Alcohol and Substance Misuse in the Construction Industry

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Abstract

The study investigates the factors contributing to the menace of Alcohol and Substance Misuse (ASM) in the construction industry, and its mitigation. Sequential exploratory mixed method design, involving interview and questionnaire were used for collecting data that were subsequently analysed using thematic analysis, factor analysis and Kruskal-Wallis test.

Findings suggest that the problem of ASM is largely caused and exacerbated by mental strain, site working conditions, male dominance and ineffective HR management. Screening and educational approaches were confirmed as the carrot and stick methods for mitigating the menace in the construction industry. The finding implies that by making construction companies more accountable for the wellbeing of their workers, a change could be brought in the industry. These changes could be incentivised by initiatives like PREVENT to mitigate the crisis currently endemic in construction. The study suggests some practical measures for tackling the menace of ASM that is bedevilling the construction

Keywords: Alcohol; Substance Misuse; Construction Industry; Mental Health; Occupational Safety.

1. Introduction

Alcohol abuse is one of the biggest contributors to ill-health, disability and death in the UK, with nearly 9,000 deaths reported in 2015 [1]. Citing research carried out by an employment agency, BBC [2] estimates that the cost of hangover to the UK economy is over GBP 2.8 x 10^9 a year as a result of sick days per person per year, and in the US, the cost of hangover is estimated to be well above GBP148 x 10^9 a year [3]. There is also an increasing epidemic with regards to substance abuse, with 3,744 drug-related deaths in 2016, this being a 2% rise on the previous year and the highest since comparable statistics began regarding drug deaths in 1993 [4]. A study carried out by YouGov in collaboration with Drinkaware suggests that three in five adults drink to relieve the stress of daily life [5]. The research found that, of the 18 to 75-year olds surveyed, 38% had drunk within the past year to forget their problems, 58% to help them cope with the pressures of day-to-day life, 47% to cheer themselves up and 41% to deal with anxiety or depression. This research shows that despite progressive steps in technology and the like, the increasing menace of alcohol and/or substance misuse (ASM) is seemingly taking a retrograde step.

In a recent study conducted by the Considerate Constructor's Scheme [6] , over 1,200 workers were interviewed about ASM; 35% claimed to have observed colleagues under the influence, with a further 59% claiming that it is a huge problem within their industry. Those on a building site under the influence of ASM would break site rules, and the quality of workmanship and productivity would be directly affected. According to Klingemann [7], there is a clear correlation between ASM and rates of absenteeism. Hanson [8] holds the view that there are higher accident rates and other safety issues directly attributable to ASM, with high compensation costs. The construction industry relies on the competence of its workers to shield the workforce from harm; when a person is under the influence of ASM, competency diminishes. Personnel involved in Health and Safety may also face charges resulting from an accident in the workplace, and their competency may be scrutinized. Health and Safety at Work is in charge of the HSE, the workforce needs to be both physically and mentally robust to carry on successfully. It is apparent that the HSE in construction is under pressure.

One study, aimed at developing an educational preventative strategy for ASM in construction, recognised that questions remained on how to implement a workable policy and what it should contain [9]. The study failed to gather views from participants and involve them in a solution, whereby they could take ownership of the resolution.

In response to the harrowing and ever-increasing problem of ASM in the UK, the Government annually publishes a strategy on how to mitigate the problem [10]. Despite this, the construction industry is still without a preventative strategy; Biggs and Williamson [9] report there is no known tailor-made strategy in construction, and suggest its development is long overdue. In addition, statistics on the problem in the UK construction industry are hard to find and are rarely broken down by occupation. There is also a deficit of literature on beneficial mitigating strategies.

This study, based on the identified gaps in the related research, aims to investigate the causes, both behavioural and cognitive of ASM in construction. The differing perceptions of workers fuel the debate on how to proceed. The preventative strategies and proposals for future use, raise awareness of the problem, in the hope of stimulating change by promoting zero tolerance to ASM on-site. The study fulfils its goal through the following objectives.

- To investigate the contributing factors of ASM within the construction Industry.
- To investigate the mitigating strategies currently used in the industry today and identify what can be further done.
- To evaluate the difference in perception among the industry stakeholders concerning the causes as well as the strategies for mitigating ASM in the construction industry

In order to explore and confirm the causes and strategies for mitigating ASM in the construction industry, a combination of qualitative and quantitative methods was employed in the study. A review of literature devising a conceptual framework for analysis enables key themes to be extracted. The literature review develops emergent themes to be explored in a sequential exploratory method, integrating both qualitative and quantitative methods, to illustrate the phenomenon of ASM in construction. Two data-collection methods are employed including semi-structured interviews and survey questionnaires. The semi-structured interviews with experts in the industry were coded to highlight key themes that resonate with the literature review. This forms the basis of the questionnaire sent to construction workers using both probability and non-probability sampling.
Reliability analysis, Kruskal-Wallis tests and exploratory factor analysis were used to establish the underlying causes as well as measures for ASM in the construction industry.

The next section of the paper presents a review of the extant literature. The methodological approach to the study explaining and justifying how the research was carried out, with a consideration of its

ethicality, validity and limitations is then presented. This is then followed by the analysis, findings and discussion in line with the goal of the study. The concluding chapter summarises the findings and provides recommendations

2. Alcohol and Substance Misuse in Construction

The term alcohol misuse defines excessive consumption, which is more than the 14 units per week [11]. A report by The World Health Organization defines substance misuse as the harmful use of psychoactive substances, including alcohol and drugs. The report found that these substances have the potential to lead to a dependency syndrome, where a cluster of behavioural, cognitive, and psychological phenomena may develop an addiction. The problem of ASM is exceedingly complex. In his book 'Recovery - Freedom from our addictions', Russel Brand [12] (a former ASM addict) believes that the defining attribute of the addictive condition is in being 'self-centred and egotistical' [12]. This may be a populist voice but does negate the idea that ASM could be a result of disease and or moral weakness. When said in the context of today's workplace, this could reflect an individual's desire to indulge without any sense of responsibility, which is indeed a disease and moral weakness in society.

Workplace related ASM costs the UK economy an estimated GBP6.4 x 10^9per year, unsurprisingly when up to 60% of employers reported problems due to ASM [13]. Distressing figures show that in the USA, fatal ASM overdoses rose 32%, with suicides at work hitting a record high in 2016; the highest recorded figures the construction industry had ever seen [14]. Construction is widely regarded as an accident-prone industry, and hazards on-site can be dramatically exacerbated by workers under the influence of ASM. The increase in the scale of the problem is concerning for an industry which is widely regarded as one of the most affected [15]. One of the very few studies conducted in the workplace found ASM caused 47% of industrial accidents [16], and Zwerling [17] reported that in Norway, it is responsible for almost 40% of all industrial fatalities [17]. Similar statistics can be found in the UK, where alcohol is estimated to contribute to almost a third of all workplace accidents [13]. These are harrowing statistics and beg the question why this issue has not been adequately addressed to date. Critically, though ASM is known to be responsible for accidents in the workplace, there is little or no screening statistics to measure the problem in the UK industry [18]

Research into the effects of alcohol is well documented, yet knowledge about hangovers is limited. Knott [19] found that late night drinking would cause the reveller to be over the legal limit the next

day at work and this, combined with a lack of sleep, could be a deadly concoction. Hangovers are often overlooked when contemplating workplace policies to deal with ASM; employers focus on those who are still under the influence, rather than those who are hungover. The dubious nature of the hangover was discussed in a journal article named, 'The Hangover: An ambiguous concept in workplace alcohol policy' by Moore [20]. He concluded that there is a lack of importance given to the impact of hangovers, despite the risk posed. Gjerde et al. [21] affirmed that hangovers increased conflicts and inefficiency at work, and the Institute of Alcohol Studies [22] claims that a study carried out by YouGov for PruHealth revealed that on any given day in the UK, around 200,000 workers are hungover. These issues need clear and coherent discussion, considering the gravity of the risk to health and safety, the danger that hangovers might become acceptable, and the overall costs associated with ASM.

There are various contributing factors to ASM in construction, and it is of importance to the health and safety of the industry that those factors are reviewed. Normand, Lempert and O'Brien [23] claimed that they were unable to associate an individual's ASM directly to their workplaces from data they had analysed. Yet, they concluded that most studies had serious methodological flaws and that the workplace could not be ruled out as a factor contributing to ASM. It might be fair to say that many studies have failed to clarify how a workplace could contribute to ASM, and this study will attempt to clarify how much a construction site can contribute to the problem. A need to develop an understanding of how negative stress affects the construction industry is warranted [9], with over 80% of workers claiming stress contributed to poor retention levels [24]. Lack of communication, poor training and limited time to complete work added to the pressure [25] and alcohol was used widely as a coping mechanism [26]. Interestingly, it was found that one in three men attributed their poor mental health directly to the workplace [27]) and 'macho' environment contributed to this significantly. The 'tough guy' culture in construction was damaging, but what he did not make clear was how much this tough guy culture contributed to ASM. Wyllie et al. [28] claimed that the way men are taught through childhood to be manly, is at the expense of social and emotional skills, and rather than talking about problems, they use music or exercise. These coping mechanisms to deal with stress may explain why ASM is a popular alternative for many.

The rates of suicide in construction are alarmingly high, blaming the physicality of harsh workplaces, low pay, excessive hours, job insecurity, transient work and the 'macho' environment as contributory factors. These disturbing statistics reinforced the moral need to investigate within this study those

contributing factors in greater detail. The Australian Institute for Suicide Research and Prevention [29] claimed that the construction industry heavily endorsed the culture of consuming alcohol. The literature evokes a distressing link between male mental health, ASM and the construction industry. The myriad issues that contribute to the menace of ASM in construction point to a deeply embedded problem. Understanding these issues would offer an insight that could prelude the cause of the change in an attempt to mitigate the problem.

During the 1980s, it was reported that 15–20% of young adults had consumed an illegal substance, by 1995 this statistic had risen sharply to almost 50% [30]. It was reported that over one-third of adults had taken drugs at some point during their lifetime, and the ONS found nearly 60% of adults had consumed alcohol in the week before interview [31]. Based on these, a growing need to regulate toxicants as they affected the workplace had become apparent. The story of workplace ASM screening in the UK effectively started with Section 8 of the Misuse of Drugs Act of 1971, enabling the prosecution of employers allowed for drug use, and during the 1980s, the first testing kits were commercialised [30]. The screening fuelled the development of a whole new industry: screening manufacturers; law firms and laboratories. Since this period, screening has increased in efficacy, essential in ensuring a workplace maintains a legally defensible standpoint [30]. Alluding to the fact that more than 70% of problem drinkers were in full-time employment, and many in construction [19], reinforces the need to tackle ASM.

According to iHASCO [32] companies are constantly updating how they deal with ASM and as a result of the issues arising with screening, as a result of the perceived need for a solid, well-communicated ASM policy framework. Curiously, despite the wealth of knowledge into the screening, it was revealed that of the 60% of companies with ASM policies in place, only 18% had conducted screening, and the majority were safety critical workplaces [32]. Pidd, Roche and Buisman-Pijlman [33] state that the most beneficial way to prevent ASM within construction was to implement a workable policy. They found that where a policy was in place on-site, young workers exhibited much lower levels of ASM when compared to those who were on sites without such a policy. It is, therefore, important to further explore such measures and policies that could help in tackling the menace of ASM in the construction industry.

3. Research Methods

This study used a sequential exploratory mixed method, which Subedi [34] believes addresses social issues for the underrepresented, it evokes change. It explores the unexplained [35]; in this case ASM in construction, which after having been examined through the literature review, left data to be further explored. Although the literature review informed the research, it was not data to be collected [35], it highlighted issues to be investigated. Given that this study needed to explore its qualitative findings by using quantitative data, a sequential exploratory design was appropriate. This mixed method approach integrates the benefits of qualitative and quantitative methods for a robust and comprehensive study. It is similar to the explanatory method, but uses qualitative data, which when analysed, forms a quantitative approach to investigate an unknown phenomenon that would be generalizable to a larger population [36].

3.1.Qualitative Data Collection

Qualitative research is an emergent, interpretive study of people in their surroundings [37], and there are various methods to use: observations, documents, audio-visual and interviews. Observation techniques provide first-hand experiences with information being recorded but can be difficult to record accurately. Although documents and audio-visual may offer the view of first-hand accounts, difficulties in interpretation may interfere with a holistic understanding of a problem. Interviews allow the researcher to take control of the information, however, it can be challenging to retrieve sensitive information, added to this is the taxation of recording and transcribing, with the awareness that data is filtered by the interviewee [38]. Semi-structured interviews, proposing the same questions in the same order without flexibility, are less formal than structured interviews, allowing the interviewer control [39]. Kvale [40] saw interviews as hierarchical relationships with an uneven distribution of power. Semi-structured interviews were found suitable because sensitive information could be explored and consolidated by having an in-depth discussion with the research participants.

Purposive sampling was deemed suitable as participants are chosen according to some common criteria [41], in this case, their experience of working in construction. The purposive sample gathered together participants who had experience of working in the industry and were selected through the researchers' network of contact. The use of non-probability sampling benefitted the study as it added quality dialogue at the convenience of all participants. Six people were interviewed, as Polkinghorne [42] recommended that researchers interview between five to 25 participants who have experienced similar

circumstances. Table 1 provides an overview of the interviewees that participated in the study. The participants were able to suggest both causes and strategies for mitigating ASM in the construction industry. Each of the discussions lasted for about one hour, and they were all recorded with permissions of the interviewees.

Table 1: Interview respondents

Interview	Job Role	Years of experience
1	Construction Site Manager	>30 years
2	Bricklayer	2 years
3	Labourer	31 years
4	Hod Carrier	44 years
5	Senior Quantity Surveyor	34 years
6	Health and Safety inspector	41 years

3.2.Qualitative Data Analysis and Findings

After the interviews were transcribed, the researcher read through the transcripts several times and highlighted the key themes which arose from the dialogue. Braun and Clarke [43] recommend refining the transcription in this way to guarantee that both implicit and explicit statements are collected. In order to analyse the data, the content-driven thematic analysis was used, codes and keywords were recognised and then categorised using data coding segments, as illustrated in Table 2.

Table 2: Examples of the coding data segment

Quotation	Interview	Factors
"[…] it's just too easy to be able to get hold of drink and drugs, and use them on site […]"	*2*	*The easy availability of alcohol and drugs*
"[…] I think it's more because we are working class that might be one way of looking at it. You know, the vast majority of unskilled and many skilled people in this industry are from a working-class background, like myself […]"	*3*	*The link between construction and a working-class background*
"[…] from a professional perspective, we are taken out on hospitality events and stuff like that and it comes with the job of construction that you get very drunk with colleagues and clients […]"	*5*	*Hospitality events that endorse ASM*

After analysing the data coded segments, the information was then categorised, as summarised in Table 3 and Table 4, indicating with a tick their sources and the related literature. These factors formed the basis for the questionnaire, in line with the exploratory mixed method used.

3.3.Quantitative Data Collection

To ensure that the research reflected popular views, and to test its acceptability, it was essential that the contributing factors and mitigating strategies were tested further. The qualitatively established variables were explored using questionnaires; this ensured a cost-effective method of reaching a wide audience [44]. The questionnaires comprised of 34 contributing factors and 19 mitigating strategies and used a 5-point scale, *from 1 = strongly disagree to 5 = strongly agree*. Lewin, Adams and Zener [45] claim that human behaviour is the interaction of people and their environment. Demographic information was necessary to explain similarities and differences in perceptions [46]. It was necessary to view findings demographically, i.e. participant's age range, job role and how long they had worked in the industry to formulate differing perceptions. As such, the demographic information was added to the established set of factors included in the questionnaire.

The questionnaire was pilot-tested before it was sent out to potential participants who were identified through a network of contacts, a networking platform and professional bodies' network and snowballing techniques. Overall, a total of 73 responses were received from 119 potential respondents invited through online and face-to-face media. This represents a total response rate of about 61.3%, which is within a good response range according to [47]. Table 5 presents an overview of the respondents.

Table 3: Summary of the qualitative findings for contributing factors

No.	The contributing factor of ASM	Interview						Source in literature
		1	2	3	4	5	6	
CF1	Workplace induced Stress	✓	✓	✓		✓		Biggs and Williamson [9]
CF2	Workplace induced Anxiety	✓						Galvin [48]
CF3	Workplace induced Depression	✓		✓				Campbell [24]
CF4	Other mental health issues			✓				Baggs [27]
CF5	Celebrating project highs and coping with the project lows	✓				✓		
CF6	Inadequate communication on site							Ibem et al. [25]
CF7	Poor / lack of a relationship between workers					✓		Gjerde et al. [21]
CF8	On-site disharmony and conflict on site		✓			✓		Gjerde et al. [21]
CF9	Financial difficulties on projects					✓		Sutherland and Davidson [49]
CF10	Limited resources on projects					✓		Sutherland and Davidson [49]
CF11	The strain on family life	✓				✓	✓	Bowen et al. [26]
CF12	Excessive responsibilities and pressure					✓	✓	
CF13	Being overworked	✓					✓	
CF14	Dissatisfaction with work							Bowen et al. [26]
CF15	Not being appreciated for your work							Bowen et al. [26]
CF16	The danger of on-site hazards		✓	✓		✓	✓	
CF17	Fear of accidents		✓	✓			✓	
CF18	Low pay	✓		✓			✓	
CF19	Lack of job security	✓		✓				
CF20	Early start and finish times			✓		✓		
CF21	Long hours	✓	✓	✓	✓	✓	✓	
CF22	Repetitive and boring tasks			✓				
CF23	Working out in bad weather	✓	✓	✓				
CF24	Alcohol and or drugs used to numb the painful after-effects of working on site (manual labour)	✓	✓		✓			
CF25	Being one of ‘the boys’ / the male association / the inherited drinking culture	✓		✓	✓	✓	✓	
CF26	Attitudes towards alcohol/drugs					✓		
CF27	Working class ethic			✓				
CF28	Lack of supervision by management			✓				
CF29	Easily accessible purchase and use of alcohol and drugs	✓	✓					
CF30	Working outdoors in the cold	✓	✓					
CF31	Transient work life, moving from location to location with projects	✓				✓		
CF32	New and different people all the time on different projects	✓				✓		
CF33	Pressure of strict project deadlines	✓		✓		✓	✓	Galvin [48]
CF34	Hospitality events / work related celebrations	✓				✓		

Table 4: Summary of the qualitative findings for mitigating strategies

No.	Contributing factor of ASM	Interview						Source in literature
		1	2	3	4	5	6	
MS1	Workplace alcohol and drugs policies				✓			
MS2	Workplace programmes specific to alcohol and drugs							
MS3	Providing addiction awareness workshops						✓	
MS4	Providing training to workers on helping with workplace addiction issues						✓	
MS5	Companies offering alcohol and drug awareness courses					✓		Biggs and Williamson [9]
MS6	Resources that inform and help with mental health						✓	
MS7	Posters around site raising awareness of ASM				✓			
MS8	Graphic posters of accidents and injuries directly due to alcohol and substance misuse				✓			
MS9	Social events i.e. tenpin bowling, golf days, etc.	✓				✓		
MS10	Providing health activities such as a running club or team	✓				✓		
MS11	Employee assistant programmes (EAP) to help employees cope with ASM issues			✓			✓	Kirkwood [50]
MS12	Supervisory training programmes						✓	
MS13	Pre-employment drug testing	✓					✓	
MS14	Random on-site drug testing	✓	✓				✓	
MS15	Management searching bags for alcohol/drugs		✓					
MS16	Team building exercises	✓						
MS17	Counselling			✓		✓	✓	
MS18	Visual toolbox talks on site, emphasising on the dangers of alcohol and substance misuse, especially whilst on site	✓	✓		✓		✓	
MS19	Harsh consequences for offenders	✓					✓	

Table 5: Demography of the respondents

Occupation	Sample size	% of respondents
Architect	5	6.85
Contracts Manager	6	8.22
Director	12	16.44
Engineer	5	6.85
Health and Safety Officer	3	4.11
Management Accountant	2	2.74
Office Manager	2	2.74
Procurement Manager	3	4.11
Project Manager	7	9.59
Quantity Surveyor / Commercial Manager	9	12.33
Site Operative	4	5.48
Tradesperson	15	20.55
Years of experience		
1 to 9	17	23.29
10 to 14	16	21.92
15 to 20	8	10.96
21 to 29	11	15.07
30 +	21	28.77

3.4.Quantitative Data Analysis and Findings

The ensuing quantitative data has been analysed using reliability analysis, the Kruskal-Wallis test and exploratory factor analysis, and was undertaken using a statistical analysis programme, SPSS version 24.0. They are as further discussed below.

3.4.1. Reliability Analysis

The data was assessed using Cronbach's α which statistically assesses the reliability and the appropriateness of the data for analysis. It is important that Cronbach's α coefficient be ascertained to gauge reliability, especially when using a Likert scale on a questionnaire [51]. Nunnally and Bernstein [52] state that Cronbach's α ranges from 0 to 1, and that a value of 0.7 and above reflects a good internal consistency. The Cronbach's α coefficient for the contributing factors is 0.957 and for the preventative strategies 0.955. This reflects the excellent reliability of the items on the research instrument (Field, [51]), and a great level of internal consistency [53]. "Cronbach's α if item deleted" has been evaluated to determine whether all the items on the questionnaire contribute to good internal consistency, as advised by [51]. Since none of the items on the list has its Cronbach's α if item deleted above the Cronbach's α coefficient, it means that they all contributed to the internal consistency of the data as suggested by [51].

3.4.2. Kruskal-Wallis Test

Kruskal-Wallis test is a nonparametric test which assesses the variances among three or more individually tested groups on a single and continuous variable [54]. Gupta [55] states that this is done to gauge the different responses from different respondents about a particular hypothesis. In this study, the Kruskal-Wallis test, illustrated in table 7 and 8, was used to evaluate how perceptions differ by occupation. Field [51] found that a p-value (Asymp. Sig) below 0.05 reveals a noteworthy difference between the respondents about a variable, any value above this shows no considerable difference of perception. The findings reveal that the respondents differed significantly on two of the contributing factors: ASM to deal with pain from manual labour and the working-class ethic within construction. They also differed on eight of the mitigating strategies, most significantly on ASM screening and harsh consequences for offenders. The results of the Reliability and Kruskal-Wallis tests are presented for both causes and mitigating strategies in Table 6 and Table 7 respectively.

Table 6 - Results of reliability analysis and Kruskal-Wallis for the contributing factors

		Reliability analysis		**Kruskal-Wallis test**	
No.	**The contributing factors of ASM in Construction**	Cronbach's α	Cronbach α if item deleted	X^2	Asymp. Sig.
CF1	Workplace induced stress	0.599	0.956	7.458	0.383
CF2	Workplace induced anxiety	0.600	0.956	7.210	0.407
CF3	Workplace induced depression	0.591	0.956	8.271	0.309
CF4	Other mental health issues	0.566	0.956	11.118	0.134
CF5	Celebrating the project highs and coping with the project lows	0.547	0.956	7.836	0.347
CF6	Inadequate communication on site	0.611	0.956	5.670	0.579
CF7	Poor / lack of a relationship between workers	0.696	0.955	3.716	0.812
CF8	On-site disharmony and conflict on site	0.761	0.955	3.924	0.789
CF9	Financial difficulties on projects	0.668	0.955	4.150	0.762
CF10	Limited resources on projects	0.653	0.955	8.114	0.323
CF11	The strain on family life	0.566	0.956	10.632	0.156
CF12	Excessive responsibilities and pressure	0.673	0.955	8.209	0.315
CF13	Being over worked	0.526	0.956	12.270	0.092
CF14	Dissatisfaction with work	0.652	0.955	3.808	0.802
CF15	Not being appreciated for your work	0.702	0.955	3.041	0.881
CF16	The danger of on-site hazards	0.641	0.955	3.829	0.799
CF17	Fear of accidents	0.594	0.956	1.751	0.972
CF18	Low pay	0.643	0.955	13.908	0.053
CF19	Lack of job security	0.605	0.956	11.171	0.131
CF20	Early start and finish times	0.736	0.955	12.383	0.089
CF21	Long hours	0.655	0.955	10.117	0.182
CF22	Repetitive and boring tasks	0.678	0.955	7.822	0.349
CF23	Working out in bad weather	0.713	0.955	10.446	0.165
CF24**	Alcohol and or drugs used to numb the painful after-effects of working on site (manual labour)	0.700	0.955	14.375	0.045
CF25	Being one of 'the boys' / the male association / the inherited drinking culture	0.549	0.956	10.133	0.181
CF26	Attitudes towards alcohol / drugs	0.544	0.956	10.201	0.177
CF27**	Working class ethic	0.667	0.955	20.759	0.004
CF28	Lack of supervision by management	0.612	0.956	12.124	0.097
CF29	Easily accessible purchase and use of alcohol and drugs	0.402	0.957	10.843	0.146
CF30	Working outdoors in the cold	0.570	0.956	8.102	0.324
CF31	Transient work life, moving from location to location with projects	0.573	0.956	7.362	0.392
CF32	New and different people all the time on different projects	0.398	0.957	1.848	0.968
CF33	Pressure of strict project deadlines	0.623	0.956	8.753	0.271
CF34	Hospitality events / work related celebrations	0.561	0.956	10.742	0.150

** represents factors where the respondents differ in perception

Table 7 - Results of reliability analysis and Kruskal-Wallis for the mitigating strategies

		Reliability analysis		**Kruskal-Wallis test**	
No.	**Mitigating strategy to tackle ASM**	Cronbach α	Cronbach α if item deleted	X^2	Asymp. Sig.
MS1	Workplace alcohol and drugs policies	0.538	0.955	10.048	0.186
MS2**	Workplace programmes specific to alcohol and drugs	0.717	0.952	15.795	0.027
MS3	Providing addiction awareness workshops	0.793	0.951	12.804	0.077
MS4**	Providing training to workers on helping with workplace addiction issues	0.863	0.950	19.338	0.007
MS5	Companies offering alcohol and drug awareness courses	0.845	0.951	13.168	0.068
MS6**	Provision of resources that inform and help with mental health	0.784	0.951	16.060	0.025
MS7	Posters around site raising awareness of alcohol and substance misuse	0.685	0.953	20.994	0.004
MS8**	Graphic posters of accidents and injuries directly due to alcohol and substance misuse	0.716	0.952	16.109	0.024
MS9	Social events i.e. tenpin bowling, golf days, etc.	0.567	0.955	6.999	0.429
MS10	Providing health activities such as a running club or a squash team	0.646	0.953	7.373	0.391
MS11	Employee assistant programmes (EAP) to help employees cope with alcohol and substance misuse issues	0.785	0.951	7.452	0.383
MS12	Supervisory training programmes	0.788	0.951	7.692	0.361
MS13**	Pre-employment drug testing	0.610	0.954	18.724	0.009
MS14**	Random on-site drug testing	0.650	0.954	30.181	0.000
MS15	Management searching bags for alcohol / drugs	0.679	0.953	13.551	0.060
MS16	Team building exercises	0.797	0.951	13.165	0.068
MS17	Counselling	0.803	0.951	13.417	0.063
MS18**	Visual toolbox talks on site, emphasising on the dangers of alcohol and substance misuse, especially whilst on site	0.639	0.954	15.509	0.030
MS19**	Harsh consequences for offenders	0.608	0.954	23.445	0.001

** represents factors where the respondents differ in perception

3.4.3. Exploratory Factor Analysis

Grounded by the research questions, it is essential to establish the key contributing factors and mitigating strategies, and this can be done using exploratory factor analysis. It reduces a large number of variables, establishes the inherent characteristics and formulates a theory. Factor analysis then produces evidence for a self-reporting scale for review.

When using factor analysis, factor loadings reflect how strongly each specific factor affects the variable, ranging between -1 to 1, the closer a loading is to 1, the stronger the factor. An Eigenvalue is a number showing the variance in the data, where the highest value in the group indicates the most popular response and is deemed the most popular factor. The percentage of variance explains the contribution of the group to the model. The results from the factor analysis showed that the seven contributing factors accounted for 74.83% of the total variance, and the three mitigating strategies 72.899%. This is deemed as the percent of variance attributable to each group.

To test the appropriateness of the data for the factor analysis, both Kaiser-Meyer-Olkin (KMO) and Bartlett's test were carried out. The KMO statistic indicates variance between variables, which may be caused by underlying factors, and the closer to 1.0 indicates that factor analysis is of use. The KMO for the contributing factors is 0.797 and for the mitigating strategies is 0.890, which is above the minimum acceptable value of 0.6 [51]. The Bartlett's test of sphericity was also carried out, testing the hypothesis as to whether the variables are related and are suitable for factor analysis. Values less than 0.05 would indicate suitability [51] and this study was suitable, showing values for the contributing factors at 1.67E – 156 and for the mitigating strategies, 1.868E – 155. Tables 8 and Table 9 illustrate the component labelling, where the factors were examined and categorised into groups.

Taking Eigenvalue and percentage of variance as the measures of importance for each component, the main causes of ASM in the construction industry are mental strain in construction, unconducive site working conditions, male dominance in the industry, poor human resource management, the temporary fix of an unsettled worker, the turbulent nature of construction, and dissatisfaction and conflict on-site. Similarly, the strategies for mitigating the menace of ASM are the educative approach to tackling ASM, the initial responses to ASM and consequential action, and the use of team building methods to help and inform workers of ASM.

Table 8: Component labelling and the associated criteria for the contributing factors

No.	The contributing factor of ASM in Construction	Factor loading	Eigen value	% of Variance
	Group 1 - Mental strain in Construction		6.017	17.697
CF1	Workplace induced stress	0.813		
CF2	Workplace induced anxiety	0.761		
CF3	Workplace induced depression	0.835		
CF4	Other mental health issues	0.688		
CF11	The strain on family life	0.700		
CF12	Excessive responsibilities and pressure	0.803		
CF13	Being overworked	0.784		
CF33	The pressure of strict project deadlines	0.560		
	Group 2 - Site working conditions		5.808	17.082
CF6	Inadequate communication on site	0.758		
CF7	Poor / lack of a relationship between workers	0.597		
CF16	The danger of on-site hazards	0.818		
CF17	Fear of accidents	0.738		
CF22	Repetitive and boring tasks	0.550		
CF23	Working out in bad weather	0.697		
CF28	Lack of supervision by management	0.651		
CF30	Working outdoors in the cold	0.830		
	Group 3 - Male dominance in the industry		3.589	10.557
CF25	Being one of 'the boys' / the male association / the inherited drinking culture	0.816		
CF26	Attitudes towards alcohol / drugs	0.808		
CF27	Working class ethic	0.619		
CF29	Easily accessible purchase and use of alcohol and drugs	0.765		
	Group 4 - Human resource management		3.425	10.074
CF18	Low pay	0.751		
CF19	Lack of job security	0.808		
CF20	Early start and finish times	0.671		
CF21	Long hours	0.574		
	Group 5 - The temporary fix of an unsettled worker		2.482	7.301
CF31	Transient work life, moving from location to location with projects	0.784		
CF32	New and different people all the time on different projects	0.716		
CF34	Hospitality events / work related celebrations	0.604		
	Group 6 - The turbulent nature of Construction		2.144	6.305
CF5	Celebrating the project highs and coping with the project lows	0.524		
CF9	Financial difficulties on projects	0.689		
CF10	Limited resources on projects	0.727		
	Group 7 - The dissatisfaction and conflict on-site		1.977	5.814
CF8	On-site disharmony and conflict on site	0.587		
CF14	Dissatisfaction with work	0.584		
CF15	Not being appreciated for your work	0.534		

Table 9: Component labelling and the associated criteria for the mitigating strategies

	The mitigating strategy to tackle ASM	Factor loading	Eigen value	% of Variance
	Group 1 - The educative approach to tackling ASM		5.751	30.266
MS2	Workplace programmes specific to alcohol and drugs	0.706		
MS3	Providing addiction awareness workshops	0.845		
MS4	Providing training to workers on helping with workplace addiction issues	0.773		
MS5	Companies offering alcohol and drug awareness courses	0.778		
MS6	Provision of resources that inform and help with mental health	0.773		
MS8	Graphic posters of accidents and injuries directly due to alcohol and substance misuse	0.501		
MS11	Employee assistant programmes (EAP) to help employees cope with alcohol and substance misuse issues	0.752		
MS12	Supervisory training programmes	0.664		
MS17	Counselling	0.625		
	Group 2 - The initial responses to ASM and consequential action		4.370	23.001
MS1	Workplace alcohol and drugs policies	0.675		
MS7	Posters around site raising awareness of alcohol and substance misuse	0.639		
MS13	Pre-employment drug testing	0.700		
MS14	Random on-site drug testing	0.857		
MS18	Visual toolbox talks on site, emphasising on the dangers of alcohol and substance misuse, especially whilst on site	0.652		
MS19	Harsh consequences for offenders	0.826		
	Group 3 - Using team building methods to help and inform workers of ASM		3.730	19.632
MS9	Social events i.e. tenpin bowling, golf days, etc.	0.817		
MS10	Providing health activities such as a running club or a squash team	0.761		
MS12	Supervisory training programmes	0.551		
MS16	Team building exercises	0.694		
MS17	Counselling	0.542		

4. Discussion

Findings from Kruskal-Wallis test and exploratory factor analysis are discussed in this section.

4.1.Statistical Difference between the Perceptions of the Respondents

The Kruskal-Wallis tests (Table 6 and Table 7) reveal how perceptions differed. With regard to the contributing factors, opinions differed mostly as to whether ASM was used to numb the painful effects of working on site. Table 10 further breaks down perceptions by occupation and illustrates that site operatives and tradespeople were in agreement on this factor. This resonates with the possibility of on-site workers using alcohol or substances to spice up their daily routines or numb the physical pain associated with their labour. Other professionals on-site, who are not engaged as manually, may not feel the same aches, pains and tedium, but this does not lessen the concern for those who do.

Fear of accidents was perceived by most of the respondents as a contributing factor to ASM, agreeing with a study by Galvin [48] who asserted that workers were constantly having to think about their physical safety, whilst carrying out high-risk activities. Obviously, safety is paramount, and it would be at the forefront of thought when responding to interviews or questionnaires. It can also be understood how workers could console themselves with ASM as a result of potential traumas on-site, and the question to be asked is how robustly a company's safety policy is implemented. The numbers in table 9 below are the mean value scores on from the Kruskal-Wallis test out of 5 from the Likert scale on each of the groups; 1 being "strongly disagree", and 5 being "strongly agree".

Table 10 - The major differences in perception of a contributing factor by occupation

Occupation	CF24: alcohol and or drugs used to numb the painful after-effects of working on site (manual labour)	CF27: Working class ethic
Tradesperson	3.7500	3.7500
Architect	3.5000	3.0000
Building Surveyor	2.8333	3.4583
Engineer	2.2500	2.0000
Director	2.2308	2.5385
Project Manager	2.8571	2.0000
Site Operative	4.0000	3.0000
Others	2.5000	2.6000
Total	2.8356	3.0000

Table 10 illustrates a significant difference in perceptions as to whether a working-class ethic contributed to ASM; this may be due to the demographic make-up of the respondents. It would be unfair to state that those from a working-class background engage in ASM more than others, and this is supported by a report that found professionals are more likely to consume alcohol than those in working class jobs [11]. However, interviewee 3 was sure that a working-class background was a significant contributor to ASM in construction:

> *"[…] I think it's more because we are working class that might be one way of looking at it. You know the vast majority of unskilled and many skilled people in this industry are from a working-class background, like myself […]"*

A working-class ethic was only referred to by interviewee 3, as ascribed above. This element was then included in the questionnaires, illustrating the value of using a sequential exploratory mixed method design. Interestingly, this was one of the two contributing factors to ASM that the respondents most disagreed upon.

Respondents agreed that team social events would form a good mitigating strategy. Given that the success of a job depends on ensuring the continuity of teamwork, where the project team collaborate their expertise over time, the perception of using teamwork would seem an excellent strategy that needs to be further explored. Perceptions differed mostly on issues of random drug testing and the harsh consequences for the offence. With inaccuracies in screening results; and questions on the purity of those results, it becomes easier to understand why the demographic mix of respondents caused a scepticism from some about screening and punishments. Table 11 reveals that site operatives strongly agreed with the use of screening and harsh consequences for offenders. Given that site operatives may be at a higher risk of harm from fellow workers under the influence of ASM, it becomes apparent why they, rather than others who work in offices, may agree on screening and punishments. Ironically, the risk of ASM increases when combined with youth and lack of skill [33].

Table 11 - The major differences in perception of a mitigating strategy by occupation

Occupation	MS2: Workplace programmes specific to alcohol and drugs	MS4: Providing training to workers on helping with workplace addiction issues	MS6: Provision of resources that inform and help with mental health	MS8: Graphic posters of accidents and injuries directly due to alcohol and substance misuse	MS13: Pre-employment drug testing	MS14: Random on-site drug testing	MS19: Harsh consequences for offenders
Tradesperson	1.9167	1.6667	1.5000	1.9167	2.2727	2.0833	2.1667
Architect	2.0000	1.0000	2.5000	1.0000	2.0000	1.5000	3.5000
Building Surveyor	3.3750	2.2917	2.3333	2.6667	2.9583	3.6250	3.4583
Engineer	3.7500	3.7500	3.5000	4.5000	4.2500	5.0000	4.2500
Director	2.8462	2.1538	2.5385	2.4615	2.6154	2.9231	3.3846
Project Manager	3.1429	2.2857	3.0000	2.7143	3.2857	4.0000	3.5714
Site Operative	3.0000	2.0000	1.0000	1.0000	5.0000	5.0000	5.0000
Other	3.9000	3.8000	3.4000	3.0000	4.4000	4.7000	4.7000
Total	3.0685	2.4110	2.4932	2.5890	3.0972	3.4658	3.4795

4.2.The contributing factors of ASM in Construction

The results from the exploratory factor analysis on the contributing factors are discussed in this section.

4.2.1. Mental strain in Construction

A number of issues were identified in this factor grouping which had the highest percentage of the total variance, scoring 17.697%. The factor name for this grouping was chosen as it exemplifies the varying mental strains associated with working in construction, a key factor that contributes to the grouping is workplace induced depression. The grouping produced the highest Eigenvalue within the factor analysis. Both stress and depression scored the highest factor loadings, corresponding to a CIOB study which found that 68% of workers had suffered from stress, depression, or anxiety directly attributable to working in construction [24]. The mental strain and ASM were invariably linked, with Bowen et al. [26] finding that these factors caused a strain on family life.

Issues of being pressured and working within an industry that endorses ASM, form a very worrying concoction indeed, especially in light of the UK government review that cited the industry as a place in which 35% of workers were more likely to take their own life. It is alarming that within the construction industry mental strain is continually highlighted. Where the well-being of the worker is not prioritised, ASM may become the self-medicated response, where symptomatic dependency ensues. This being said, workers may be reluctant to disclose either their mental health or ASM for fear of being stigmatised. It has been identified by numerous literature sources that male mental health in construction is of serious concern and how closely it relates to problems of ASM. Making the industry more accountable for the well-being of its workers could alleviate the obvious isolation that many may feel when dealing with issues of mental imbalance, thereby reducing levels of self-medication.

4.2.2. Site working conditions

Site working conditions contribute to the problems on-site, according to the respondents. The questionnaire was delivered during the winter months, highlighting a problem that might not have been as highly factored during the summer. These views surfaced mainly in relation to tradespeople and site operatives who regularly work outside, and further questions could be asked with regard to whether workers are able to access suitable welfare facilities and whether appropriate clothes are available to alleviate the factor.

Hazards on-site contributed to this factor grouping and can have devastating effects on projects, with them being halted and causing costly delays to all involved. Mandell [15], maintained that hazardous conditions were a real contributing factor to ASM. The findings illustrate that site working conditions

significantly contributed to ASM, buttressing an earlier study by Sutherland and Davidson [49] who found a clear correlation between such on-site disharmony and ASM.

Obviously, the climate is beyond control, but addressing the needs of those who work outside should be within the remit of a company. The prevention of hazards obviously needs to be factored into any project costing, not only for legal liability but to ensure adequate welfare on-site.

4.2.3. Male dominance in the industry

Male dominance in the industry arose as a contributing factor to ASM; being one of 'the boys' contributed the highest factor loading to this group. This is unsurprising as just about 11% of construction workers are female (Worral et al., [56]), with claims that about 99% of site workers are male. ASM evoked a sense of masculinity and camaraderie, decreased social awkwardness and encouraged inclusivity. It is interesting to note that five out of the six interviewees also attributed being one of 'the boys' to ASM, as it may allow for a social recklessness that is often repressed when at work. Respondents felt strongly about this male bonding, which may allow for a fellowship that raises self-esteem, which for some may be lacking at work.

The construction industry is dominated by men, and the masculine stereotype is still prevalent, with the industry having to do more to attract women. By 2020, the industry has to recruit over 200,000 workers to sustain demand and should involve women in that drive. Yet, women are put off by the machoistic culture in construction Arena et al., [57], which essentially needs them in order to dilute the dominance that gives rise to some of the attitudes and behaviours this study found contributed to ASM. A breakdown of the machoistic mentality in construction that is so damaging to the industry is long overdue; a further study on how that could be endorsed would be interesting. The findings imply a need to encourage more women into construction to reduce male dominance, for only by attending to this factor, which encourages irresponsibility towards ASM, could a change be stimulated, promoting a zero tolerance to the problem.

4.2.4. Human resource management

The issues of human resource management may underline the value a company has for its workers, and this has been reflected by respondents as a contributor to ASM. Tackling low pay is obviously a

governmental issue, producing a variety of its own challenges, and though construction companies need to be competitive when pricing, this should not be at the expense of the poorly paid. Recessions and issues about the impending exit from the EU will have resounding consequences on the respondents, with many workers anxious about losing their job. A lack of job security added to workers' stress that also contributed to ASM. This was supported by Galvin [48], who asserted that the lack of job security increased a worker's anxiety, with one study revealing that more than 60% of construction workers did not have an employment contract CIOB [58].

Working excessive hours in construction is not uncommon, and a large proportion of construction workers are known to have been working in excess of 40 hours per week, a practice that is detrimental and fatigued workers. The Office of National Statistics reported that longer hours are worked in construction than other industries; which is believed to result in a stressful environment [59]. ~~which the RICS believed resulted in a stressful environment [59].~~ Workers whose hours exceed the weekly recommendation are much more likely to engage in ASM [60]. This grouping illustrates that poor human resource management contributes to ASM. Construction companies should be aware that the way they treat their workers is often reflected in their efforts on-site, and they need to place value on their workers reciprocal to the profit that they make.

4.2.5. The temporary fix of an unsettled worker

The temporary fix of an unsettled worker combines transient lifestyles in which workers are always interacting with new people on different projects. This is combined with hospitality events which are commonly used to establish working relationships. Galvin [48] maintained that the lack of routine and frequent travelling added to stress triggers contributing to ASM. Working away from home and an irregular working pattern understandably affects workers' wellbeing and there is obviously a need to establish some sort of frequent connection that minimises the anxiety. The onus needs to be with an employer to check with their workers and make sure of their welfare, this would be in an ideal working system, but should be part of considerate working relationships.

4.2.6. The turbulent nature of Construction

Group 6 revealed how the turbulent nature of construction contributed to ASM. Given that the number of construction firms facing overwhelming financial difficulties has risen by more than a fifth in a year, with anxiety over Brexit, inconclusive election results and rising costs, it is not surprising. It

becomes even more concerning how inadequately a worker is protected from issues outside their control.

Celebrating the project highs and dealing with the project lows encouraged ASM, and alcohol-focused work events should be reconsidered as they disregard those who have a problem with alcohol. It seems to be the acceptable face of construction, companies treating or mistreating workers as profits rise or plummet. However, as with all the factors within this grouping, the question remains on how to shield workers from the turbulent nature of construction, which can deliver the unwarranted problem of ASM alongside a livelihood.

4.2.7. The dissatisfaction on-site

Dissatisfaction on-site incorporates the sense of disharmony and conflict respondents felt whilst at work, added to the frustration caused by their labour not being appreciated. These factors are universal, but on a construction site, they add to the general malaise, triggering ASM. Physiological effects relating to self-esteem and dissatisfaction with one's own work were found to be contributing factors to ASM [26]. It should not be up to an employee to create a positive ethos, nor deal with conflicts whilst at work, but the employer to provide an environment conducive to that end, especially as this aspect lays the respondents open to issues of ASM.

4.3.The mitigating strategies used to tackle ASM in Construction

The results from the exploratory factor analysis on the mitigating strategies are discussed in this section.

4.3.1. The educative approach to tackling ASM

The factor name for this grouping was chosen as it reflects an educational approach to dealing with the problem of ASM. Addiction awareness workshops and training scored the highest factor loading respectively. Interestingly, the Eigenvalue for this component indicates that all respondents generally felt that an educational approach was the most beneficial strategy to help tackle the issue of ASM. This may be due to the fact that educational programmes are not as widely offered as a mitigating strategy, and as a perception of the unknown, may be seen as less intrusive than screening. It is also perceived that screening is a privacy intrusion that may even violate a workers' rights. Obviously, the

respondents felt that a more proactive and holistic approach was needed to mitigate the problem. It is felt that the industry would benefit from imposing such educative measures similar to PREVENT.

Personal Responsibility and Values: Education and Training (PREVENT) was created by the US Navy as a mitigating strategy for ASM. Studies have shown that the programme was a promising educational alternative for reducing ASM among a workforce [61]. Though potentially costly, it could provide huge benefits in alleviating the current crisis and would reflect a company's corporate and social responsibility. There would, however, need to be mandatory legislation in place for companies to conform.

4.3.2. The initial responses to ASM and consequential action

Despite the Kruskal-Wallis test exposing that respondents' perceptions differed mostly on random screening and harsh consequences, these mitigating strategies correlate to the grouping more so than any of the other elements. This could be due to the fact that some respondents had experience of screening and perceived it as a more immediate resolution to the problem. This is as a result of the tendency of the frequent screening for ASM on-site to minimise accidents, in turn ensuring workers' safety. In addition, some of the demographic may see the use of screening as a more effective strategy than an educative approach that would demand the time and cost that some could not invest in. The same demographic may ask that harsh consequences be imposed, where they may be the worker who faces the consequences of ASM transgression. Yet worryingly, it could be seen that because screening tests can be tampered with, certain respondents might be in favour of their usage because of their knowledge of how to spoil samples.

4.3.3. Using team building methods to help and inform workers of ASM

A company culture of teamwork, supported by social events, is vital to workers' happiness, though competitive pay and benefits at work are important, an employee's happiness is dependent on so much more. The third grouping found team social events and health activities scored the highest factor loading, this may be due to a higher percentage of male respondents. Indeed, providing health activities and team social events may resonate with being part of a group, where the individual experiences deindividuation and workers may be less likely to follow normal restraints and generate a

sense of emotional excitement. This would be the excitement that some respondents may not feel in their daily working life.

Men do not feel comfortable discussing mental health and may feel ashamed at disclosing problems, as most believe that it would make them less a man. This is reflected in this grouping as these strategies may be a way for men to relinquish the stresses of their labour, in a fun and active way. In addition, as Wyllie et al. [28] reported, men learn to use exercise to deal with their problems at a young age. This grouping points towards the need for men to engage in team activities that do not involve ASM, and to talk more openly about any issues they may have, which would begin the narrative for change.

5. Conclusion

This study investigates the ASM in construction, covering the contributing factors, the mitigating strategies and the differing perceptions on the subject. A sequential exploratory mixed-method approach was used, using both qualitative and quantitative studies. This provided insight into the different factors that would lead a construction worker to engage in ASM.

The findings indicate that mental health is a serious issue in construction. Mental strain was considered the most prominent category, indicating evidence of anxiety, stress and depression. The problem seems to be endemic, and the respondents in this study may have been reluctant to disclose their own ASM or their acceptance of the problem, despite the anonymity guaranteed. The most poignant question should be on how the industry can shield its workforce from such mental strain, which delivers the problem of ASM. Reviewing the mitigating strategies, the findings of the study reflect a keen desire to adopt an educational approach. Highly favoured were addiction awareness workshops and training courses to help workers deal with ASM. Knowledge may indeed be power, and perhaps there is an underpinning sense for the respondents that education could be the pivotal difference. As the findings of this study reveal, there is a real appetite for education.

Skirting around the problem of ASM is obviously easier for some than facing it head-on, and the dilemma becomes a circular motion of abuse that respondents, without clear guidelines and help, simply accept as their due. With an ingrained mentality throughout the industry that accepts the issue of ASM on-site, neither policy nor education within the workplace may have any chance of making

any real change without legislation. Given the industry's complacent attitude towards something as detrimental as ASM, developing a mitigating strategy to tackle the issue becomes ever more difficult. A tailor made, industry-specific educational programme is essential to increase knowledge about the effects of ASM, to truly combat the current crisis.

A report into mental health in the workplace, commissioned by Prime Minister Theresa May, highlighted the need for: open conversation, the provision of good working conditions and effective management [62]. Each aspect of those requirements concurs with this study's findings. However, the need to legislate for those requirements is felt to be an essential recommendation if any change is to occur. The ambitious standards raised by the report asked for workplace accountability, transparency and the improvement in the disclosure process [62]. It would seem that only by adopting those ambitious standards could the construction industry make headway to deal with ASM, and if not as a mandatory requirement across the board, using incentivised initiatives similar to PREVENT should be implemented. Ultimately, there is a need for a breakdown of the ingrained machoistic connection between the construction industry and ASM and this could be wrought by encouraging more women to enter construction. Further studies in this area would be required to confirm the potential impacts of women recruitment on ASM in the industry

The reluctance of respondents to disclose information may point to the need to ask questions higher up the scale about how the problem is perceived and explore further why the issue is endemic. Additionally, workers may be reluctant to disclose either their mental health or their ASM to their company for fear of being stigmatized, and this should be the subject of research that would characterise distinctive etiologic factors to customise a mitigating strategy. This would also respond to the research findings of Krueger et al. [63], who suggested a need to embark on deepening the understanding of those etiologic factors that led to ASM. Although screening tackles the problem reactively, it does not impose a proactive approach that would engender a holistic a change in the industry for generations to come. A further study using group discussions to navigate how educative approaches could be delivered may be of benefit. Using Kirkwood's [48] model to develop mitigating strategies as part of a company's ASM policy would bolster the discussion.

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