ground for discrimination and in most cases, unrelated to other forms of discrimination, supporting the scales' convergent validity. In addition, we calculated the average variance extracted (AVE) (Fornell and Larcker, 1981), which assesses the average amount of variation that a latent construct explains in the observed variables to which it is theoretically related. As a rule of thumb, AVE higher than 0.5 demonstrates convergent validity, and to demonstrate discriminant validity, the square root of AVE needs to be greater than the correlations among the latent constructs (Fornell and Larcker, 1981). The AVE for our subscales was 0.63 for gender, 0.62 for age and 0.89 for ethnicity, all above 0.5 and hence demonstrating convergent validity. The square root of AVE was 0.79 for gender, 0.80 for age and 0.94 for ethnicity, all higher than the correlation between the three latent factors of inequality presented in Figure 1; thus, discriminant validity was established.

Discussion

The purpose of this study was to develop and validate a measure based on Acker's (2006) inequality regimes. Drawing from Acker's (2006) seven areas that may generate inequality in organisations, our newly developed InE-S includes 21 items and three subscales, reflecting inequality based on gender (seven items), age (seven items) and ethnicity (seven items). CFAs supported the hypothesised three-factor model for inequality at work. We also examined aspects of construct validity, and our findings support the content, factorial, criterion-related, convergent and discriminant validity of the InE-S. Furthermore, the subscales of our newly developed measure also demonstrated high internal consistency.

The scale we have developed and validated begins with the assumption that all organisations are gendered and that inequality regimes are an intrinsic part of all institutions. We believe that social change requires knowledge about how to deconstruct

identities, subjectivities and discourses. However, these analyses are insufficient and, in line with post-deconstructionism and the new materialism, we want to argue that there is a need to redirect attention towards socioeconomic conditions, economic and political processes and their materiality (Kantola and Lombardo, 2017).

The theoretical contributions of Acker (1990, 2006) have been significant, especially for our understanding of the *production* of gender and inequality regimes. By developing and validating the inequality scale, we have been able to move beyond knowledge about gendered organisations towards an understanding of how inequality regimes are *preserved* rather than produced. Furthermore, and importantly, we have been able to show that gender viewed through a lens that includes both ethnicity and age counts and has material consequences, both for an organisation and for the individual workers, their bodies and minds in terms of vigour, stress and burnout.

If, at a societal level, we want to achieve gender, social and ethnic equality, we need to acknowledge the materiality of gender inequality regimes on the labour market. We believe that the InE-S scale could be used widely and be further validated in a wide variety of survey studies within the field of management and organisation. Given that the literature suggests that gender-integrated workplaces are healthier and that ill health and sick leave increase the more gender-segregated an occupation is (SOU, 2014; FORTE, 2016), studies addressing gender segregation (horizontal, vertical and internal) could be fruitful. Perhaps we will be able to reveal explanations for well-being and long-term sick leave by scrutinising inequality regimes in female-dominated, male-dominated and/or gender-balanced sectors or occupations. Furthermore, inequality regimes can lead to different types of consequences in organisations. The scale can be mapped and tested against outcomes other than well-being. It can be broadened, for example, to examine the impact of gender regimes on satisfaction or effectiveness in working groups, the importance of leaders' gender awareness or organisations' productivity. Even though it is difficult to change inequality regimes, power relations can be challenged. This is highly relevant to mainstream management and organisation research but also to government policymakers and managers. The InE-S scale can thus contribute to taking further steps towards developing knowledge about what contributes to inequality regimes, how they arise in the labour market, in workplaces and in a variety of different contexts and what the consequences are. Furthermore, the scale has been developed to direct attention towards the practical question of how to create equal and non-oppressive organisations.

The associations of the subscales for gender-, age- and ethnicity-based inequality with well-being provide evidence for the criterion-related validity of the scales and that the perception of inequality at work may reduce employee well-being. As expected, gender-based inequality was negatively associated with vigour, while it was positively associated with stress and burnout, supporting *H1*. Self-rated health, on the other hand, was unrelated to gender-based inequality, contradicting *H1*. This pattern of correlations was the same for age-related and ethnicity-related inequality, lending partial support to *H2* and *H3*.

Although we are a little surprised that perceptions of inequality were unrelated to levels of self-rated health, one plausible explanation may be that the other measures of well-being are work-related, while self-rated health is a general indicator of well-being and that the consequences of inequality are stronger for work-related well-being than general well-being. These findings need to be replicated in future research, and if they do replicate, we consider this to be a positive result, showing that the perception of inequality does not affect employees' health in general but rather is restricted to their work-related health.

The findings reveal that ethnicity has a lower correlation with well-being than gender or age. This is an unexpected finding because structural discrimination against immigrants in

Sweden manifests through several aspects of life, such as inferior health, lower life expectancy, levels of education and living standards and higher unemployment rates (Kristoffersson, 2021). Hence, we would have assumed that inequality regimes in organisations, in relation to ethnicity, would have impacted individuals' well-being even more negatively than gender or age. Our study involves women-dominated occupations, so perhaps these work environments are more friendly towards diversity? Or is racism *normalised* to such an extent that we do not even recognise it?

We also examined the associations of the subscales of inequality with single items that reflect discrimination based on gender, age and ethnicity. Our findings show correlations in which gender inequality is correlated with gender discrimination, while perceptions of age inequality are correlated with age discrimination and so on. This pattern of findings demonstrates that the specific perception of inequality is primarily related to the same ground for discrimination, supporting its convergent validity. An important part of construct validation is to establish a nomological network in which the variables under study occur (Cronbach and Meehl, 1955). Our findings are in line with the nomological network surrounding inequalities based on gender, age and ethnicity in terms of both positive and negative associations with other constructs and lend initial support to the nomological network when measuring inequality at work using the InE-S. As a next step in the validation process, future research may also explore how the different types of inequality interact, investigating intersecting inequality (Acker, 2006). It is possible, for example, that the experiences of gender and age interact, such that the perception of inequality based on gender and age together has an even stronger negative impact on well-being.

Strengths and limitations

The current study has several strengths, such as the careful creation of items, a nationally representative sample for cross-validation and replication of our factor structure, and a thorough examination of the differential relationships between inequality at work and well-being.

In terms of limitations, we relied on cross-sectional survey data, which poses threats to internal validity and causal inference in terms of common method bias (Podsakoff *et al.*, 2003). Although the use of similar methods to measure both inequality at work and well-being may not necessarily upwardly bias the observed relationships between variables (Conway and Lance, 2010), using objective outcome measures for the assessment of criterion validity may be one way to improve criterion validity and diminish the threat of common method bias in future research.

Another limitation concerns the correlation between two items on the ethnicity subscale in Sample 3. This indicates that the perception that their ethnicity gave respondents fewer opportunities to build a career (Item 3) was related to the perception that their ethnicity gave them lower levels of job security (Item 4). Although not optimal from a statistical perspective, we do not find it surprising that these items share variance, as difficulty in building a career and job security do go together, and holding a temporary position, for example, presents a situation in which it is both difficult to build a career, and job security is low.

In addition, we did not assess the ethnicity of our participants, as this would be very controversial in a Swedish setting. Future research, in contexts where participants' ethnicity is less controversial may include the ethnicity of their respondents to examine how it correlates with inequality based on ethnicity, for example.

Further, the generalisability of our findings may be restricted, given that our sample consists of three women-dominated occupations in the public sector. Therefore, our findings need to be replicated in samples with different gender compositions and in the private sector to further demonstrate the validity of the InE-S.

Finally, another important step in the validation of the InE-S is to examine invariance based on gender, age and ethnicity to make sure that different groups, such as male and female employees, perceived the items in the scale in the same way.

Conclusion

Joan Acker's (2006) work on inequality regimes offers a framework for understanding power dimensions such as gender, ethnicity and in our case also age, and how they produce and preserve inequality at work. Thus, these power relations could be challenged and changed to achieve gender, social and ethnic equality on the labour market in general and in organisations specifically. We have argued for the importance of involving materiality in these types of empirical studies to understand how inequality relates to individual well-being in terms of stress, burnout, vigour and self-rated health.

Our scale provides researchers and organisations with a means to assess the extent to which employees experience inequality at work based on gender, age and ethnicity. This study demonstrates that the InE-S generates scores for inequalities at work that are reliable and valid. However, construct validation is an ongoing process, and future studies are needed, preferably with longitudinal designs, as well as cross-cultural comparisons, to further validate this scale.

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Appendix. InEquality in organizations scale (InE-S)

Because of my (gender/age/ethnicity):

- I have less influence over goals at work.
- I have less influence over decisions at work.
- I have fewer opportunities to build a career.
- I have lower levels of job security.
- I have worse benefits and lower salary.
- I am treated with less respect.
- I have less of an opportunity to enjoy my work.

The statements are rated on a five-point scale ranging from: 1 = "completely disagree" to 5 = "completely agree".

Supplementary materials

Supplementary material for this article can be found online.

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