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Workplace stress among construction professionals in South Africa: the role of harassment and discrimination

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Abstract

Purpose - The discrimination/harassment experiences of survey respondents in different construction professional groups in South Africa is compared, and the relationship between harassment/discrimination and perceived work stress is examined.

Approach/methods - An online survey was administered and 626 responses (circa 6.5% of target population) received. Descriptive and correlational statistics were used to analyse the response data.

Findings - Harassment and discrimination on ethnic grounds are experienced in all of the South African construction professions included in the survey. Respondents also indicated that they felt underpaid and that their job security was adversely affected by their ethnicity. Sexual harassment and gender-based harassment and discrimination were more frequently reported by architects than by other professionals. Harassment and discrimination were found to correlate with higher perceived levels of work stress.

Research implications - Harassment and discrimination, on ethnic and on gender-based grounds, constitute a significant stressor for many construction professionals in South Africa, particularly among architects.

Practical implications - Strategies designed to address and counter harassment/discrimination in the South African construction industry should be implemented or reinforced as part of broader stress management programmes. Employers have a major role to play in this, but unions and professional associations should also take part.

Originality/value - Previous research into work stress has focused on the experiences of workers in developed countries. This research provides insight into the problem of harassment and discrimination in the unique situation of post-*apartheid* South Africa. It supports the link between harassment and discrimination and perceived levels of personal stress in this context.

Keywords: Harassment, discrimination, stress, professionals, South Africa.

Introduction

Post-*apartheid* South Africa saw the introduction of 'positive discrimination' or 'affirmative action' as a vehicle to assist previously disadvantaged individuals (PDIs) who were broadly identified as 'Non-whites' and women (RSA, 1996). Black Economic Empowerment (BEE) and affirmative procurement policies are examples of mechanisms used to facilitate change. Within the construction industry, affirmative action has taken the form of preferential procurement in the award of building contracts and the appointment of professional consultants in terms of which the number of PDIs in the practice in general, and in managerial positions in particular, are important considerations.

Women, along with 'Black' people (See Note 1), have been deemed to be '*historically disadvantaged individuals*' (HDIs) for the purposes of affirmative action policies (see RSA, 2000; DPW, 2001; DTPW, 2002), in the sense that their disadvantage has been considered greater than that of other groups. Whilst official statistics indicate that professional women account for 50% of economically-active professionals in the South African economy (Department of Labour, 2005), the percentages of professional women in construction are far lower. Statistics from the various South African professional registration councils indicate that women represent only 20% of the architecture profession, 12% of quantity surveyors, 2% of civil engineers, 3% of construction project managers, and 0.6% of construction managers.

Discrimination is defined as '*a set of behaviors that create societal, psychological and physical barriers that prevent minority group members from obtaining parity with majority group members*' (Landry and Mercurio, 2009: 193). Discrimination includes sexist or racist 'put downs' and unfair treatment by employers, supervisors or coworkers (Goldenhar *et al*., 1998). Discrimination is related to negative mental health outcomes (Williams *et al*., 2003; Pavalko *et al*., 2003) and is a risk factor for work-related stress (Dollard *et al*., 2007; De Haas *et al*., 2009; King, 2005). Transactional models of stress suggest that stress occurs as a result of the relationship between a person and their environment when the environment is perceived as taxing, exceeding a person's resources and threatening their wellbeing (see Lazarus and Folkman, 1984). Discrimination may be conceived as a more significant stressor than general 'daily hassles' because it threatens a person's goals and sense of value as a person (Landry and Mercurio, 2009). Consistent with the conceptualization of discrimination as a stressor, the experience of discrimination is reported to impact negatively on job satisfaction (Sinclair, 1998) and mental health (Landrine *et al*., 2006; Hoobler *et al*., 2010). Further, Ong *et al.* (2009) explored the process by which racial discrimination leads to diminished mental health and report that stressors have a tendency to multiply and create other stressors, in a process known as stress proliferation. Thus, the experience of chronic discrimination predicts more frequent experiences of daily discrimination and negative events, resulting in higher levels of distress. Some research has not distinguished between the concepts of discrimination and harassment, however in the present study the concepts were examined separately.

Like discrimination, harassment can be sexual or ethnic or based on another point of difference between people, such as religion or sexual preference. However, whereas discrimination involves unequal treatment and/or the lack of positive opportunities, harassment involves threatening verbal or physical conduct or exclusionary behaviour that is directed at the recipient because of their ethnicity/race, religion, sex or sexual preference. Harassment of various forms has been identified as a significant stressor. For example, Schneider *et al.* (2000) report that ethnic harassment is negatively related to wellbeing (i.e., life satisfaction, post-traumatic stress, and health conditions). Sexual harassment and general workplace harassment have also been linked to maladaptive coping behaviours, including problem drinking (Rospenda *et al.,* 2002). Sexual harassment is a specific category of harassment that includes such behaviours as making '*unwelcome sexual advances, requests for sexual favours, and other verbal or physical conduct of a sexual nature*' (Schneider *et al.,* 1997: 401). Schneider *et al.* (1997) go on to report that even relatively low levels of sexual harassment have a significant impact on mental health, over and above the effects of general job stress. Further, Raver and Nishii (2010) indicate that gender and ethnicity-based harassment have a cumulative

negative effect on workers' psychological wellbeing. That is, when more than one form of harassment is experienced, each new type of harassment adds to the target individual's level of stress and strain outcomes.

Work-related stress is a major challenge to the health of working people (Health and Safety Executive (HSE), 2006). Houtman (2005) reports that, in the 2000 European Working Conditions Survey (EWCS), work-related stress was the second most common work-related health problem across 15 European Union countries. The increasing significance of work stress was recognized in the European Commission's Strategy on Health and Safety at Work 2002-2006, which identified psychosocial issues as an emerging occupational health and safety priority risk area (Commission of the European Communities, 2002). However, Houtman (2005) explains that patterns and trends differ between countries and labour markets. They may also vary between industries.

Construction is a high-risk industry for work-related stress (Pocock *et al.*, 2007; Love *et al.* 2010; Lingard and Francis, 2004). Project work is characterized by considerable dynamism and uncertainty, elevating its stressful nature. Work hours in construction are long and the ability to meet project objectives is sometimes compromised by unexpected events (Lingard *et al.,* 2010). The construction industry has also traditionally been characterized by interpersonal and inter-role conflict, known work stressors (Loosemore and Galea, 2008; Leung *et al.,* 2007).

Previous research has found that sexual and racial discrimination and harassment are commonplace in the construction industry in several parts of the world. In the USA, Goldenhar *et al.* (1998) reported 51% of a sample of female construction workers had experienced sexual harassment or discrimination in the 12 months preceding a survey. Loosemore and Chau (2002) found that 40% of Asian construction workers in an Australian sample felt that they had suffered discrimination at work. Dainty and Lingard (2006) report the comparative prevalence of subtle but damaging forms of sex discrimination in the construction industries of the UK and Australia.

Previous research has also shown that construction professionals experience high levels of work stress. However, this research has almost always taken place in developed economies, such as Australia (Love *et al.*, 2010; Lingard and Sublet, 2003), the United Kingdom (Djebani, 1996) or Hong Kong (Leung *et al.*, 2008). Consequently, the extent to which the findings apply to developing countries, such as South Africa, is not known. Further, little research has considered harassment and discrimination as work-related stressors in the construction sector, despite the research evidence that suggests discrimination/harassment occur in construction and are linked to the experience of work stress. It is therefore important that the relationship between discrimination, harassment and stress be better understood in the construction context. This research aimed to:

- Explore experiences of discrimination, harassment and work stress among construction professionals in the developing nation of South Africa; and
- Examine the relationship between discrimination, harassment and perceived levels of stress in the South African construction industry context.

Research method

A questionnaire survey was developed. The survey sought demographic, cultural and professional background information from respondents; determined levels of perceived workplace stress and examined a range of stressors, including participants' experiences of harassment and discrimination in the workplace. The catalogue of survey items included closed, dichotomous, declarative, rating and multiple-choice questions. The same questionnaire was administered to all participating professional groups.

Survey participants were asked if they had been harassed or discriminated against as a result of their language, race, religion, gender or sexual preference in the twelve months preceding the survey administration. This period was chosen to reflect recent (and thus more reliable) rather than past memory The questions were posed in relation to their interactions with colleagues as well as their line manager. Response options were "Yes" (indicating harassment or discrimination had occurred, "No" (no occurrence) and "not applicable". Survey participants were also asked to indicate if they had experienced unwanted suggestions about, or reference to, sexual activity; unwanted physical contact or unwanted physical contact of a sexual nature in the same twelve-month period. They were asked if they felt that they were underpaid for their efforts or that their job security was affected/threatened due to their language, race, religion, gender or sexual preference. In the South African context, language (See Note 2) is strongly indicative of culture (e.g. English, Afrikaans, Zulu, Xhosa, etc.) and can be used pejoratively or as a means of discrimination. Given South Africa's *apartheid* past, issues of ethnicity and gender are particularly important in any consideration of harassment and discrimination at work. Response frequency counts were used to generate descriptive statistics for most questionnaire items. Participants were asked to assess their own stress levels on a 1 – 10 scale ranging from 1 = minimum (*'feeling little or no stress'*) to 10 = maximum (*'highly stressed'*). No intermediate scale intervals were defined.

The survey was administered online to construction professions in South Africa including architects, civil engineers, quantity surveyors, and project and construction managers registered with their relevant statutory councils (professional registration is a legal requirement in South Africa). Following a pilot online study to test the adequacy of the questionaire, the full survey was conducted between September and November 2010. Registered professionals were emailed by their respective statutory bodies (assisted where necessary by the voluntary professional institutions), given a URL where the questionnaire could be accessed online, and asked to participate.

Using a web-based distribution method encourages potential respondents to express their views in a simple and 'safe' way, particularly when issues may be sensitive. Undertaking this through the auspices of respected statutory councils and professional institutions provides a valid way of targeting sample groups. However, care is needed in over-generalising the findings of such surveys, since to a large extent the sample is self-selecting.

The data were analysed using the Statistical Package for the Social Sciences (SPSS) software application. Where cross-tabulation was used to establish degrees of association between categorical variables, Pearson's chi-square test was applied at the 5% (p=0.05) level of significance. Independent samples t-tests were also used to examine whether respondents who had and had not experienced various forms of harassment or discrimination reported different levels of perceived stress.

Results

The survey response rates are shown in Table 1. Establishing the response rate of the civil engineers is problematic as the Engineering Council of South Africa (ECSA) is unable to provide registration figures for the different engineer sub-groups. The voluntary associations, namely, Civil Engineers South Africa (CESA) and the South African Institute of Civil Engineers (SAICE), emailed their professional civil engineers (N=1842) and civil engineering practices (N=457), respectively. The survey response of 168 civil engineers is therefore indicative but suitable for this stage of the research. These response rates are not unusual for web-based surveys of this nature (see Fricker, 2008). While the response rate of 1.8% for project and construction managers appears low, it should be noted that many architects and engineers perform these functions under their professional discipline registration without having to make a further additional registration. The overall response rate for the survey is 6.5%. Table 1 refers to "Distribution (N)" as the cell values represent the number of e-mail requests posted to construction professionals. This distribution may reasonably be taken as a surrogate for the population (N).

INSERT TABLE 1

Of the survey respondents, 29% of architects, 5% of engineers, 20% of quantity surveyors and 0% of construction managers/project managers in the research sample were female. In terms of sample bias with respect to gender, female architects, engineers, and quantity surveyors are thus slightly over-represented, compared to the registered population of professionals, whilst female project and construction managers are not represented at all. With regard to the *ethnicity* of participants, 87% of respondents were 'White' and 13% were 'Non-White' (using this term as a broad, non-pejorative descriptor - see Note 1). There are no published data indicating the ethnicity of construction professionals in South Africa so it is not possible to indicate whether the latter proportions are representative of the population.

The majority of the respondents were male (82%), 'White'[1] (87%), and older than 40 years (63%). Gender was significantly related to professional group (p<0.001). Proportionately more females were found in the architectural profession compared to the other groups. The civil engineers and project/construction manager respondent groups reflect larger proportions of males than other professional groups. Ethnicity and professional grouping were also significantly related, with proportionately more 'Non-White' ($p=0.011$) and 'Black' ($p=0.050$) respondents in the quantity surveying group. Whilst nearly two-thirds of all respondents were at least 40 years old, 40% were older than 50 years. A significant relationship existed between responding professional group and age ($p<0.001$), with proportionately more senior professionals (>40 years old) in the civil engineering (80%) and project and construction manager (71%) groups. Only 50% of respondent architects were 40 years and older.

Harassment and discrimination at work
Tables 2 and 3 show the the incidence of harassment and discrimination experiences of survey respondents, at the hands of line managers and work colleagues.

INSERT TABLE 2

For some harassment factors, experiences during the previous 12 months were reported by as many as 11% of respondents (e.g., harassment from colleagues on ethnic grounds); 8% indicated they had experienced unwanted sexual suggestions from their colleagues and another 8% indicated they had been harassed because of their gender. Differences between groups were statistically significant in the cases of unwanted sexual suggestions or references by colleagues ($p=0.002$) and harassment by colleagues on the basis of gender ($p=0.009$), where proportionally more architects than other professional groups reported both of these types of harassment.

INSERT TABLE 3

For discrimination, the response data reveal slightly higher incidence levels, with 11% and 14% of respondents indicating that they had experienced discrimination from their line managers and colleagues respectively because of ethnicity. A further 17% of respondents felt that that they were underpaid due to their ethnicity and 39% felt that their job security was affected or threatened by their ethnicity. For gender discrimination, 8% and 10% of respondents report that they have been discriminated against by their line managers and colleagues, respectively, because of their gender. A further 10% felt that they were underpaid because of their gender and 13% felt their job security was adversely affected by their gender. Discriminatory experiences involving colleagues were reported to be more frequent than those involving line managers.

Differences between the professional sub-groups were significant in the cases of gender discrimination on the part of line managers and colleagues ($p=0.046$ and $p<0.001$, respectively); feeling underpaid compared to colleagues because of one's gender ($p<0.001$), and feelings of job insecurity because of gender ($p<0.001$) and sexual preference ($p=0.003$). In all the above instances, architects experienced discrimination to a greater extent than did other professional groups in the sample.

Significant differences were also found between males and females, with significantly more women (proportionately) reporting discriminatory behaviour or harassment from both line managers and colleagues.

Considered across all construction professions, differences in harassment and discrimination experiences between 'Whites' and 'Non-Whites' were significant in terms of unwanted suggestions of a sexual nature from colleagues (p=0.029), harassment and discrimination from line managers on the basis of ethnicity (p=0.005 and p=0.003, respectively), harassment from colleagues on the basis of language (culture: see Note 2) and ethnicity (p=0.032 and p=0.013, respectively), feeling underpaid for one's efforts on the basis of one's ethnicity (p=0.002), and perceptions that one's job security is threatened because of one's ethnicity (p=0.025). In all cases, except perceptions of job security on the basis of ethnicity, proportionately more 'Non-Whites' than 'Whites' felt they were being harassed or discriminated against. In contrast, proportionately more 'Whites' feel their job security to be compromised because of their ethnicity than do their Non-White counterparts, thus indicating the presence of a *'reverse-apartheid'* anxiety arising in the construction professions since the 1994 change of government in South Africa.

For ethnically-based differences of opinion *within* professional sub-groups, significant differences are evident for the architects, engineers and quantity surveyors. More 'Non-White' than 'White' architects perceive themselves to be discriminated against (because of their ethnicity) by their line managers (p=0.013) and underpaid for their efforts (p=0.049). Similar sentiments are expressed by proportionately more 'Non-White' than 'White' engineers in respect of unwanted sexual suggestions by colleagues (p=0.045), discrimination by line managers on the basis of gender, and harassment by colleagues on the basis of language (culture) (p=0.013) and ethnicity (p=0.028). Proportionately more 'Non-White' than 'White' quantity surveyors see themselves as experiencing harassment by line managers on the basis of ethnicity (p=0.013), and harassment by colleagues on the basis of religion (culture) (p=0.037).

When harassment and discrimination are considered in terms of age, the relationship is also significant ($p \leq 0.026$). More of the younger respondents claim to experience harassment and discrimination. The converse instances, (in which proportionately more older than younger colleagues report such experiences) are found in perceived discrimination by colleagues due to ethnicity (p<0.001), feeling underpaid due to gender (p=0.012), and experiencing job insecurity due to ethnicity (p=0.026).

The relationship between harassment/discrimination and stress
Table 4 shows the mean perceived stress scores for respondents who did and did not indicate that they had experienced various forms of *harassment* at work in the twelve months preceding the administration of the survey.

INSERT TABLE 4

For most types of harassment, there was no significant difference in the level of perceived stress between people reporting that they had or had not experienced the harassment. However, for some forms of harassment, significant differences in perceived stress levels were found. The independent samples *t*-tests revealed that respondents who reported that they had experienced unwanted suggestions about or reference to sexual activity by their line managers reported significantly higher levels of stress than those who did not report these experiences (t=2.12, p=0.048). Respondents who reported that they had experienced unwanted suggestions about or reference to sexual activity by their colleagues also reported significantly higher levels of stress than those who did not report these experiences (t=2.07, p=0.044). Respondents who indicated that they had been harassed by their managers because of their language also reported significantly higher stress levels than those that had not experienced this form of harassment (t=2.90, p=0.010). Thus harassment of a sexual nature relates strongly to higher perceived levels of personal stress. The strong correlation between harassment and language supports the earlier comment in this paper about language being used as a means of discrimination in South Africa.

Table 5 shows the mean perceived stress scores for respondents who did and did not

indicate that they had experienced various forms of *discrimination* at work in the twelve months preceding the administration of the survey.

INSERT TABLE 5

The results reveal some significant differences. Respondents who felt that they were underpaid for their efforts because of their language ($t=2.86$, $p=0.007$), race ($t=3.13$, $p=0.002$), gender ($t=4.43$, $p=0.000$) and sexual preference ($t=4.45$, $p=0.010$) reported significantly higher levels of stress than respondents who did not feel they were underpaid for their efforts for these reasons. Similarly, respondents who felt that their job security was threatened because of their race ($t=2.94$, $p=0.003$) and gender ($t=2.41$, $p=0.018$) reported higher levels of stress than respondents who did not feel their job security was threatened for these reasons. Respondents who indicated that they had been discriminated against by their line manager on the grounds of their language ($t=2.76$, $p=0.010$) and gender ($t=2.07$, $p=0.046$) reported significantly higher levels of stress. Finally, respondents who had experienced discrimination from their colleagues because of their race ($t=3.71$, $p=0.000$) and gender ($t=3.07$, $p=0.003$) reported significantly higher stress levels than respondents who had not experienced these forms of discrimination from their colleagues.

Discussion

Harassment and discrimination
The findings show that black ('Non-White') professionals in South Africa continue to experience harassment and discrimination in residual forms of *apartheid*. Eleven per cent of respondents indicated that they had recently experienced harassment, and 14% reported experiencing discrimination, by their colleagues because of their ethnicity. Eleven per cent also indicated experiencing discrimination because of their ethnicity by their line manager. Seventeen per cent of respondents felt that they were underpaid for their efforts because of their ethnicity and 39% felt that their job security was threatened because of their ethnicity. No significant differences were evident between professional groups for any category of ethnicity-based harassment or discrimination. Thus, all professional groups experience similar levels of harassment and discrimination based on ethnicity. While South Africa continues to undergo considerable change in this issue in the post-*apartheid* era, there is clearly still a long way to go in an industry renowned for its conservatism.

In contrast to this finding, there were significant differences between the professions in relation to experience of sexual and/or gender-based harassment and discrimination. Fourteen per cent of architects in the sample indicated that they had experienced unwanted suggestions about, or references to sexual activity by their colleagues. This was significantly higher than levels of sexual harassment experienced by the other professional groups in the sample. Similarly, more architects reported experiencing gender-based harassment, and gender-based discrimination from their line manager. Many architects felt that they were underpaid for their efforts because of their gender and almost half felt that their job security was affected or threatened because of their gender.

Thus, while harassment and discrimination based on ethnicity are apparently experienced to a concerning degree across all construction professions in the South African sample, sexual harassment and gender-based harassment and discrimination are particularly prevalent in the architect sub-group. An explanation for this must await investigation at a deeper level, as it cannot simply be ascribed to the greater preponderance of female architects in the survey sample. Nor will popular views of architecture as a 'glamour' profession suffice, since the reported experiences are all at the hands of fellow architects. It is possible that the emotional, social and inter-personal demands of the creative design process may play a role here, but this cannot be inferred from the current survey data.

Notwithstanding the evidence of continuing post-*apartheid* discrimination on racial grounds, a paradox particular to South Africa has also been confirmed in this research. 'White' respondents (especially males) reported significantly more experiences of feeling discriminated

against in terms of job security, than did black respondents. This may be explained as a 'White' perception of '*reverse apartheid*' arising from official affirmative action and black employment and empowerment (BEE) policies adopted by the post-*apartheid* (i.e. since 1994) governments in South Africa. Longer-term re-testing would help to determine if these effects (residual apartheid and reverse apartheid) are transitional and will slowly disappear as the current workforce in South Africa ages, or if they are more deeply engrained. Currently, a persistent anecdotal perception encountered in South Africa is that if you are 'White', male and over 40 your job/career prospects are poor. The findings with respect to job security should also be considered against current levels of construction activity in South Africa. The questionnaire survey was administered approximately four months after the spike in construction activity associated with the infrastructure requirements of the 2010 Soccer World Cup. This level of construction activity is not sustainable in the longer term and consequently, the generally pessimistic view of job security revealed in the data analysis may be associated with that realisation.

The results also provide preliminary evidence that harassment and discrimination are both associated with work stress. Respondents who *had* experienced unwanted sexual references reported significantly higher stress levels than those who had not. This is consistent with previous research by Schneider *et al*. (1997) who report that even low levels of sexual harassment have a significant negative impact on mental health.

Respondents who felt underpaid because of their language, race, gender and sexual preference all reported higher levels of work stress than respondents who did not report such discrimination. Respondents who felt that their job security was adversely affected by their race or gender also reported significantly higher levels of stress than those who did not. Thus, it appears that work stress is likely to be particularly strongly related to forms of discrimination that have a material impact upon respondents' income and work experience. In a contra-direction, these findings are consistent with previous research in the field of organizational justice, where it has been found that perceptions of working in a just and procedurally fair organizational environment are associated lower levels of stress and burnout (Elovainio *et al*., 2001; Brotheridge, 2003). Future research into the relationship between discrimination and stress in the construction professions could also incorporate measures of organizational justice to examine more fully the relationship between discrimination, organizational justice and stress.

The results also indicate that respondents who had experienced discrimination from their colleagues based upon their race or gender reported higher levels of stress. Previous research has highlighted the additive effects of racial and gender-based adverse treatment in the workplace on stress (Raver and Nishi, 2010). The experience of architects in the sample of construction professionals is particularly concerning because architects reported relatively high levels of gender as well as ethnicity-based harassment and discrimination. It is likely that respondents experiencing both of these forms of harassment/discrimination simultaneously will suffer from elevated stress.

The research findings provide some insights into how the problem of workplace harassment and discrimination may be tackled. In particular, organizational support services and programmes to assist people to address harassment and discrimination with problem-based strategies can be of benefit (Rospenda *et al.*, 2006). Previous research reveals that developing a sense of personal control in workers mediates the relationship between the experience of discrimination and psychological distress (Landy and Mercurio, 2009), thereby providing a protective 'buffer' against the damaging impact of discrimination. This suggests that programmes designed to instill in minority groups a sense of personal control could be a useful mitigation strategy circumventing the damaging outcomes of discriminatory behaviour. However, as well as striving to develop resilience in workers it is also essential that organizations seek to address the root cause of the problem and strive to eradicate harassment and discrimination. The provision of equal employment opportunity training for all employees may be helpful, as well as the implementation of just and fair organizational processes to manage cases of harassment/discrimination if they are identified.

Statistically, the relatively small response sample does not permit these research findings to be generalised to the whole population of construction professionals in South Africa. However, validly generalisable findings are not the real issue here, in that even one incident of harassment or discrimination diminishes the status of the whole construction industry. Put more dramatically, about 100 incidents of harassment (over the preceding twelve month period) were reported by survey respondents. If the response sample of 6.5% is representative, this translates to about 1500 incidents per year (in the professional sector of the industry alone) or about 6 per working day. Even if the sample is under-representative by a factor of ten, this would still mean that at least one professional worker in the South African construction industry is being harassed, probably on sexual grounds, every working day.

Conclusions

More than a decade into the twenty-first century, it is disappointing that experiences of harassment and discrimination still pervade the professional workplace in the South African construction industry; that female professionals are more harassed and discriminated against than their male counterparts, and that discrimination on the grounds of ethnicity continues to occur. The research provides preliminary evidence that the experience of harassment and discrimination is linked to higher levels of stress among South African construction professionals. Clearly, the construction industry has a considerable way to go in eradicating harassment and discrimination as stress factors among its professional ranks. In order to achieve this, harassment and discrimination issues must be acknowledged and addressed by the relevant professional associations at a macro-level, and by professional firms at a micro-level.

While the research findings provide evidence that harassment and discrimination exist and are related to work stress, their value is limited by the self-reporting methods utilized for the survey. They do not provide insight into *how* or *why* individuals experience harassment or discrimination in the way that they do. Further case-based qualitative research is planned. This should provide a more comprehensive insight into the experiences of South African construction professionals, allow a more in-depth exploration of their different experiences of harassment and discrimination, and better inform the development of appropriate prevention strategies.

Notes

1. In terms of the apartheid legislation of the pre-1994 government in South Africa, persons were racially classified as 'White', 'Black', 'Coloured' or 'Asian'. The term 'Coloured' was used to describe South Africans of mixed descent. The 'Asian' classification included Indians. For the purposes of enforcing apartheid, persons were generally categorized as either 'White' or 'Non-White'. While the latter term still has some pejorative connotations, it remains a useful label for categorizing several groups of people who were formerly disadvantaged because of their ethnicity. It has been solely used in that capacity in this research since the distinct ethnic sub-groups of respondents were mostly too small for reliable statistical analysis.

2. There are 11 official languages in South Africa. In addition to English and Afrikaans, the local languages reportedly spoken by respondents are: isiXhosa, isiZulu, Sepedi, Setswana, Sesotho, Siswati, and Xitsonga. Language has been used negatively as a discrimination tool in the construction industry, most often in oral communication between local African language speakers (frequently unskilled or semi-skilled workers) and their English- or Afrikaans-speaking supervisors.

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Table 1. Responses to the online questionnaire survey

	Architects (SACAP)	Engineers (ECSA, SAICE)	Quantity Surveyors (ASAQS)	Project and Construction Managers (SACPCMP)	Total
Distribution (N)	3025	1842 (+ 457)	1449	3359	**9675**
Response (*n*)	269	168	179	60	**626**
% response	8.9%	9.1%	12.4%	1.8%	**6.5%**

Notes: SACAP (South African Council for the Architectural Profession); ECSA (Engineering Council of South Africa; SAICE (South African Institute of Civil Engineers); ASAQS (Association of South African Quantity Surveyors); SACPCMP (South African Council for the Project and Construction Management Professions). The response rates for project and construction managers are likely to be considerably higher, since many professionals registered with the SACPCMP are also likely to be practicing architects, engineers and quantity surveyors.

Table 2. Workplace harassment reported by professional group

Types and sources of harassment experienced in the previous 12 months	Architects (% of *n* reporting 'Yes')	Engineers (% of *n* reporting 'Yes')	QS (% of *n* reporting 'Yes')	PM & CM (% of *n* reporting 'Yes')	All (% of *n* reporting 'Yes')	Between groups *p*-value
Unwanted suggestions about, or references to, sexual activity by:						
Line manager	8% (*n*=145)	2% (*n*=99)	4% (*n*=105)	2% (*n*=41)	5% (*n*=390)	*p*=0.105
Colleagues	**14%** (*n*=175)	4% (*n*=120)	6% (*n*=127)	0% (*n*=47)	8% (*n*=469)	***p*=0.002**
Unwanted physical contact by:						
Line manager	5% (*n*=151)	0% (*n*=100)	4% (*n*=107)	0% (*n*=41)	3% (*n*=399)	*p*=0.063
Colleagues	7% (*n*=175)	2% (*n*=122)	5% (*n*=130)	0% (*n*=45)	4% (*n*=472)	*p*=0.071
Unwanted physical contact of a sexual nature by:						
Line manager	3% (*n*=153)	0% (*n*=98)	3% (*n*=108)	0% (*n*=42)	2% (*n*=401)	*p*=0.280
Colleagues	3% (*n*=176)	0% (*n*=118)	2% (*n*=130)	2% (*n*=46)	2% (*n*=470)	*p*=0.211
Harassed by your line manager because of your:						
Language	7% (*n*=149)	4% (*n*=104)	2% (*n*=111)	5% (*n*=44)	4% (*n*=408)	*p*=0.291
Ethnicity	6% (*n*=151)	5% (*n*=104)	5% (*n*=113)	14% (*n*=44)	6% (*n*=412)	*p*=0.202
Religion	5% (*n*=150)	0% (*n*=103)	2% (*n*=110)	2% (*n*=44)	2% (*n*=407)	*p*=0.119
Gender	4% (*n*=149)	1% (*n*=104)	4% (*n*=109)	2% (*n*=44)	3% (*n*=406)	*p*=0.512
Sexual preference	3% (*n*=147)	0% (*n*=99)	0% (*n*=107)	0% (*n*=44)	1% (*n*=397)	*p*=0.076
Harassed by your colleagues because of your:						
Language	8% (*n*=198)	5% (*n*=132)	5% (*n*=138)	6% (*n*=50)	6% (*n*=518)	*p*=0.654
Ethnicity	11% (*n*=199)	7% (*n*=132)	14% (*n*=140)	10% (*n*=50)	11% (*n*=521)	*p*=0.338
Religion	7% (*n*=197)	2% (*n*=131)	4% (*n*=138)	4% (*n*=50)	4% (*n*=516)	*p*=0.282
Gender	**12%** (*n*=198)	5% (*n*=133)	7% (*n*=137)	0% (*n*=50)	8% (*n*=518)	***p*=0.009**
Sexual preference	4% (*n*=190)	0% (*n*=125)	2% (*n*=130)	0% (*n*=49)	2% (*n*=494)	*p*=0.060

Note: The *p*-values are from the Pearson Chi-Square test. These statistics exclude 'not applicable' responses.

Table 3. Workplace discrimination reported by survey respondents

Types and sources of discrimination experienced in the previous 12 months	Architects (% of *n* reporting 'Yes')	Engineers (% of *n* reporting 'Yes')	QS (% of *n* reporting 'Yes')	PM & CM (% of *n* reporting 'Yes')	All (% of *n* reporting 'Yes')	Between groups *p*-value
Discriminated against by your line manager because of your:						
Language	8% (*n*=153)	7% (*n*=102)	4% (*n*=111)	7% (*n*=45)	6% (*n*=411)	*p*=0.564
Ethnicity	10% (*n*=154)	9% (*n*=102)	14% (*n*=111)	13% (*n*=45)	11% (*n*=412)	*p*=0.633
Religion	5% (*n*=155)	1% (*n*=100)	2% (*n*=108)	2% (*n*=45)	3% (*n*=408)	*p*=0.210
Gender	**12% (*n*=150)**	4% (*n*=102)	7% (*n*=111)	2% (*n*=45)	8% (*n*=408)	***p*=0.046**
Sexual preference	3% (*n*=151)	0% (*n*=97)	3% (*n*=106)	0% (*n*=43)	2% (*n*=397)	*p*=0.210
Discriminated against by your colleagues because of your:						
Language	8% (*n*=203)	5% (*n*=132)	6% (*n*=137)	10% (*n*=50)	7% (*n*=522)	*p*=0.421
Ethnicity	15% (*n*=204)	10% (*n*=132)	17% (*n*=139)	10% (*n*=50)	14% (*n*=525)	*p*=0.272
Religion	5% (*n*=202)	1% (*n*=130)	2% (*n*=137)	2% (*n*=50)	3% (*n*=519)	*p*=0.137
Gender	**16% (*n*=203)**	3% (*n*=133)	9% (*n*=137)	2% (*n*=50)	10% (*n*=523)	***p*<0.001**
Sexual preference	4% (*n*=194)	0% (*n*=126)	2% (*n*=129)	0% (*n*=48)	2% (*n*=497)	*p*=0.105
Underpaid for your efforts due to your:						
Language	4% (*n*=239)	6% (*n*=150)	4% (*n*=165)	7% (*n*=55)	5% (*n*=609)	*p*=0.514
Ethnicity	18% (*n*=240)	16% (*n*=150)	16% (*n*=166)	20% (*n*=55)	17% (*n*=611)	*p*=0.886
Religion	1% (*n*=237)	1% (*n*=150)	0% (*n*=164)	0% (*n*=55)	1% (*n*=606)	*p*=0.427
Gender	**17% (*n*=237)**	4% (*n*=149)	10% (*n*=164)	2% (*n*=55)	10% (*n*=605)	***p*<0.001**
Sexual preference	2% (*n*=236)	0% (*n*=148)	1% (*n*=162)	0% (*n*=55)	1% (*n*=601)	*p*=0.152
Job security affected / threatened due to your:						
Language	12% (*n*=238)	9% (*n*=151)	7% (*n*=163)	7% (*n*=55)	9% (*n*=607)	*p*=0.361
Ethnicity	43% (*n*=244)	32% (*n*=150)	43% (*n*=166)	31% (*n*=55)	39% (*n*=615)	*p*=0.065
Religion	3% (*n*=237)	1% (*n*=150)	1% (*n*=163)	2% (*n*=55)	2% (*n*=605)	*p*=0.216
Gender	**19% (*n*=238)**	5% (*n*=149)	13% (*n*=163)	6% (*n*=55)	13% (*n*=605)	***p*<0.001**
Sexual preference	**4% (*n*=235)**	0% (*n*=150)	0% (*n*=161)	0% (*n*=54)	2% (*n*=600)	***p*=0.003**

Note: The *p*-values are from the Pearson Chi-Square test. These statistics exclude 'not applicable' responses.

Table 4. Perceived stress levels among respondents who reported they either had or had not experienced harassment at work

Survey Question	Mean stress score for those reporting harassment	Mean stress score for those reporting no harassment	't' value	Probability
Have you had unwanted suggestions about, or reference to, sexual activity directed at you by your line manager?	7.33	6.16	2.12	*p*=0.048
Have you had unwanted suggestions about, or reference to, sexual activity directed at you by your colleagues?	6.89	6.13	2.07	*p*=0.044
Have you had unwanted physical contact by your line manager?	6.83	6.20	0.90	NS
Have you had unwanted physical contact by your colleagues?	6.79	6.20	1.22	NS
Have you had unwanted physical contact of a sexual nature by your line manager?	5.57	6.22	-0.74	NS
Have you had unwanted physical contact of a sexual nature by your colleagues?	6.13	6.22	-0.12	NS
Have you ever felt you were harassed by your line manager due to your…				
Language	7.65	6.12	2.90	*p*=0.010
Race	6.46	6.16	0.66	NS
Religion	6.30	6.17	0.14	NS
Gender	6.42	6.17	0.34	NS
Sexual preference	6.33	6.19	0.05	NS
Have you ever felt you were harassed by your colleagues due to your…				
Language	6.42	6.15	0.66	NS
Race	6.68	6.12	1.76	NS
Religion	6.22	6.17	0.09	NS
Gender	6.80	6.12	1.83	NS
Sexual preference	7.20	6.17	1.03	NS

Table 5. Perceived stress levels among respondents who reported they either had or had not experienced discrimination at work

Survey Question	Mean stress score for those reporting discrimination	Mean stress score for those reporting no discrimination	't' value	Probability
Have you ever felt that you are underpaid for your effort due to your….				
Language	7.14	6.06	2.86	*p*=**0.007**
Race	6.72	5.99	3.13	*p*=**0.002**
Religion	7.00	6.09	0.74	NS
Gender	7.19	6.00	4.43	*p*=**0.000**
Sexual preference	8.40	6.09	4.45	*p*=**0.010**
Have you ever felt that your job security is affected or threatened by your…				
Language	6.45	6.06	1.16	NS
Race	6.46	5.91	2.94	*p*=**0.003**
Religion	6.00	6.10	-0.10	NS
Gender	6.70	6.03	2.41	*p*=**0.018**
Sexual preference	5.88	6.10	-0.19	NS
Have you ever felt that you were discriminated against by your line manager due to your…				
Language	7.24	6.13	2.76	*p*=**0.010**
Race	6.55	6.15	1.20	NS
Religion	6.42	6.18	0.29	NS
Gender	7.03	6.11	2.07	*p*=**0.046**
Sexual preference	7.00	6.20	0.69	NS
Have you ever felt that you were discriminated against by your colleagues due to your…				
Language	6.69	6.11	1.56	NS
Race	6.96	6.05	3.71	*p*=**0.000**
Religion	5.86	6.18	-0.44	NS
Gender	7.04	6.07	3.07	*p*=**0.003**
Sexual preference	6.56	6.13	0.70	NS