A Psychological Contract for Health & Safety

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Abstract

Safe behaviour at work is a managerial challenge. Traditionally, research in this field has focussed on safety culture / climate. The psychological contract has been applied to understanding general areas of the employment relationship, but a psychological contract for health and safety may offer alternative explanations for individual risk-taking and safety behaviours at work. The purpose of the current study was to develop and test a psychological contract measure for health and safety in different organisational contexts. Participants were drawn from high risk services within an NHS organisation, the oil and gas industry, and the road construction industry. The results supported a proposed model, and the implications for both theory and practice are discussed.

Introduction

A deficient safety culture has been implicated in a number of organisational accidents from the disaster at the Chernobyl nuclear power plant (IAEA, 1986) to most recently, the destruction of the Columbia Space Shuttle (CAIB, 2003). With respect to British healthcare, problems in the children's heart surgery service in Bristol (Smith, 1998) and the death of Wayne Jowett (Toft, 2001) have identified a weak safety culture as a causal factor. The UK Department of Health (2000) recognised the need for effective safety cultures within hospitals and stated *Safety cultures can have a positive and quantifiable impact on the performance of organisations. ...Culture is a crucial component in learning effectively from failures; cultural considerations are significant in all parts of the learning loop, from initial incident identification and reporting to embedding appropriate changes in practice* (p. 46). Similar

sentiments about the oil and gas industry were expressed by Lord Cullen in the public inquiry into the destruction of the Piper Alpha platform (Cullen, 1990), and awareness is being raised in the UK construction industry with the Health and Safety Commission's recent announcement of its 10 year plan to reduce major accidents, injuries, and health problems in this industry.

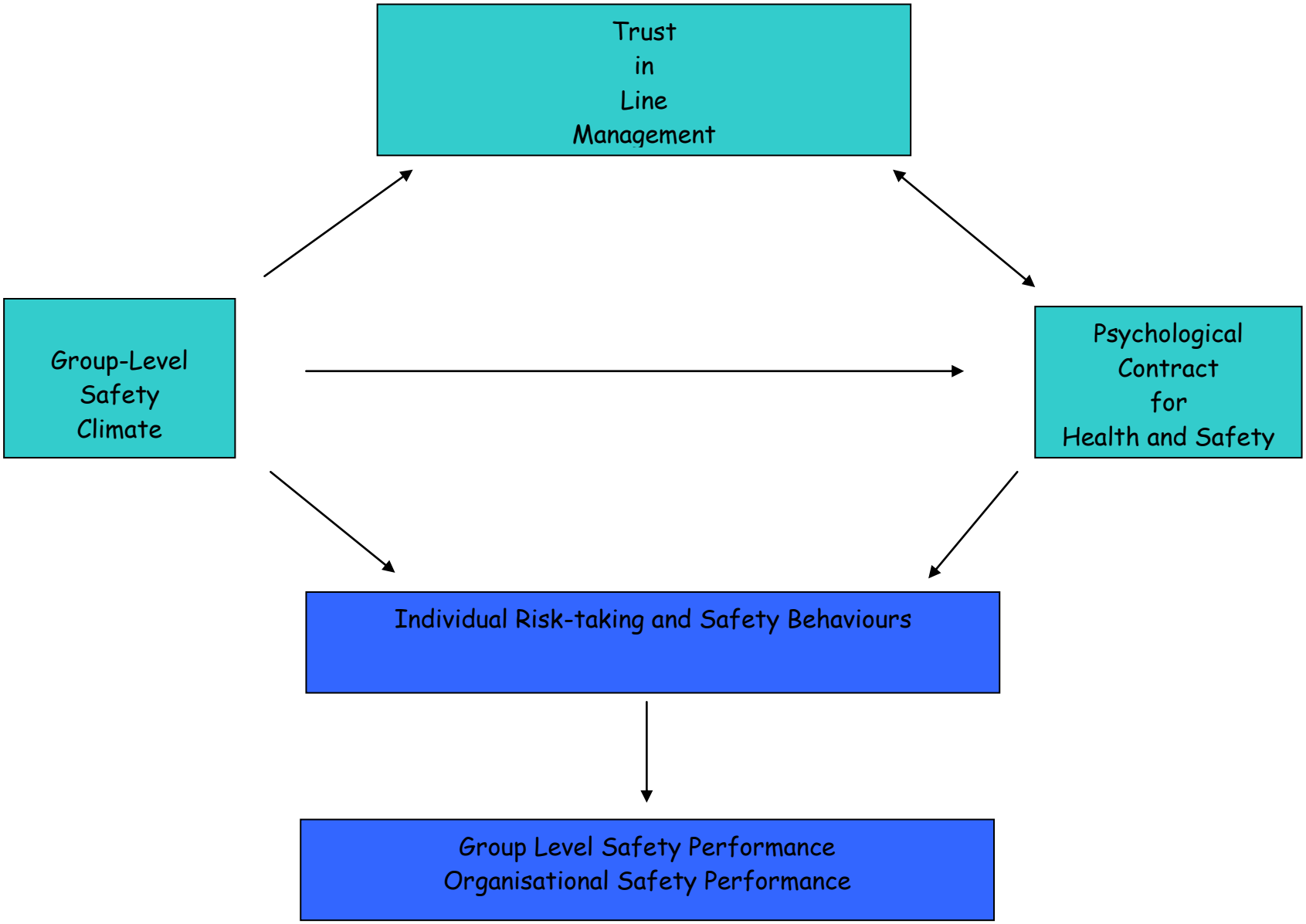
Trust has been proposed to be the cornerstone of an effective safety culture (See Burns, Mearns, & McGeorge, 2006 for a review) but building trust with respect to health and safety within high hazard organisations is difficult because employees may perceive managers' actions and intentions to be in response to government regulations or legislation. Thus, managers need to be seen to be demonstrating their commitment to health and safety. One way they could do this is by ensuring that the values and ideals that are enshrined in an organisation's Health & Safety policies and procedures, and other HR documents, are implemented at all levels of the organisation. These policies and documents are artefacts (Schein, 1997) or part of the surface levels of an organisation's (safety) culture. They play a role in shaping what employees expect from the organisation, in terms of health and safety at work.

In the psychological contract literature, if an employee's expectations about work / perceived employer promises or obligations are fulfilled, then that employee is said to have a positive psychological contract. This then leads to more positive attitudes about the organisation, including higher levels of motivation and commitment, and better work performance (See Guest, 2004 for a review and integrative model). Generally, these expectations are about receiving high rates of pay, rapid promotion, and opportunities for training and development. The purpose of the current study was to develop and test a psychological contract measure for

health and safety in different organisational contexts. Specifically, the current study sought to investigate the extent to which employees expected / perceived that the organisation was obliged to provide them with health and safety related resources and opportunities, and whether or not these expectations / perceived obligations were fulfilled. Drawing from the psychological contract and trust (Guest, 2004; Robinson, 1996), and safety culture / climate and trust (Burns et al., 2006; Reason, 1997; Zohar & Luria, 2005) literatures, it was hypothesised that employees with a positive psychological contract for health and safety, would perceive a more positive safety climate, would trust their line managers more with respect to health and safety, and be less likely to engage in risk-taking behaviours, than employees with a more negative psychological contract for health and safety (See Figure 1).

It should be noted that at the same time that the current study was being conducted, Walker and Hutton (2006) proposed psychological contracts of safety which they conceptualised as *the beliefs of individuals about reciprocal safety obligations inferred from implicit or explicit promises.* Their study was qualitative in nature and although they proposed a psychological contract measure, they did not test it empirically. As mentioned, the purpose of the current study was to develop and test a psychological contract measure for health and safety in different organisational settings. These settings were healthcare, the oil and gas industry, and the road construction industry. Employees from these organisations were recruited to take part in this study, because they are exposed to high risks, thus making safety behaviours critical to them.

Figure 1: Proposed Model



Method

Procedure

Questionnaire packs were distributed to participants in all three organisations via internal mail. Participants completed the questionnaires in their own time, voluntarily. They returned their questionnaires to the researchers via Freepost envelopes which were included in the questionnaire packs. The questionnaire instrument collected data about the state of the psychological contract for health and safety, trust in one's line manager, safety climate, and self-report health and safety related outcomes / performance. The same questionnaire was used for all three studies, except that in Study 3, an expanded measure of trust was tested and a measure of self-report risk-taking and safety behaviours was included. The expanded measure of trust is not reported in this paper.

Questionnaire Instrument

The questionnaire was adapted from Robinson (1996), which examined the role of trust in psychological contracts. The current study sought to investigate the existence and nature of a psychological contract for health and safety.

The psychological contract for health and safety was measured in the following way. Participants were asked to indicate the extent to which they perceived their employer to be obligated to provide them with resources / opportunities about health and safety. The instructions read, "Employers make promises to give employees certain things (in addition to pay) in exchange for working. To what extent do you think your employer is <u>obligated</u> to give you the following things about Health & Safety." Participants were provided with a five point Likert-type scale, ranging from "not at all obligated" to "very obligated", along with a list of

15 employer obligations (e.g. training about the risks in your job, communication about Health & Safety at work). Thus, a high score indicated a high perceived obligation, and a low score indicated little or no perceived obligation.

It should be noted that these 15 items may not be an exhaustive list of what may constitute an employee's psychological contract for health and safety, and that perhaps different occupational groups may experience different perceived obligations / promises from their employer. These items were selected for use in this study as they were identified as being relevant in prior interviews with staff from the organisations sampled, and are prevalent factors in studies of safety culture / climate in high hazard industries (For reviews see Flin, Mearns, O'Connor & Bryden, 2000; Guldemund, 2000) and healthcare (For a review see Flin, Burns, Mearns, Yule, & Robertson, 2006). Thus, these items are thought to be ecologically valid, comprehensive, but of a manageable number for use in this study. See Table 3 for the full list of perceived obligations. It should be noted that Walker and Hutton (2006) proposed a psychological contract measure for safety which consisted of a list of 48 employer safety obligations; their measure was not published at the time the data for this study was collected but it included similar items.

Participants were then asked to indicate the degree to which they perceived that their employer had fulfilled these obligations. The instructions read "Thinking about your answers to questions 1 – 15 (employers' obligations about health and safety) to what extent do you think your employer has fulfilled these things about health and safety?" Again participants were provided with a five-point Likert-type scale, with anchors ranging from "not at all fulfilled" to "very well fulfilled." Perceptions of these obligations and their fulfilment were used to determine the state of the psychological contract for health and safety.

The nine items about group-level safety climate (i.e. what line managers say and do about health and safety on a regular basis) were adapted from the scale developed by Zohar & Luria (2005). Examples of these items are "My line manager makes sure we receive the equipment needed to do the job safely", "My line manager frequently talks about safety issues throughout the work week" and "My line manager uses explanations (not just compliance) to get us to act safely." Participants responded on a five-point Likert-type scale, with anchors ranging from "strongly disagree" to "strongly agree."

Despite the growing literature on trust, there is not a questionnaire scale about trust that is context specific to how health and safety is managed. As part of this study, a scale was developed to measure trust in one's line manager with respect to health and safety. Consistent with recent literature, this scale conceptualised trust as "an individual's willingness to rely on another person based on expectations that he or she will act safely or intends to act safely" (Conchie, Donald & Taylor, 2006, p. 1097). The scale used contained five items. These items were "I would be comfortable allowing my Line Manager to handle a task or problem about my Health and Safety, even if I could not monitor his / her actions," "I would be willing to discuss a Health and Safety related problem with my Line Manager, even if it could potentially be used to disadvantage me," and "I would be willing to let my Line Manager have complete control over health and safety issues that affect me." The scale also contained two general items about trust. One of these items was "I trust my Line Manager with respect to Health and Safety" and the other was "In general, I trust my Line Manager." Participants responded on a five-point Likert-type scale, with anchors ranging from "strongly disagree" to "strongly agree."

The items about self-report health and safety related outcomes / performance were adapted from the National survey of NHS Staff (Commission for Healthcare Audit and Inspection, 2006). Participants responded on a two-point Yes / No scale. Due to low rates of negative safety outcomes these data are not reported in this paper.

The seven items about risk-taking and safety behaviour used in Study 3 were adapted from Rundmo (2000). Examples of these items are "I take chances to get a job done," and "I turn a blind eye when safety rules are broken." Participants responded on a five-point Likert-type scale, with anchors ranging from "never" to "very often."

Results and Discussion

Study 1: A Healthcare Organisation

Participants

The participants in this study were employees of a National Health Service (NHS) organisation. Employee participation in this study was completely voluntary. In total, 49 employees returned completed questionnaires (an overall response rate of 41%). There were 9 were male (18%) and 40 were female (82%) respondents. Twenty-seven of these respondents were from the Addictions service (about 40% of this service) and 22 respondents were from the Dietetics service (about 50% of this service).

Table 1: Age of Participants

Age Range	Frequency	Percentage
21-30	9	18.4
31-40	17	34.7
41-50	14	28.6
51-65	9	18.4
Total	49	100

Table 1 shows the age ranges of participants. The highest percentage of participants was between 31-40 years old (34%). Only nine employees (18%) were in each of the 21-30 and 51-65 age categories.

Table 2: Length of Service of Participants

Service	Frequency	Percentage
<1 year	10	20.4
1-2 years	12	24.5
3-5 years	12	24.5
6-10 years	5	10.2
11-15 years	6	12.2
15+ years	4	8.2
Total	49	100

Respondents were asked to indicate their length of service using the categories in the table above. The largest percentage of participants had worked for the organisation for either 1-2 years (24%), or 3-5 years (also 24%). The next highest percentage of participants had been with their current employer for less than a year (20%). Only four employees (8%) had worked with the organisation for more than 15 years.

Perceived Obligations

Participants were asked to state the extent to which they perceived their employer had promised or was obligated to provide them with resources / opportunities about health and safety. These ratings were made on a five-point scale ranging from 1 (not at all obligated) to 5 (very obligated). The results are displayed in Table 3.

Table 3: Perceived Obligations

Perceived Obligation	Mean	Std. Deviation
Training about the risks in your job	4.80	.50
Good communication about Health & Safety at work	4.69	.66
Participation in making Health & Safety rules / policy	3.94	1.14
Personal Protective Equipment (e.g. latex gloves, masks fire extinguishers)	4.73	.57
A clean and tidy workplace	4.18	.91
Consideration of your safety behaviour / safety performance when making promotions	4.15	.97
Incident Reporting System	4.71	.46
Near-Miss Reporting System	4.54	.65
Feedback from incident / near-miss reports	4.37	.73
Investigation and follow-up measures after accidents and injuries have taken place	4.62	.57
Safety audits / inspections	4.49	.74
A workplace Health & Safety Committee	4.24	.85
A Line Manager who will look out for your Health & Safety at work	4.39	.84
Risk assessments for the risks in your job	4.56	.74
A person at your workplace who is trained to administer first-aid / access to first-aid kit	4.65	.63

From Table 3, it can be seen that participants had high expectations of what their employer was obliged to provide them with / promised them, with respect to health and safety. Most notably, participants perceived that their employer was obligated to provide them with training about the risks in their jobs, personal protective equipment, and an incident reporting system.

Perceived Fulfilment

Respondents were asked to indicate the extent to which they perceived their employer had fulfilled the above obligations. These ratings were made on a five-point scale ranging from 1 (not at all fulfilled) to 5 (very well fulfilled). The results are displayed in Table 4.

Table 4: Perceived Fulfilment of Employer Obligations

Perceived Fulfilment of Obligation	Mean	Std. Deviation
Training about the risks in your job	3.84	.83
Good communication about Health & Safety at work	3.78	.92
Participation in making Health & Safety rules / policy	3.10	1.07
Personal Protective Equipment (e.g. latex gloves, masks fire extinguishers)	4.00	.94
A clean and tidy workplace	3.90	.87
Consideration of your safety behaviour / safety performance when making promotions	3.56	.90
Incident Reporting System	4.22	.798
Near-Miss Reporting System	3.98	.95
Feedback from incident / near-miss reports	3.53	.97
Investigation and follow-up measures after accidents and injuries have taken place	3.57	.99
Safety audits / inspections	3.77	.88
A workplace Health & Safety Committee	3.43	.91
A Line Manager who will look out for your Health & Safety at work	3.90	.87
Risk assessments for the risks in your job	3.71	1.00
A person at your workplace who is trained to administer first-aid / access to first-aid kit	3.81	1.17

From Table 4, it can be seen that participants perceived a moderate level of fulfilment of these obligations / promises. In particular, they perceived high fulfilment with respect to incident

reporting. Participants perceived the lowest fulfilment with respect to Participation in making Health & Safety rules / policy; though it should be noted that this item was also rated the lowest in terms of perceived obligations.

The Psychological Contract

The state of the psychological contract (i.e. breach or fulfilment) was assessed as per Robinson (1996). The degree to which each item was perceived to be obligated / promised was subtracted from the degree to which it was perceived to be fulfilled. Thus, a score of zero represented a fulfilled psychological contract, whereas a negative score represented a breach, and a positive score represented over-fulfilment. For example, if an item was perceived to be highly obligated (a score of 5) and was perceived to be not at all fulfilled (a score of 1), it resulted in a high breach (1 – 5 = - 4). Conversely, if an item was perceived to be not at all obligated (a score of 1), yet was perceived to be well fulfilled nonetheless, it resulted in over-fulfilment (5 – 1 = 4). These scores are displayed in Table 5.

Table 5: Psychological Contract = Fulfilment - Obligation

Psychological Contract	Mean	Std. Deviation
Training about the risks in your job	-.96	.89
Good communication about Health & Safety at work	-.87	1.10
Participation in making Health & Safety rules / policy	-.84	1.56
Personal Protective Equipment (e.g. latex gloves, masks fire extinguishers)	-.73	1.03
A clean and tidy workplace	-.29	1.02
Consideration of your safety behaviour / safety performance when making promotions	-.57	1.02
Incident Reporting System	-.49	.82
Near-Miss Reporting System	-.50	.95
Feedback from incident / near-miss reports	-.81	1.08
Investigation and follow-up measures after accidents and injuries have taken place	-1.02	1.06
Safety audits / inspections	-.71	1.01
A workplace Health & Safety Committee	-.78	1.03
A Line Manager who will look out for your Health & Safety at work	-.49	.98
Risk assessments for the risks in your job	-.84	1.11
A person at your workplace who is trained to administer first-aid / access to first-aid kit	-.84	1.21

From Table 5, it can be seen that participants perceived a slight breach for all items. Participants perceived the greatest breach to be with respect to investigation and follow-up measures after accidents and injuries have taken place.

The scores for each of the items in Table 5 were averaged together to create an overall score for the state of the psychological contract for health and safety. This overall measure of the psychological contract for health and safety had a mean of -0.71 (S.D. = 0.73). This indicates

that overall, participants perceived a slight breach in their psychological contracts for health and safety.

Safety Climate

An aggregated score for group-level safety climate was calculated by averaging together the nine items which comprised this scale. The mean score for group-level safety climate was 3.43 (S.D. = 0.74). This indicates that participants perceive their line managers to be fairly mindful of health and safety, in terms of what they are saying and doing about it on a regular basis.

Trust

A mean score for trust in line manager with respect to health and safety was calculated by averaging together the five items which comprised this scale. The mean score for trust in line manager with respect to health and safety was 3.71 (S.D. = 0.65). This is indicative of a moderate amount of trust.

Testing the Hypotheses

In order to test the hypotheses that there are positive relationships between the Psychological Contract for Health & Safety, and Safety Climate, and Trust, respectively, correlations between these variables were computed using their respective average scores. The results of these analyses are displayed in Table 6.

Table 6: Inter-Correlations between the Psychological Contract, Safety Climate, and Trust

	1.	2.
1. Psychological Contract		
2. Safety Climate	0.622*	
3. Trust	0.520*	0.487*

* $p < 0.01$

From Table 6, it can be seen that there are strong, positive relationships between all three variables. These results support the above hypotheses. The relationship between the Psychological Contract and Safety Climate is particularly noteworthy. This result suggests that nearly 50% of the variance in the psychological contract can be explained by safety climate (i.e. what line managers say and do about health and safety on a regular basis). Although one can not conclude causality from the results of a correlation, it is likely that safety climate impacts on the psychological contract. In other words, what line managers say and do about health and safety on a regular basis leads to fulfillment of employees' psychological contracts for health and safety.

Other noteworthy findings from Table 6 are that there are positive relationships between Trust and Safety Climate, and Trust and the Psychological Contract. Given that trust is developed by repeated episodes of positive interaction (For reviews see Kramer 1999; Mayer, Davis & Schoorman, 1995; Schoorman, Mayer & Davis, 2007) it is likely that safety climate (what line managers say and do about health and safety on a regular basis) impacts on trust. Also, it has been found that trust mediates perceptions of the psychological contract such that individuals who trust their line manager are less likely to perceive a breach (e.g. Robinson, 1996). The positive relationship between trust and the psychological contract measures in this study are consistent with these findings.

Study 2: An Oil and Gas Plant

Participants

The participants in this study were employees of a gas plant owned by a subsidiary of a large, integrated oil and gas company. Employee participation in this study was completely voluntary. In total, 46 employees returned completed questionnaires (an overall response rate of 77%). There were 36 male (78%) and 10 female (22%) respondents. The employees came from different departments: 17 were from the Production department (representing about 85% of this department), 15 were from the Maintenance department (representing about 75% of this department), and 14 were from other onsite administrative departments such as logistics, medical, accountancy and human resources. Although the administrative departments are not at the 'sharp end' of operations, they were included in the study as it is still necessary for them to undergo safety training, as well as having numerous safety considerations from working onsite.

Table 7: Age of Participants

Age Range	Frequency	Percentage
16-20	1	2
21-30	9	20
31-40	18	39
41-50	13	28
51-65	5	11
Total	46	100

Table 7 shows the age ranges of participants. As can be seen, the majority of participants were aged between 31 and 50 years old (67%).

Table 8: Length of Service of Participants

Service	Frequency	Percentage
<1 year	6	13
1-2 years	5	11
3-5 years	14	31
6-10 years	8	17
11-15 years	5	11
15+ years	8	17
Total	46	100

Respondents were asked to indicate their length of service using the categories in the table above. The largest percentage of participants had worked for the organisation for 3-5 years (31%), with a further 17% having worked for the organisation for 6-10 years, or for more than 15 years (17%). Only six participants (13%) had been with the company for less than a year.

Perceived Obligations

Participants were asked to state the extent to which they perceived their employer had promised or was obligated to provide them with resources / opportunities about health and safety. The results are displayed in Table 9.

Table 9: Perceived Obligations

Perceived Obligation	Mean	Std. Deviation
Training about the risks in your job	4.57	0.54
Good communication about Health & Safety at work	4.63	0.53
Participation in making Health & Safety rules / policy	4.11	0.64
Personal Protective Equipment (e.g. latex gloves, masks fire extinguishers)	4.83	0.38
A clean and tidy workplace	4.5	0.69
Consideration of your safety behaviour / safety performance when making promotions	4.13	0.75
Incident Reporting System	4.26	0.61
Near-Miss Reporting System	3.96	0.70
Feedback from incident / near-miss reports	3.93	0.77
Investigation and follow-up measures after accidents and injuries have taken place	4.24	0.74
Safety audits / inspections	4.15	0.67
A workplace Health & Safety Committee	4.28	0.58
A Line Manager who will look out for your Health & Safety at work	4.41	0.58
Risk assessments for the risks in your job	4.09	0.66
A person at your workplace who is trained to administer first-aid / access to first-aid kit	4.70	0.59

From Table 9, it can be seen that participants had high expectations of what their employer was obliged to provide them with / promised them, with respect to health and safety. Most notably, participants perceived that their employer was obligated to provide them with personal protective equipment and a trained first aid person or a first aid kit within the workplace.

Perceived Fulfilment

Respondents were asked to indicate the extent to which they perceived their employer had fulfilled the above obligations. The results are displayed in Table 10.

Table 10: Perceived Fulfilment of Employer Obligations

Perceived Fulfilment of Obligation	Mean	Std. Deviation
Training about the risks in your job	3.76	0.67
Good communication about Health & Safety at work	3.76	0.57
Participation in making Health & Safety rules / policy	3.00	0.79
Personal Protective Equipment (e.g. latex gloves, masks fire extinguishers)	4.04	0.63
A clean and tidy workplace	4.11	0.48
Consideration of your safety behaviour / safety performance when making promotions	2.91	0.89
Incident Reporting System	3.70	0.70
Near-Miss Reporting System	3.39	0.83
Feedback from incident / near-miss reports	3.33	0.76
Investigation and follow-up measures after accidents and injuries have taken place	3.52	0.69
Safety audits / inspections	3.87	0.62
A workplace Health & Safety Committee	3.87	0.62
A Line Manager who will look out for your Health & Safety at work	3.85	0.63
Risk assessments for the risks in your job	3.57	0.72
A person at your workplace who is trained to administer first-aid / access to first-aid kit	4.24	0.67

From Table 10, it can be seen that participants perceived a moderate level of fulfilment of these obligations / promises. In particular, they perceived high fulfilment with respect to receiving personal protective equipment, having a clean and tidy workplace and adequate first

aid provisions. Participants perceived the lowest fulfilment with respect to consideration of safety behaviour/ safety performance when making promotions; it is worth noting this item was not the lowest rating in terms of perceived obligations.

The Psychological Contract

The state of the psychological contract (i.e. breach or fulfilment) was determined as per Study 1. These scores are displayed in Table 11.

Table 11: Psychological Contract = Fulfilment - Obligation

Psychological Contract	Mean	Std. Deviation
Training about the risks in your job	-0.80	0.88
Good communication about Health & Safety at work	-0.87	0.72
Participation in making Health & Safety rules / policy	-1.11	0.71
Personal Protective Equipment (e.g. latex gloves, masks fire extinguishers)	-0.78	0.63
A clean and tidy workplace	-0.39	0.61
Consideration of your safety behaviour / safety performance when making promotions	-1.22	0.81
Incident Reporting System	-0.57	0.65
Near-Miss Reporting System	-0.57	0.83
Feedback from incident / near-miss reports	-0.61	0.77
Investigation and follow-up measures after accidents and injuries have taken place	-0.72	0.81
Safety audits / inspections	-0.28	0.81
A workplace Health & Safety Committee	-0.41	0.75
A Line Manager who will look out for your Health & Safety at work	-0.57	0.83
Risk assessments for the risks in your job	-0.52	0.69
A person at your workplace who is trained to administer first-aid / access to first-aid kit	-0.46	0.75

From Table 11, it can be seen that participants perceived a slight breach for all items. Participants perceived the greatest breach to be with respect to participation in making health and safety rules/ policy, and consideration of safety behaviour/ safety performance when making promotions.

The overall measure of the psychological contract for health and safety was -0.66 (S.D. = 0.42). This indicates that overall, participants perceived a slight breach in their psychological contracts for health and safety. An independent samples t-test revealed that this score was not significantly different from the comparable measure reported in Study 1.

Safety Climate

The aggregated score for group-level safety climate was 3.71 (S.D. = 0.48). This indicates that participants perceive their line managers to be fairly mindful of health and safety, in terms of what they are saying and doing about it on a regular basis. An independent samples t-test revealed that this score was more positive than the mean score for this measure of 3.41 reported in Study 1; $t(97) = 2.294$, $p < 0.05$.

Trust

The mean score for trust in line manager with respect to health and safety was 3.50 (S.D. = 0.73). This is indicative of a moderate amount of trust. An independent samples t-test revealed that this score was not significantly different from the comparable measure reported in Study 1.

Testing the Hypotheses

In order to test the hypotheses that there are positive relationships between the Psychological Contract for Health & Safety, and Safety Climate, and Trust, respectively, correlations between these variables were computed using their respective average scores. The results of these analyses are displayed in Table 12.

Table 12: Inter-Correlations between the Psychological Contract, Safety Climate, and Trust

	1.	2.
1. Psychological Contract		
2. Safety Climate	0.576*	
3. Trust	0.567*	0.525*

* $p < 0.01$

From Table 12, it can be seen that there are strong, positive relationships between all three variables. These results support the above hypotheses and are comparable to the findings reported in Study 1.

Study 3: Road Construction Company

Participants

The participants in this study were employees of a road construction company. Employee participation in this study was completely voluntary. In total, 60 employees returned completed questionnaires. There were 59 male (98%) and 1 female (2%) respondents.

Table 13: Age of Participants

Age Range	Frequency	Percentage
16-20	1	2
21-30	13	22
31-40	24	40
41-50	12	20
51-65	10	16
Total	60	100

Table 13 shows the age ranges of participants. As can be seen, the majority of participants were aged between 31 and 40 years old (40%).

Table 14: Length of Service of Participants

Service	Frequency	Percentage
<1 year	7	12
1-2 years	9	15
3-5 years	13	22
6-10 years	13	22
11-15 years	4	6
15+ years	14	23
Total	60	100

Respondents were asked to indicate their length of service using the categories in the table above. The largest percentage of participants had worked for the organisation for 3-10 years (44%), with a further 23% having worked for the organisation for more than 15 years.

Perceived Obligations

Participants were asked to state the extent to which they perceived their employer had promised or was obligated to provide them with resources / opportunities about health and safety. The results are displayed in Table 15.

Table 15: Perceived Obligations

Perceived Obligation	Mean	Std. Deviation
Training about the risks in your job	4.30	1.11
Good communication about Health & Safety at work	4.43	0.91
Participation in making Health & Safety rules / policy	4.18	1.08
Personal Protective Equipment (e.g. latex gloves, masks fire extinguishers)	4.67	0.79
A clean and tidy workplace	4.08	1.06
Consideration of your safety behaviour / safety performance when making promotions	4.07	1.04
Incident Reporting System	4.30	1.01
Near-Miss Reporting System	4.10	1.10
Feedback from incident / near-miss reports	3.97	1.10
Investigation and follow-up measures after accidents and injuries have taken place	4.32	1.00
Safety audits / inspections	4.22	0.88
A workplace Health & Safety Committee	3.87	1.01
A Line Manager who will look out for your Health & Safety at work	4.23	0.97
Risk assessments for the risks in your job	4.38	0.94
A person at your workplace who is trained to administer first-aid / access to first-aid kit	4.57	0.74

From Table 15, it can be seen that participants had high expectations of what their employer was obliged to provide them with / promised them, with respect to health and safety. Most

notably, participants perceived that their employer was obligated to provide them with personal protective equipment and a trained first aid person or a first aid kit within the workplace.

Perceived Fulfilment

Respondents were asked to indicate the extent to which they perceived their employer had fulfilled the above obligations. The results are displayed in Table 16.

Table 16: Perceived Fulfilment of Employer Obligations

Perceived Fulfilment of Obligation	Mean	Std. Deviation
Training about the risks in your job	3.88	0.90
Good communication about Health & Safety at work	4.03	0.84
Participation in making Health & Safety rules / policy	3.85	0.92
Personal Protective Equipment (e.g. latex gloves, masks fire extinguishers)	4.43	0.83
A clean and tidy workplace	3.88	0.97
Consideration of your safety behaviour / safety performance when making promotions	3.68	0.83
Incident Reporting System	4.18	0.81
Near-Miss Reporting System	4.05	0.85
Feedback from incident / near-miss reports	3.92	0.96
Investigation and follow-up measures after accidents and injuries have taken place	3.97	0.90
Safety audits / inspections	3.97	0.87
A workplace Health & Safety Committee	3.52	0.93
A Line Manager who will look out for your Health & Safety at work	4.02	0.83
Risk assessments for the risks in your job	4.20	0.82
A person at your workplace who is trained to administer first-aid / access to first-aid kit	4.42	0.77

From Table 16, it can be seen that participants perceived a moderate level of fulfilment of these obligations / promises. In particular, they perceived high fulfilment with respect to receiving personal protective equipment, and first aid.

The Psychological Contract

The state of the psychological contract (i.e. breach or fulfilment) was determined as per Study 1. These scores are displayed in Table 17.

Table 17: Psychological Contract = Fulfilment - Obligation

Psychological Contract	Mean	Std. Deviation
Training about the risks in your job	-0.42	1.33
Good communication about Health & Safety at work	-0.40	1.12
Participation in making Health & Safety rules / policy	-0.33	1.31
Personal Protective Equipment (e.g. latex gloves, masks fire extinguishers)	-0.23	1.13
A clean and tidy workplace	-0.20	1.31
Consideration of your safety behaviour / safety performance when making promotions	-0.38	1.22
Incident Reporting System	-0.12	1.11
Near-Miss Reporting System	-0.05	1.28
Feedback from incident / near-miss reports	-0.05	1.38
Investigation and follow-up measures after accidents and injuries have taken place	-0.35	1.07
Safety audits / inspections	-0.25	1.13
A workplace Health & Safety Committee	-0.35	1.15
A Line Manager who will look out for your Health & Safety at work	-0.25	1.10
Risk assessments for the risks in your job	-0.18	1.16
A person at your workplace who is trained to administer first-aid / access to first-aid kit	-0.15	0.94

From Table 17, it can be seen that participants perceived a slight breach for all items. Participants perceived the greatest breach to be with respect to training about the risks in their jobs, and good communication about health and safety at work.

The overall measure of the psychological contract for health and safety was -0.25 (S.D. = 0.92). This indicates that overall, participants perceived a slight breach in their psychological contracts for health and safety. A one-way ANOVA revealed that there were significant differences between this score and the comparable measures from Studies 1 and 2; $F(2,156) = 7.218$, $p = 0.001$. Bonferonni post-hoc comparisons revealed that employees in both the healthcare organisation and the oil and gas plant had more negative psychological contracts than employees in the road construction company; $p = 0.002$, and $p = 0.015$ respectively.

Safety Climate

The aggregated score for group-level safety climate was 3.83 (S.D. = 0.64). This indicates that participants perceive their line managers to be fairly mindful of health and safety, in terms of what they are saying and doing about it on a regular basis. A one-way ANOVA revealed that there were significant differences between this score and the comparable measures from Studies 1 and 2; $F(2,156) = 6.170$, $p = 0.003$. Bonferonni post-hoc comparisons revealed that employees in the road construction company perceived a more positive safety climate than employees in the healthcare organisation; $p = 0.002$. Employees in the oil and gas plant also perceived a more positive safety climate than did employees in the healthcare organisation but this difference only approached significance at the 0.05 level.

Trust

The mean score for trust in line manager with respect to health and safety was 3.94 (S.D. = 0.64). This is indicative of a moderate amount of trust. A one-way ANOVA revealed that there were significant differences between this score and the comparable measures from Studies 1 and 2; $F(2,156) = 5.663$, $p = 0.004$. Bonferonni post-hoc comparisons revealed that employees in the road construction company trusted their line managers more than did employees in the oil and gas plant; $p = 0.003$.

Risk-taking and Safety Behaviours

Study 3 included a seven item scale about risk-taking and safety behaviours. The scores for each of these items were averaged together to create an overall score for risk-taking and safety behaviours. This overall measure of risk-taking and safety behaviours had a mean of 1.36 (S.D. = 0.52). This indicates that overall, participants very rarely took risks / broke safety rules to get the job done.

Testing the Hypotheses

In order to test the hypotheses that there are positive relationships between the Psychological Contract for Health & Safety, Safety Climate, and Trust, and an inverse relationship between these variables and Risk-taking and Safety Behaviours, correlations were computed using their respective average scores. The results of these analyses are displayed in Table 18.

Table 18: Inter-Correlations between the Psychological Contract, Safety Climate, and Trust

	1.	2.	3.
1. Psychological Contract			
2. Safety Climate	0.319*		
3. Trust	0.153	0.704**	
4. Risk-taking and Safety Behaviours	-0.291*	-0.533**	-0.385**

* $p < 0.05$, ** $p < 0.01$

From Table 18, it can be seen that all of the relationships were in the expected direction but the relationship between trust and the psychological contract was weak and did not reach significance at the 0.05 level. Interestingly though, there was a very strong relationship between trust and safety climate, and a strong inverse relationship between trust and risk-taking and safety behaviours. These findings suggest that a more positive safety climate (i.e. what line managers say and do about health and safety on a regular basis) leads to higher levels of trust, and that higher levels of trust are also associated with fewer self-reported risk-taking behaviours. Also noteworthy is that the relationships between the psychological contract and safety climate, and trust respectively, were substantially lower than in the previous two studies. It may be that a psychological contract for health and safety with an employing organization in the construction industry is less well-defined than in other industries due to the transient, project-based work which usually takes place through small sub-contracted firms. Future research should investigate this supposition further.

General Discussion and Conclusions

Safe behaviour at work is a managerial challenge. This study developed and tested a psychological contract measure for health and safety. The results of this study supported the proposed model, which has implications for theory, in terms of advancing the psychological contract literature, and practice, in terms of developing the psychological contract for health and safety as a managerial tool.

In order to establish the construct validity of the Psychological Contract for Health & Safety (i.e. to determine whether it affects safety performance through individuals' risk-taking, and safety behaviours), a relationship with safety outcomes like accident involvement, and reporting needs to be demonstrated. The most robust way to do this is to collect safety outcome data independent of the questionnaire instrument. In practice, this is very difficult to do. Thus, some questionnaire instruments ask participants to give self-reports of safety outcomes like accident involvement, and reporting. Study 3 incorporated a self-report measure of risk-taking and safety behaviours but due to very low rates of negative safety outcomes, meaningful conclusions about safety outcomes could not be drawn. Further research based on a much larger sample is needed so that more data can be collected from participants who have experienced negative safety outcomes. Also, this data should be collected on a five-point Likert-type scale, perhaps with anchors ranging from "never" to "very often." The current study collected safety outcome data on a two-point Yes / No scale which limited analyses to binary logistic regression.

It should be noted that the current study of the psychological contract for health and safety was based on employee perceptions of employer obligations. Future research should further develop (See Walker & Hutton, 2006) and measure employer perceptions of employee

obligations about health and safety in order to more completely investigate the role of the psychological contract in health and safety management.

Implications for Managers

In all three studies, a strong positive relationship was found between the Psychological Contract and Safety Climate. From this, it is reasonable to conclude that what line managers say and do about health and safety on a regular basis impacts on fulfilment or breach of employees' psychological contracts for health and safety. Thus, line managers should be made aware that employees perceive them to embody the organisation's policies and procedures about health and safety. In order to ensure that employees develop appropriate expectations about health and safety, line mangers should be involved in the development of organisational health and safety policies and procedures, so that they will better be able to live up to the employees' expectations that result from these documents. Similarly, line managers should play a central role in the health and safety induction of new employees. It should be noted that employee expectations / perceived employer obligations about health and safety may come from sources other than cultural artefacts like Health & Safety policies and procedures, and other HR documents. Thus, further research is needed to explore the origin of employee expectations / perceived employer obligations about health and safety, in order to develop management practices that will lead to more complete fulfilment of the psychological contract for health and safety.

This study also found positive relationships between Trust, and Safety Climate, and the Psychological Contract, respectively. Line managers can build employees' trust with respect to health and safety by creating a more positive safety climate (i.e. rewarding and supporting desired role behaviours about health and safety). Higher levels of trust, in turn, should

mediate perceptions of the psychological contract (as demonstrated by Robinson, 1996) such that employees who trust their line manager should perceive more psychological contract fulfilment (this should be investigated further in the construction industry). However, as noted already, further research needs to demonstrate a relationship between these variables and safety outcomes.

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