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How the construction industry can improve the health and well-being of their workers in a post COVID-19 era

Y Kaluarachchi¹, P Nartallo² and F Emuze³

¹ Manchester School of Architecture, Manchester Metropolitan University, Chatham Building, Cavendish Street, Manchester, M15 6BG, United Kingdom

² Department of Economics, 3 East, University of Bath, Claverton Down, Bath, BA2 7AY, United Kingdom

³ Department of Built Environment, Central University of Technology, Bloemfontein, South Africa

Y.Kaluarachchi@mmu.ac.uk

Abstract. UK Construction industry employs 2.7m employees and can lead the economic recovery by adapting to the current crisis. It accounts for a 6.02% share of the GDP and was hit strongly by the COVID-19 pandemic. Research has revealed that construction workers are at an increased risk of suffering from mental health conditions and data shows that male construction workers are three times more likely to commit suicide than the average male in the UK. Job insecurity, long hours, time away from families, lack of support from organisations and late payments are all known to contribute to this crisis. This paper explores how the construction industry can improve the mental health of its work force in the post pandemic era and what measures organisations can take to tackle the mental health crisis that the industry is facing, and which has been exacerbated by the pandemic. The research methodology used is a qualitative systematic literature review of published material including research journal papers, government and industry reports and articles that explore mental health challenges faced by the construction industry before and after the pandemic. The paper identifies the indicators of mental health and the existing initiatives currently operational within the construction sector and examines how mental health issues can be mainstreamed and be incorporated into construction industry policies and programmes to result in a healthy and balanced workforce.

1. Introduction

The construction industry is a key sector that underpins the global economy. Global construction output in 2020 was US\$10.7 trillion and is expected to grow by 42% to reach US\$15.2 trillion in 2030 [1]. It is also set to be a global instrument for economic growth and recovery from COVID-19. In the United Kingdom (UK), the construction industry contributed £117 billion, a total of 6.02% of its GDP [2] and employed 2.7m personnel. Several challenges impede the potential growth and productivity of the construction industry in UK, exacerbated by the pandemic. These include shortage of skilled workforce, corruption, poor productivity, and sustainability concerns [3]. Lately, a new drive for research into mental health has arisen due to its threat and implications on the construction industry. Although research in this area is rapidly developing, statistics have proven that this is a priority and requires urgent attention [4] [5]. Given that construction industry is labour and skill intensive, the knowledge gap in



addressing the issue of mental health amongst its work force has the potential of threatening its successful growth.

According to Chan et al [3] suicides are a major concern for the construction workforce of the UK and rates are 2 to 3.7 times higher than the overall national average. Owing to the occupational stressors that include high work pressure, unsafe work environment, complicated decision-making processes and low self-esteem, the workforce is most likely vulnerable to mental health issues [6]. Oswald et al [6] also explained that the transient, temporary, and insecure nature of contracts, long working hours and the way work is structured through long supply chains contribute to mental health risks within the industry. Given that the construction industry employs a sizable portion of the global workforce, the mental health of these workers is arguably a priority.

The construction industry was hit strongly by the COVID-19 pandemic with overall output declining by over 35 percent year on year in April 2020 [1]. Government and organisations will need to work strategically, providing much needed safety environments for the workers to mitigate the challenges and recover from this decline. While the industry protects staff from visible risks, taking precautions to maintain the physical well-being of its workers, the big risk that isn't visible is employee mental health. Data shows that male construction workers are three times more likely to commit suicide than the average male in the UK [4]. Job insecurity, long hours, time away from families, lack of support from organisations and late payments are all known to contribute to this crisis [7]. Whilst the existing literature evidences the noticeably worse mental health of construction workers following the COVID-19 pandemic and provides detailed socio-economic reasoning for why these symptoms have been attained, it is limited in its assessment of how these problems can be rectified on a more individual and human level. Contemporary initiatives and publications that focus on how greater investment and economic growth will improve the working and living standards of construction workers, however, do not go into depth about the changes that can be made within the construction industry that could improve the mental health of its workers [5].

This paper aims to explore how construction industry can improve the mental health of the work force in the post pandemic era and what measures organisations have taken and can take to tackle the mental health crisis which has been exacerbated by the pandemic. To achieve this aim, the adopted research methodology is a qualitative systematic literature review of published material including research journal papers, government and industry reports and articles that explore mental health challenges faced by the construction industry before and after the pandemic. The paper identifies the indicators of mental health and the existing initiatives currently operational within the construction sector and examines how mental health issues can be mainstreamed and be incorporated into construction industry policies and programmes to result in a healthy and balanced workforce. The first published material on the mental health of construction managers commenced around 1989 [8] and the study reviewed the existing body of knowledge on mental health in the construction project by analysing 60 papers published between 1989 and 2020 using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses, PRISMA [9]. Initially, the research question of “What are the strategies to improve mental health of construction work force in the post pandemic era?” for this study was developed using PICO (Population, Intervention, Comparison, and Outcomes) approach [10]. Following the PICO approach, the first step was to create a logic grid (Table 1) and conduct an initial search employing the grid's key terms. Alternative terms for the selected initial terms were then found by reviewing the titles and abstracts of the retrieved articles in this initial search to build a comprehensive logic grid (Table 2) [11]. The key terms and alternatives in the logic grid are combined using Boolean operators: ‘OR’ to combine words/phrases within a column; ‘AND’ to combine words/phrases in different columns [12]. To address the research question, a qualitative content analysis based on the collected secondary data was performed. Content analysis is used for research studies whose aim is to describe a phenomenon and is usually appropriate when existing theory or research literature on a phenomenon is limited [13].

Table 1 Initial Logic grid aligned with PICO elements of the research question

Population	Intervention	Comparison	Outcome
Post-pandemic era	Construction work force	Mental health	Strategies

Table 2 Logic grid with identified key terms

Population	Intervention	Comparison	Outcome
Post-pandemic era	Construction work force	Mental health	Strategies
Post COVID-19	Construction workers	Mental health crisis	Prioritisation
Post-COVID	Construction labour force	Health and wellbeing	New initiatives
Post COVID era			Support systems
Post-COVID-19 era			Main streaming
Post COVID period			Helplines
COVID-19 aftermath			Training

The paper discusses the impact of COVID-19 on the mental health of the construction workforce identifying the critical and specific actions that stakeholders can take to minimise the risk of widespread short and long-term mental health problems. The research contributes to a comprehensive understanding of the implications of mental health management on construction projects and identifies knowledge gaps and future research directions. The findings contribute towards understanding the need to improve organisational responses towards individuals' mental ill-health whilst critically analysing the existing practices of considering all forms of mental ill-health as one umbrella so that these actions can be mainstreamed and incorporated in organisational policies and programmes to improve the resilience of the work force in organisations.

2. Construction Industry and Mental Health

Health and safety at work incorporate wide range of duties and initiatives aimed at maintaining a safe working environment for employees. There are many pieces of legislation and case laws published and updated periodically by Health and Safety Executive, UK (1970-2020), that impose legal duties on matters ranging from providing insurance and written policies on health and safety, to education and training for staff, risk assessments and monitoring. Over the years, the construction industry has made considerable improvements in health and safety at work focusing on the physical aspects such as use of personal protective equipment [14], fire safety and lifting heavy goods. The key insight that good health is not only about physical wellbeing but encompass mental and emotional wellbeing has only come to attention in the recent years. Limited research was conducted in this area [15] until recent literature revealed that construction workers are at an increased risk of suffering from mental health conditions [6].

According to World Health Organisation [16] good mental health is "a state of well-being in which the individual realises his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community". Another definition according to Oxford Dictionary states mental health as a person's condition regarding their psychological and emotional well-being [17]. Current literature as well as a study done by the Institute for Work and Health [18] portrays more high-risk workplaces (such as construction sites) where the risk of injury is greater, to have a negative impact on the workers' mental health [19]. The day-to-day experience of working in the construction industry was also identified as detrimental to construction workers alongside the depleting strength of the industry within the macro-economy.

Social connection between employees across all industries is recognised as a key factor in maintaining stable mental health even when workers are expected to work long hours that contribute to

poor mental health, depression, and anxiety. Research done in Australia revealed that work hours are positively related to mental health until they reach a tipping point beyond which they become damaging [20]. The analysis further revealed that mental health begins to decline when work hours exceed a tipping point of 39h per week [20]. Not only did some groups of construction workers face social stigmas from wider society, the current literature points to internal stigmas within the industry as negatively impacting their mental health. Construction workers are more vulnerable to mental health problems as construction workplaces are also highly masculine environments in which dominant masculine norms prevail. Many masculine norms are known risk factors for suicidal behaviour [21]. This is mostly due to societal expectations of men being stoic against their mental health problems which often leave their poor mental health unknown [22]. Despite one in five Americans experiencing mental health problems, only 43% of sufferers are recorded as seeking help [19]. As a result, construction workers would be expected to be resilient and repress any feelings of anguish and concern about their uncertain future in the construction industry which could worsen their mental health more than in other industries.

3. Impact of COVID-19 on the mental health of construction workers

According to the latest study into UK adults' mental health during the pandemic, 13% of UK adults experienced suicidal thoughts in February 2021, rising from 8% in April 2020 at the start of the pandemic [23]. A study carried out in the UK found that almost half (49%) of participants believe their mental health has declined because of working from home during the COVID-19 pandemic, and 18% believe actions taken by companies during this time have had a negative impact on their mental health [24]. A new study by the online training provider High Speed Training, UK [25] states that almost two thirds (60%) of construction workers surveyed said they have suffered from mental health challenges over the past year. Additionally, 64% of construction workers said they remain concerned about their own or their colleagues' mental health, even once lockdown restrictions were lifted. Further examining the reasons for the construction workers' struggle with their mental health during the pandemic, a recent study among project managers in the construction sector revealed the main reasons respondents say their project has negatively impacted them [26]. These are:

- 'My work-life balance is suffering due to this project' (cited by 40%)
- 'This project is impacting my home life and personal relationships' (cited by 40%)
- 'There are unrealistic expectations placed on me by project stakeholders' (cited by 39%)
- 'There is insufficient opportunity for me to voice concerns to my superiors' (cited by 37%)

Whilst some recent literature [7] [21] indicates that the lack of social interaction due to COVID-19 lockdown between construction workers was the primary contributing factor to their poor mental health during the pandemic, the stressful daily lifestyle of construction workers itself, drastically exacerbated by the economic depression caused by COVID-19, negatively impacted their mental health. Multivariable models were postulated to examine the positive relationship between economic depression during the lockdown and mental health complaints; the conclusion drawn was that people's occupations and the positions they held before the COVID-19 outbreak were a great influence over mental health issues held over lockdown [27]. This was apparent within the construction industry as their job security was threatened and many of their incomes were reliant on private contracts or self-employment, rather than annual salaries paid by institutions or organisations. In a study conducted in the United States of America (USA), the participants stated that most of the construction workforce were worried about being made redundant or having to rely on furlough schemes and expressed concern on their future in the industry [28].

Intensified by unstable job security due to economic downturn, isolation measures enforced by the governments during the COVID-19 pandemic worsened workers' feelings of loneliness and alienation. Construction workers living alone in urban areas without a spouse or partner in their city household were most prone to suffer from mental health problems [27]. This was supported by Newby et al. [29], who found that negative feelings and distress were more frequent among adults in Australia with a pre-

existing mental health condition during the COVID-19 pandemic. However, in the case of construction workers, the lack of social interaction with colleagues and fellow employees would be a far more significant contributing factor as these interactions cannot be emulated to any extent with online resources like in other industries or office-based work. This was notable in the USA where one project manager mentioned social distancing precautions limited socialising amongst crewmembers, which could worsen mental health problems [28]. Similarly, in the Australian construction industry, those working long hours with fewer opportunities to leave the site and socialising experienced the highest levels of stress, and those who were categorized as blue-collar workers experienced a decline in their overall health [30].

Along with the lack of social interaction between construction workers, existing literature alludes to how societal pressures and stigmas are detrimental to their mental health which were particularly noticeable during the outbreak of the COVID-19 pandemic. Construction workers were alienated due to the nature of their daily work, as the stigma of COVID-19, could be comprehended as a social process that sets to exclude those who are perceived to be a potential source of disease and may pose threat to the effective social living in the society [31]. As such, the workers in the construction industry would have even less social connection with others because of emerging social prejudice which would lead to poor mental health.

4. Indicators of wellbeing and mental health in the construction industry

To address mental health and wellbeing challenges within the construction industry, it is important to identify and measure the key mental health and wellbeing indicators. Several published data sources are available relating to and measuring mental health and wellbeing citing several indicators. These data sources include, Office for National Statistics, Annual Population Survey, Labour Force Survey; Health and Safety Executive (HSE) summary statistics for Great Britain and Public Health England Mental Health and Wellbeing Joint Strategic Needs Assessment (JSNA). As mental health of workers is becoming a key challenge in the industry, professional institutions such as Chartered Institute of Building (CIOB), Association of Project Management (APM) and organisations (Mind, Mind matters etc.) are addressing this issue by dedicating time and resources as well as offering training to the work force.

The OECD [32] has developed a Well-being Measurement Framework that includes quality of life as one of its key indicators and sets and highlights the importance of measuring outcomes rather than inputs and outputs [5]. It provides a common language and therefore the ability to compare results across sectors and countries (Table 2).

Table 2 OECD [32] Well- being framework

Key Dimensions	Measurement
Current Well being	
Income and wealth/ Subjective well-being	Averages/
Work and job quality/ Safety	Inequalities between groups
Housing/ Work-life balance/ Health/ Social connections, Environment quality	Inequalities between top and bottom performers
Knowledge and skills/ Civil engagement	Deprivations
Resources for future Well being	
Natural capital	Stocks
Human capital	Flows
Economic capital	Risk factors
Social capital	Resilience

The OECD [32] also produced guidelines on measuring the quality of the working environment based on different dimensions (ranging from physical risk factors and work intensity, through to task discretion, autonomy, and opportunities for self-realisation) to assess the statistical quality of measures

in this field and provide guidance on organisational challenges [5]. Attempts to maintain consistent key performance indicators to measure mental health and well-being have been far and few. Engaging the construction workforce and gathering information and data on mental health and wellbeing is crucial to the understanding the state of the problem in the sector. Nevertheless, data that covers all sectors of construction work force including the supply chain does not exist in a coherent manner. The limitations of the currently available data include data that are not disaggregated according to profession, age or gender and not collected in a consistent and frequent basis. Representation across the sector is lacking without any large-scale industry wide surveys that span across many construction professions and supply chains.

Findings from the literature review identify key mental health indicators as stress, fatigue, anxiety and depression as the most common mental health and wellbeing issues for construction workers [5]. However, these are not universally used, hence it is difficult to measure the scale of the common problem across sectors and regions.

- Stress- Dangerous accident-prone work, pressure to improve productivity, quick and complicated decision making and expectancy of results and being responsible for the safety of others come under occupational stresses in construction.
- Anxiety- Stress and anxiety are closely related and anxiety is known to be more long lasting than stress [33]. In a survey done by CIOB [4], 87% of the respondent's experienced anxiety at workplace over the year.
- Depression- Often grouped together with stress and anxiety, depression is also an indicator of poor mental health. A feeling of low mood over an extended time is a characteristic of depression and lack of job security and the status of working conditions can lead to stress related depression.
- Fatigue – This is an indicator of mental health and heavy workloads, and long working hours can affect individual's safety and performance resulting in fatigue.

In addition to these four main mental health indicators, irritability, poor concentration, lack of self-confidence, feeling overwhelmed and suicidal thoughts are also identified as poor mental health indicators in construction workers (Figure 1).

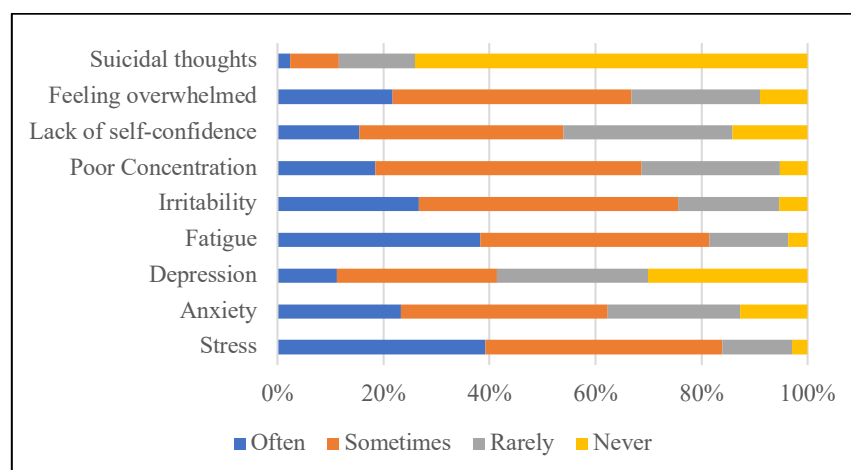


Figure 1 Mental health Indicators suffered by construction workers within the year 2019 CIOB [4]

The data illustrate that stress, fatigue, irritability, poor concentration and feeling overwhelmed were the criteria often or sometimes experienced by the workforce. In this survey, most respondents did not have suicidal thoughts.

The findings from a variety of surveys in relation to mental health [4] [5] [32] show that stress, job burnout, depression, anxiety, and substance use disorder (SUD) are prominent forms of mental ill-health among construction workers, with an absence of project-related measuring scales for evaluating the mental ill-health symptoms. Moreover, generic stressors including long working hours, time pressure and work overload were used to establish the root causes of mental ill-health by ignoring construction project related stressors for mental ill-health. Problem-focused coping is more efficient than emotional focused coping in mitigating work stress, job burnout, depression, anxiety, but little is known on the influence of coping strategies on SUD.

The survey data further illustrate that larger and established organisations are better placed to identify and address the mental health and wellbeing of their employees due to the availability of more resources and likely to have a mental health and wellbeing policy in place. The CIOB survey [4] show that employees in companies with 250+, and to some extent companies with 50-249 employees were knowledgeable about their organisation's mental health policy (Figure 2).

Even though the larger firms supported their employees directly, the supply chains which are essential for the industry to operate are not engaged in this dialogue. While some employees have access to support systems and advice via their main contractor, it is more wide-ranging support and not specific to the individual or the singular company context. However, while the larger companies have the capacity and the resources to reach a higher number of employees, smaller companies could shape and custom support to the individual needs of employees.

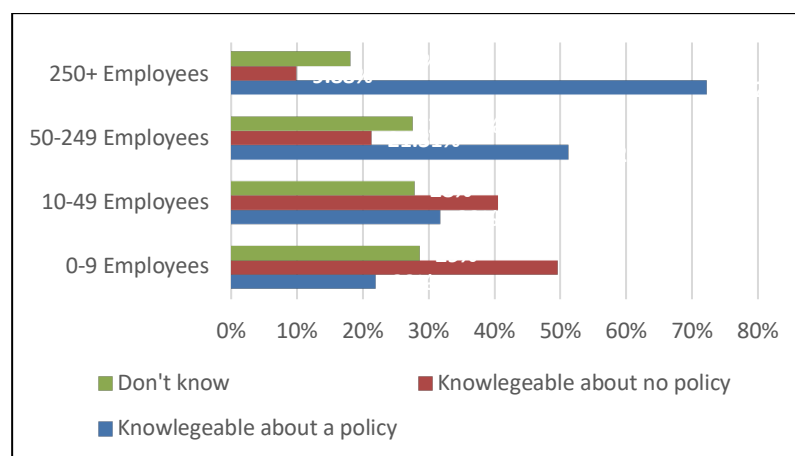


Figure 2 Employees knowledgeability about company's mental health policy CIOB [4]

5. Mainstreaming mental health consideration in construction industry in the post covid era

For a truly healthy construction work force, early mental health symptom identification and targeted support must be embedded into the system, with a chain of help running across different organisations including constructions sites. Current literature provides insight as to how the poor mental health of construction workers can be improved and how failing systems can be rectified in the post-COVID-19 era. Due to the economic depression in the wake of the COVID-19 crisis, and the government subsequently spending capital in other areas, mental health services are described to have been underfunded [34]. Mental health services often fail to engage men, partially due to social stigmas but also due to a lack of financial capital. Therefore, investment into mental health services is imperative for positive change to occur, particularly for 'blue-collar men's' needs in the construction and related sectors [21]. Specifically, mental health strategies should also be more focused on understanding the social reasons for patients suffering mental health rather than only on the treatment of those already suffering [21].

Within the last decade several mental health and wellbeing support programmes and initiatives have been established in the UK as follows-

- Buddy schemes; Mental health first aiders; Mental health champions; Free information and toolkits, Mental health at work websites tailored to the construction industry.
- Consultancy for organisations which includes workshops and focus groups on how to deliver mental health training.
- Free helplines, Mental health and wellbeing apps, Wellbeing indexes which helps construction companies identify areas for improvement.
- Compulsory staff training on mental health and how to spot poor mental health in co-workers.
- Training for senior management to help them identify poor mental health and be able to offer support

While there are numerous training and support systems provided by organisations, unless they are closely monitored and reviewed at an individual and team level, the impact these assistance programmes have on the work force cannot be measured effectively. It is also difficult to identify which of these programmes and initiatives are accessed by construction workers [35]. Some training providers have partnered with construction companies to provide them with guidance on how to deliver specific mental health training that respond to the precise needs of the industry.

To mainstream mental health concerns and the available support as well as encourage employees to approach and benefit from that assistance, a commitment is needed from many agencies and stakeholders in an organisation. Commitment from senior management by setting a good example for junior staff in initiating discussions and encouragement to talk about mental health concerns is an essential component in this process. Some organisations have reported that having confidential helplines and online resources resulted in an increasing number of construction workers seeking help when needed [5]. Having selected personnel or mentors within the organisation, such as mental health first aiders and mental health champions makes it easy for construction workers to identify who they can speak to confidentially and has also proved to work effectively. Seminars in the workplace and on construction sites, lunch and learn sessions on mental health awareness have been effective in terms of teaching people how to identify mental health problems; and seek assistance.

Not all construction workers having access to a personal computer, therefore limiting their access to online resources, has been cited as a barrier to the delivery of mental health and wellbeing support programmes and initiatives [5]. There is a focus on trying new things to deal with the issue of poor mental health and wellbeing in the workplace, as opposed to getting the basics of mental health support right, such as access to mental health awareness training or having a designated person within the organisation to speak to about mental health concerns. While there are many research projects and surveys that examine mental health concerns and their impact on the construction industry workers, there are limitations of the currently available data. There is no representation across the sector in terms of large scale, industry-wide surveys that reach many construction professions; and there are no consistently measured mental health and wellbeing indicators across the industry. Pre and post intervention studies are also limited, making it difficult to gauge the impact of the mediation and learn lessons from the experiences and specific cases.

Whilst the existing literature is thorough in its evidence for the noticeably worse mental health of construction workers following the COVID-19 pandemic and provides detailed socio-economic reasoning for why these symptoms develop, it is limited in its assessment of how these problems can be rectified on a more individual and human level. Contemporary publications focus on how greater investment and economic growth will improve the working and living standards of construction workers however do not go into depth about the changes that can be made within the construction industry that could improve the mental health of its suffering workers.

6. Conclusions

The findings and results from surveys, collected data and literature review illustrate that mental health issues disproportionately affect the construction industry due to the nature of work, working conditions, long working hours, temporary work contracts and lack of job security. The key indicators that are repeatedly cited, such as stress, anxiety, depression, and fatigue are not universally used and therefore it is difficult to measure the scale of the problem across sectors or geographically. There is a need for longitudinal studies that record interventions and the impact of those interventions to learn lessons that can inform and refine mental health at work policies to be more effective across sectors. Ethical information sharing networks can also inform and broaden the knowledge base in this much needed subject area.

Larger organisations have the capacity and resources and are generally better placed to identify and address the mental health and wellbeing of their employees and are more likely to have an established mental health and wellbeing policy in place. Smaller companies are more able to provide individually tailored support to their employees that can be monitored effectively to have more impact.

The study identifies that future construction investments that create new jobs and/or reopen lost ones after the COVID-19 lockdowns should provide both culture and work benefits in terms of mainstreaming and incorporating mental health and well-being policies. Besides adequate salaries and benefits, companies should be more inclusive and diverse, engage more with their communities, embrace cultures, and provide employees with a better work-life balance, good mental health management practices, more opportunities to grow, and enhanced guidance and communication from management. Such benefits can create much-needed social value to employees who are rebuilding their lives after the pandemic. Mental health policies must be incorporated, implemented, and monitored in all organisational procedures and mainstreamed to eliminate the stigma around mental health dialogue for the workforce to benefit from them.

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