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Factors Associated with Effective Implementation of Psychological Health Interventions in the Construction Industry

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ABSTRACT

The staggering social and economic costs associated with psychological ill-being conditions among workers require efforts to mitigate its causes and effects through evidence-based psychological health interventions. However, such interventions in the workplace are not without challenges and obstacles. The purpose of the study is to identify influential factors associated with effective implementation of psychological health interventions in the construction industry. This study adopted the mixed-methods approach employing in sequence the methods of qualitative and quantitative research to achieve the aim of the study. A total of 53 interviews and 264 questionnaire surveys were conducted in Ghana with construction professionals, construction trade workers, regulatory personnel, and occupational health psychologist. The qualitative study revealed 18 influential factors associated with the implementation of psychological health interventions. These findings were confirmed by the quantitative survey to be statistically significant. A comparative analysis of the responses from the three groups of respondents showed some statistically significant differences in the ratings of the influential factors, which may be due to the group's interest and diversity. The highly influential factors revealed in the quantitative study included willingness of employees to cooperate with the intervention procedures, perceptions on the benefits of the psychological health interventions, impact of stigmatization and discrimination, level of awareness on indicators of psychological health conditions, cost of implementing the intervention and extent of management commitment and support. This study offers valuable information for construction stakeholders and policymakers on factors to consider for successful psychological health management and interventions in the construction industry.

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Introduction

Prevention of psychological ill-being conditions such as burnout, stress, depression, and anxiety among employees has become an important global concern. The workplace provides a social context where a psychologically safe and healthy environment can be developed to support workers' psychological well-being [1-3]. Contemporary intervention frameworks have been developed for employees' psychological health and well-being. These interventions no longer focus exclusively on preventing and managing psychological ill-health, but instead, follow holistic approaches such as promoting well-being and improving functioning associated with preventive measures. In general, the objective of psychological health intervention is not limited to solely preventing psychological health problems; but also aims to provide a wider range of health, social, and economic benefits [4-6].

Psychological health interventions can, therefore, be described as a process that supports and contribute to good psychological health by providing protective factors as well as identifying and addressing key risk factors [2,7,8]. Effective implementation of psychological health interventions in the workplace is an essential component of an overall strategy to enhance well-being at work. An overarching framework for psychological health intervention and workplace wellness promotion should fully incorporate measures to promote better psychological well-being by mitigating risk factors to prevent psychological ill health and undue work-related stressors [4,6,9]. Psychological health intervention efforts are usually geared towards enhancing the health of workers through initiatives such as the provision of vaccinations, health risk assessments, and wellness awareness programs targeted at healthy eating, physical activities, alcohol consumption, cigarette use, and psychological health outcomes. A sustainable approach to ensuring workers' psychological well-being should adopt measures targeted at enhancing four key areas, namely: employees' lifestyle, work attitudes, physical health, and emotional health [4,5,10].

Psychological health and well-being in the workplace can be described as a broad concept that incorporates personal satisfaction, satisfaction at work and in their own life, and general health, which is a combination of physiological health and psychological health [3,11]. A lot of evidence surrounds the value of workplace health promotion as a positive influence on employees' psychological health and well-being with improvement to their health behaviours [4,5,10]. Several factors influence the implementation of workplace health promotional programs. The factors as effective implementation determinants can have

multiple levels of influence and include characteristics of the socio-political context, the intervention program, the implementer, the organization, and the individual [4,11]. The present study employed the mixed-method approach to explore the factors associated with the effective implementation of psychological health interventions in the construction industry. Mixed methods approach employing first qualitative study, then quantitative methods to confirm the findings of the qualitative study was deemed ideal for the study, given the paucity of literature in this area and the need to know construction stakeholders' perceptions on this subject matter.

Background of study

The need for psychological health interventions in the construction industry

Major tasks of construction workers involve high-speed, some level of complications, and are usually crisis-ridden. Task factors are the quantifiable aspects of the construction work and include excess workload and time pressures, which could affect the psychological well-being and health of construction workers. Excessive workload could cause construction workers' psychological ill-being such as stress, depression, and anxiety, and these are aggravated when required to work within a limited time frame. Work underload, however, could also lead to psychological ill-being conditions such as boredom, depression, and job dissatisfaction. Task factors that influence construction workers' psychological ill-being also include vague task requirements, lack of relevant information, and challenging tasks beyond workers' abilities or experience [12-16].

The transient nature of the construction organization and the 'hire and fire' work culture is one of the factors that could also affect the psychological health of construction workers . The level of autonomy given to construction workers over their work also has a direct influence on their psychological well-being. Psychological health risk factors emanating from the construction organization could be categorized under the following: lack of organizational support, organizational formalization, organizational complexity, and organizational centralization [17-19]. Organizational support, including task and financial support, is essential for construction workers' psychological well-being, with benefits such as work engagement, total commitment, and job satisfaction. Lack of organizational support can, therefore, lead to workers psychological ill-being conditions. Other organizational factors that influence construction workers' psychological ill-being include low recognition of workers' effort, lack of job security, job redundancy, non-commensurate wages, and under participation in decision making. Organizational policies that do not consider the opinions and feelings of workers could also lead to the psychological ill-being of the construction workers [12,13,20,21].

Physical factors of the construction workplace are significant predictors of the occupational psychological health and well-being of the workers and relate to the workplace setting and design as well as the environmental conditions of the work [14]. Construction works are usually done in extreme temperatures and environmental conditions, which could subsequently lead to psychological or physiological health problems for the construction workers. The poor interpersonal working relationship has been regarded as a significant predictor of psychological ill-being, as it threatens one's personal goals and sense of value. Poor relationships at the workplace emanate from diverse beliefs and interests among individuals, with associated mistrust, discrimination, and lack of support among workgroups [14]. The consequences of a poor working relationship could lead to severe psychological health conditions and job satisfaction [21-24].

Psychological health problems in the workplace have adverse consequences not only for the individual employee but also for the organization's outcome [20]. Employees' performance, rate of illness, absenteeism, workplace accidents or injuries, and staff turnover can all be affected by the employee's psychological health status [9]. Unemployment absenteeism, and long-term disability claims as a result of work-related stressors and psychological health problems are increasing all over the world [11]. For example, in 2014, 40% of all payment claims for long term disability and sickness benefits in the UK were due to psychological or behavioural disorders. In European countries such as Austria and Netherlands, most of the absenteeism recorded in the various workplaces were due to psychological ill-health. Psychological disorders were the main cause of employees' incapacity, and the cost associated with psychological ill-health has been estimated to be 2.26 million euros per year [25-27].

Psychological health problems can often cause health complications with associated symptoms such as fatigue, impaired concentration, and memory loss [3,11]. Revealed a positive relationship between psychological health conditions and work engagement. More specifically, as psychological health improved, work engagement also increased; conversely, as psychological health declined, work engagement also decreased. High levels of work engagement were found to be associated with increased levels of positive emotions, such as work and life satisfaction. Also, the longitudinal study revealed that high levels of work engagement predict lower levels of psychological health conditions such as anxiety and depression [28-30]. It was revealed in another study that depression has a more significant negative impact on productivity and time management than any other health condition [26].

Psychological health condition is also associated with a condition referred to as sickness presenteeism, which means being mentally or cognitively absent but physically present at work [9]. Previous studies have also revealed that presenteeism was linked to conditions such as chronic fatigue, musculoskeletal pain, and depression [1,20]. It was estimated by Sainsbury Centre for Mental Health in 2007 that deteriorating work efficiency due to poor psychological health costs £15.1 billion or £605 for every employee in the UK, which is almost twice the annual costs of £8.1 million estimated for absenteeism [9]. Some previous studies estimated that the costs of impaired presenteeism due to psychological health problems are almost four to five times higher than the costs of absenteeism [31-32]. Besides, according to the Organization for Economic Co-operation and Development (OECD), the cost of psychological health problems for businesses is estimated at £ 1,035 for each employee in the labour market [9].

Theoretical background on factors associated with the implementation of interventions

Factors associated with the implementation of interventions are barriers and facilitators that impede or facilitate behavioural change for successful implementation [11,33]. Various theories and models have been developed that show several factors that influence the implementation of clinical guidelines. These theories and models are usually developed for a specific organization. For instance, a comprehensive framework developed focuses on implementation factors that relate to health care organizations. The general outline of this framework was derived from the Social Cognitive Theory, the Theory of Planned Behaviour, and from previous findings on factors associated with the implementation of HIV/AIDS education in Dutch secondary schools. The framework describes that at each stage of an intervention process (that is dissemination, adoption, application, and continuation) the desired

adoption may or may not occur due to various factors acting as barriers or facilitators of change. Identified 49 factors that may impede or facilitate the implementation process of an intervention based on findings from the literature review and a Delphi study among implementation experts. The influential factors were classified into five major constructs, and these were: characteristics of the socio-political context (such as policy, laws, regulations, and social network), the characteristics of the organization (such as management support and resources), characteristics of the user (such as knowledge and skills of the occupational health psychology), characteristics of the intervention (such as ethical considerations, observability, and advantages in practice of the guideline), and characteristics of the innovation strategy (such as materials, training, and feedback). The framework of barriers and facilitators designed as factors associated with an intervention process may be limited to the health sector and might not be suitable for the construction industry. The literature on the subject area is limited in the construction industry, with few studies exploring mainly barriers to stress management programmes. This study attempts to address the knowledge gap by identifying factors associated with the implementation of psychological health interventions [33-34].

Why the study in Ghana?

Construction contributes to the development of the nation's social and economic sectors. The construction industry is therefore seen as one of the drivers of economic growth, as it provides employment to the local people and effectively utilizes the natural resources. The Ghanaian Construction Industry has recently experienced considerable growth in activities, and this could be attributed to the rapid growth in population and urbanization. In a less resourced and developing country like Ghana, its construction workers are likely to be faced with high risks of psychological health and ill-being conditions. As a developing country, the atmosphere in Ghana appears to be a breeding ground conducive enough for psychological health problems. Inadequate resources and half-hearted interventions are some of the possible causes [35-36].

Construction works in Ghana are associated with long working hours, lifting of heavy machinery, dusty, and noise exposure. Consequently, construction workers are often subjected to fatalities and ill- health problems, which could affect their psychological well-being. Construction works activities such as: working at height, working at underground areas, working in spaces that are confined and at proximity close to falling objects or materials, could also expose the Ghanaian construction workers to psychological ill-being conditions. It was revealed in a study that, the most common occupational health diseases of workers in Ghanaian Construction industry are musculoskeletal (lower back) pain, respiratory tract infections, asthma, conjunctivitis and hearing problems. These physical health problems could be related to the psychological health conditions of the workers. These health risks can also be attributed to the nature of the construction work, materials and equipment used conditions of the physical environment, methods employed in executing the construction work, as well as unsafe exposure to dust, fire, live cables, noise, and hazardous substances [37-42].

The workforce is the most vital resource for every organization. The human resources of organizations such as the Ghanaian construction industry should be at ease while working. Any kind of psychological ill-being conditions such as stress or depression could directly affect the construction workers' job performance, with consequences on the construction industry. Adverse psychological health conditions of employees occur when there is a disparity between what is demanded or expected from the employee and the employee's ability to handle the circumstances [26]. It was advocated that management of the construction industry should be responsible for the well-being of their workers both physically and psychologically. Identifying factors that contribute to the effective implementation of psychological health interventions in the construction industry of Ghana and, to some extent, globally are therefore essential [43].

Research Methodology

The basis for selecting any research method for a study depends on the objectives of the study. The study aims to identify influential factors of the effective implementation of psychological health interventions. The quantitative, qualitative, and mixed methods research approaches were reviewed for their suitability to the study. The mixed-method approach was eventually adopted for its appropriateness to the study. The mixed-method approach combines the quantitative and qualitative research methods for the data collection and analysis procedure [44-45].

Data Collection Techniques and Tools

This mixed-method approach utilized the interview technique for the qualitative survey and a questionnaire for the quantitative study. The selection of these techniques was grounded on strong rationales, as described below. Stated that qualitative interviews help collect data regarding people's perceptions to investigate aspects of their social world to probe people's assumptions, prejudices, and the like and to determine their impacts on behaviour and performance [44]. The probing feature in qualitative data gathering was essential and valuable to this study since the responses of the interviewees were integrated within the proposed intervention framework. This was, in turn, the basis for the second stage of the research, namely the quantitative approach via questionnaire.

This study sought to identify the key contributing factors associated with the implementation of a psychological health intervention in the construction industry. In order to determine the significance of these factors, as measured by the participants' opinions, a statistically reliable method was employed. The quantitative approach was, therefore, found to be suitable. The close-ended questionnaire was chosen as an instrument for the quantitative approach because it follows a set format of standard answers for each question, thus making the results of the data analysis more informative. At the same time, the questionnaire provides a powerful tool for its confirmatory nature. In other words, it will corroborate the findings of the qualitative stage with a larger sample of respondents [46-47].

The Interview process

Interview can be described as a method of data collection, information or opinion gathering that specifically involves asking a series of questions [44]. This study made use of semi-structured interviews, which are considered the most common type of interview used in qualitative social research, as they allow the researcher to obtain exact information, which can be compared and contrasted with information gained from other interviewees [47].

This study adopted a purposive sampling technique for selecting suitable participants, while snowballing was used to reach an adequate number of participants. The purposive sampling method is particularly used in the recruitment of participants for qualitative research. This sampling method uses the judgment of the researcher in selecting the research participants, or the selection is done with

a specific purpose in mind [48]. Respondents were required to meet specific criteria, such as the ability to speak comprehensible English and (with the exception of workers) at least two years' relevant work experience. There were 53 interviews for this study (which comprised of 21 construction professionals, 15 construction workers, and 17 labour personnel). The plan before conducting the fieldwork was to interview 60 research participants. However, during the data collection period, it was found that participants generally did not report any new or novel information about factors associated with the effective implementation of psychological health interventions in the construction industry. Therefore, it was considered that data saturation had been reached, and the data collection process was stopped.

Table 1: Profile of the research participants for the qualitative study

		Percentage distribution		
Information	**Categories**	**Construction Professionals group (Total = 21)**	**Construction Trade workers group (Total = 15)**	**Labour Personnel (Total = 17)**
Age	25 -35	14%	27%	0%
	36 – 45	43%	53%	33%
	46 – 55	24%	13%	50%
	> 55	19%	7%	17%
Years of working experience	1 - 5yrs	19%	33%	17%
	6 - 10yrs	57%	47%	50%
	Above 10yrs	24%	20%	33%
Level of Education	Junior High School level	0%	33%	0%
	Secondary School level	0%	60%	0%
	Technical or Vocational level	14%	7%	0%
	Graduate level or Above	86%	0%	100%
Gender	Male	71%	87%	67%
	Female	29%	13%	33%

Interview data analysis techniques

The thematic analysis was employed for the qualitative data collected from the interviews using NVivo software. The text was fed to NVivo software for coding, and categories and themes were created. The factors revealed by the respondents were broken down into a number of themes. Then, in winnowing the themes, phrases that relate were joined as a single concept for simplification purposes. Then the phrases were linked to each other, as concepts may be interrelated to identify the factors associated with the effective implementation of psychological health interventions in the construction industry.

Results of the Interview

Table 2 presents the factors identified from the qualitative data analysis of the interviews conducted with the 53 research participants in Ghana. The findings formed the basis for the quantitative study.

Table 2: Findings from the qualitative interview

S/N	Influential factors of effective implementation of psychological health interventions	No. of interviewees who cited this
M1	Magnitude of the current workload and time pressure	41
M2	Extent of management commitment and support	38
M3	Willingness of employees to cooperate with the intervention	36
M4	Availability of resources required for implementation	34
M5	Level of awareness on indicators of psychological health conditions	32
M6	Perceptions of the benefits of psychological health interventions	29
M7	Impact of stigmatization and discrimination	26
M8	Support from colleagues on employee's psychological health	23
M9	Flexibility of organizational structure and culture	21
M10	Cost of implementing the intervention	19
M11	Compatibility with organizational policy	16
M12	Time required for the implementation	14
M13	Confidentiality and trust of the implementation process	11
M14	Tailoring of intervention to address specific needs	9

M15	Continual monitoring and evaluation of workers well-being	7
M16	Policies and planning process to implement the system	6
M17	Education and training of key competent persons to handle PH issues at the workplace	4
M18	Identification and assessment of potential risks	3

The quantitative study: Survey questionnaire

The questionnaire survey was intended to assess or confirm the 18 factors identified from the qualitative study and to identify key influential factors. The first part of the questionnaire collected the details of the participants, while the remaining section focused on the research objective. The answers of the participants were collected on a 5-point Likert scale. The respondents were asked to indicate the level of influence of the factors identified from the qualitative study on a scale of 1–5, in which 1= not influential, 2= less influential, 3=moderate, 4= highly influential, and 5= very highly influential. A pilot study was carried out before the questionnaire survey began. Fifteen experts were selected for the pilot study who had over ten years of experience in the construction industry and occupational health psychology. The purpose of the pilot questionnaire was to review the clarity and suitability of the questions. The pilot questionnaire provided useful feedback to clarify some questions. Besides, an estimate of the time required to answer the questionnaire was made. Based on the pilot's comments, an improved questionnaire was written. The data collections for the questionnaire survey were in both printed and internet forms.

Sampling procedures

The main purpose of this phase was to evaluate the results of the first phase with the key players in the construction industry. The nature of the first phase was exploratory, and a large number of experts were consulted to obtain the information required. However, the nature of the second stage was confirmatory (evaluation). It was, therefore, essential to choose a statistically valid sampling method that is widely accepted and used in similar research. A stratified random sampling procedure was employed for this phase. This probabilistic method is often used when the target sample contains subgroups [44]. This study had three groups of research participants, such as construction professionals, construction trade workers, and labour personnel (this comprise of regulatory personnel and occupational health psychologist).

Sample size for the questionnaire survey

To obtain meaningful results from the quantitative analysis for the purpose of the validation, a sufficient sample size had to be determined. This study involves a large and indefinite population. It was, therefore, necessary to use certain formulas to determine the minimum sample size. The most suitable formula depends on a number of factors, including the aspect of the sampling method, the type of data collected (example interval or category), whether the population is large, small or unknown, and the analytical method [45-46]. This study used a formula created for the Likert scale. The relevant formula for determining the minimum sample size was one introduced by Cochran [49] and given below.

$$X = \frac{(W)^2 \times (Y)^2}{(H)^2}$$

Where:

- X = the sample size
- W = the value of the accepted level of risk, which corresponds to the true margin of error for a given acceptable margin of error. If the acceptable margin of error = 5%, then W = 1.96.
- Y = population standard deviation estimate = population variance estimates for a 5-point scale as 5, which is the inclusive range of the scale divided by 4, This is the number of standard deviations of possible values in the range.
- H = permissible margin of error for the estimated mean = number of points on the primary scale multiplied by the permissible/ acceptable margin of error.

The alpha level for this study was originally set at 0.05, which corresponds to a 5% error rate that is considered an acceptable margin for many studies [50]. Using the above formula, the minimum sample size was determined to be 96 calculated as:

$$X = \frac{(1.96)^2 \times (1.25)^2}{(0.25)^2} = \frac{3.8416 \times 1.5625}{0.0625} = 96$$

The minimum sample size of 96 research participants was considered appropriate for the questionnaire survey. A total of 350 questionnaires were distributed in Ghana via online and face-to-face, out of which 264 questionnaires were retrieved. This gave the response rate at 75%. The sample size of the responses obtained was, therefore, above the 96 number previously calculated as minimum research participants for the questionnaire survey. This comprises of 112 construction professionals, 83 construction trade workers, and 69 labour personnel in Ghana. While an internet-based survey was carried out with most of the construction professionals, a paper-based survey was carried out with the construction workers and labour personnel, to obtain the total number of 264 respondents. Table 3 presents the background information of the research participants for the questionnaire survey.

Table 3: Profile of the research participants for the quantitative study

		Percentage distribution		
Information	**Categories**	**Construction Professionals group (Total = 112)**	**Construction Trade workers group (Total = 83)**	**Labour Personnel (Total = 69)**
Age	25 -35	10%	16%	11%
	36 – 45	47%	58%	47%
	46 – 55	22%	15%	23%
	> 55	21%	11%	19%
Years of working experience	1 - 5yrs	11%	25%	17%
	6 - 10yrs	63%	51%	54%
	Above 10yrs	26%	24%	29%
Level of Education	Junior High School level	0%	17%	0%
	Secondary School level	0%	45%	0%
	Technical or Vocational level	13%	33%	0%
	Graduate level or Above	87%	5%	100%
Gender	Male	78%	89%	57%
	Female	22%	11%	43%

Questionnaire data analysis techniques

The data collected were statistically evaluated with SPSS (Statistical Package for Social Scientist) Version 19. The analysis consisted of three different steps, namely, data pre-processing, descriptive analysis, and inference analysis. In the pre-processing step, the completeness of the data was checked before it was entered into the software (SPSS). The number of missing values was very small and was automatically recognized by SPSS as missing and had no influence on the result calculation. Part of the research goal was to assess the differences between the perceptions of the three groups of respondents. Descriptive analysis by calculating the mean and standard deviation was employed to show these differences. A ranking of Importance indices was done to ascertain the most frequent factors. The formula of the relative importance index (RII) was calculated using the method recommended, from which the various ranks of the critical factors were determined [50]. The RII formula is as follows:

$$RII = \frac{\Sigma x}{W \times N_{\%100}}$$

where:
X = the weighting given by the respondents from the scale of 1 to 5.
W = 5, the highest weighting
N = total number of respondents

However, to validate the differences statistically, a different process of inference analysis was required. Therefore, the appropriate technique for this validation process is the Kruskal-Wallis and Mann-Whitney tests. Since there is more than one independent sample, the three groups were initially subjected to the Kruskal-Wallis test. However, the Kruskal-Wallis test does not indicate which group differs significantly from the others. A Mann-Whitney U is designed to perform pair-wise comparisons and identify the disagreement between the groups [48]. The data from the three groups of respondents were then subjected to the Mann Whitney test in pairs of three. The purpose of these tests was to check whether the differences between the groups were statistically significant and not random. The p-value was set at 0.05. If the test statistics are less than 0.05 (the p-value), this means that the difference between the groups is statistically significant and did not occur by chance [51].

Results of the confirmatory quantitative study

Ranking of the key organizational preventive measures

First, descriptive statistics were computed for the data collected from the three groups of respondents, namely: construction professionals, construction trade workers, and labour personnel (this comprise of regulatory personnel and occupational health psychologists). The descriptive analysis included the computation of means, standard deviation, and relative important index (RII) to rank the variables into key organizational strategies, identified by all the participants and also within the individual groups. Table 4 presents the results from descriptive statistics on key organizational strategies identified among all the respondents. Table 5 presents the results from the descriptive analysis showing differences between groups on key organizational strategies.

Table 4: Results from descriptive statistics on key influential factors identified among respondents

S/N	Influential factors of effective implementation of psychological health interventions	MEAN	STD. DEV.	RII (%)	RANK
M3	Willingness of employees to cooperate with the intervention	4.22	0.681	84.46%	1st
M6	Perceptions of the benefits of psychological health interventions	4.17	0.705	83.33%	2nd
M7	Impact of stigmatization and discrimination	4.15	0.65	82.95%	3rd
M5	Level of awareness on indicators of psychological health conditions	4.11	0.731	82.27%	4th
M10	Cost of implementing the intervention	4.02	0.7	80.38%	5th
M2	Extent of management commitment and support	4.01	0.768	80.23%	6th
M4	Availability of resources required for implementation	3.99	0.775	79.85%	7th
M12	Time required for the implementation	3.98	0.711	79.62%	8th
M18	Identification and assessment of potential risks	3.93	0.759	78.56%	9th
M9	Flexibility of organizational structure and culture	3.92	0.8	78.33%	10th
M1	Magnitude of the current workload and time pressure	3.88	0.774	77.65%	11th
M11	Compatibility with organizational policy	3.81	0.767	76.21%	12th
M16	Policies and planning process to implement the system	3.77	0.761	75.45%	13th
M13	Confidentiality and trust of the implementation process	3.75	0.744	75.01%	14th
M15	Continual monitoring and evaluation of workers well-being	3.73	0.754	74.69%	15th
M8	Support from colleagues on employee's psychological health	3.69	0.741	73.78%	16th
M14	Tailoring of intervention to address specific needs	3.67	0.735	73.48%	17th
M17	Education and training of key competent persons to handle PH issues at the workplace	3.58	0.756	71.59%	18th

The descriptive statistics for the data collected from all the respondents and for each group of respondents, namely construction professionals, construction trade workers, and labour personnel, were analyzed. The results revealed that mean ratings for all the 18 influential factors revealed by the qualitative study are well above the average mean value of 3. This indicates that all the influential factors identified are significant in influencing the effectiveness of the psychological health interventions in the construction industry. The results also present the ranking of the level of effectiveness of the proposed organizational preventive measures as revealed by all the respondents, and for each group, which was based on the mean values and relative importance index (RII) percentage values. The overall results among all the respondents revealed that the most influential factors are (1) willingness of employees to cooperate with the intervention procedures (2) perceptions on the benefits of the psychological health interventions (3) impact of stigmatization and discrimination (4) level of awareness on indicators of psychological health conditions (5) cost of implementing the intervention and (6) extent of management commitment and support.

Table 5: Results from the descriptive analysis showing differences between groups on key organizational strategies

Overall Rank	Influential factors of effective implementation of psychological health interventions	Construction Professionals		Construction Trade Workers		Labour Personnel	
		Group Mean	Group Ranks	Group Mean	Group Ranks	Group Mean	Group Ranks
1st	Willingness of employees to cooperate with the intervention	4.22	1st	4.23	4th	4.22	4th
2nd	Perceptions of the benefits of psychological health interventions	4.04	5th	4.31	1st	4.20	5th
3rd	Impact of stigmatization and discrimination	3.93	8th	4.29	2nd	4.33	2nd
4th	Level of awareness on indicators of psychological health conditions	4.17	3rd	3.98	8th	4.19	6th
5th	Cost of implementing the intervention	3.82	11th	4.04	6th	4.32	3rd
6th	Extent of management commitment and support	3.90	9th	3.78	12th	4.46	1st
7th	Availability of resources required for implementation	4.20	2nd	3.75	13th	3.96	11th
8th	Time required for the implementation	3.67	15th	4.28	3rd	4.13	7th

9th	Identification and assessment of potential risks	4.12	4th	3.80	11th	3.78	14th
10th	Flexibility of organizational structure and culture	3.96	7th	3.69	15th	4.12	8th
11th	Magnitude of the current workload and time pressure	4.00	6th	3.65	16th	3.97	10th
12th	Compatibility with organizational policy	3.75	13th	3.73	14th	4.00	9th
13th	Policies and planning process to implement the system	3.88	10th	3.60	17th	3.80	13th
14th	Confidentiality and trust of the implementation process	3.72	14th	3.90	9th	3.61	15th
15th	Continual monitoring and evaluation of workers well-being	3.80	12th	3.55	18th	3.84	12th
16th	Support from colleagues on employee's psychological health	3.63	16th	3.88	10th	3.55	16th
17th	Tailoring of intervention to address specific needs	3.47	17th	4.08	5th	3.51	17th
18th	Education and training of key competent persons to handle PH issues at the workplace	3.43	18th	3.99	7th	3.33	18th

The results also revealed that the three different groups rated the proposed organizational preventive strategies differently, resulting in a varied ordering in ranks between the three groups, as shown in Table 5. The top 5 influential factors ranked by the construction professionals were (1) Willingness of employees to cooperate with the intervention, (2) Availability of resources required for implementation, (3) Level of awareness on indicators of psychological health conditions, (4) Identification and assessment of potential risks and (5) Perceptions of the benefits of psychological health interventions. The top 5 influential factors ranked by the construction trade workers were (1) Perceptions on the benefits of the psychological health interventions, (2) Impact of stigmatization and discrimination, (3) Time required for the implementation, (4) Willingness of employees to cooperate with the intervention and (5) Tailoring of intervention to address specific needs. The top 5 influential factors ranked by the labour personnel were (1) Extent of management commitment and support, (2) Impact of stigmatization and discrimination, (3) Cost of implementing the intervention, (4) Willingness of employees to cooperate with the intervention and (5) Perceptions on the benefits of the psychological health interventions.

Statistically significant differences in the ratings between the three groups of respondents

The Kruskal-Wallis H inferential test was then undertaken to check if there were any significant differences in the overall ratings between the three different groups. Table 6 presents results from Kruskal-Wallis Test on differences between groups, showing Chi-square values and asymptotic significance. The p-value was set at 0.05, test statistics less than 0.05 depict statistically significant differences.

Table 6: Results from the Kruskal-Wallis Test on differences between groups

Rank	Influential factors of effective implementation of psychological health interventions	MEAN RANK			Chi-Square	df	Asymp. Sig.
		Construction Professionals	Construction Trade Workers	Labour Personnel			
1st	Willingness of employees to cooperate with the intervention	131.91	133.13	132.7	0.015	2	0.992
2nd	Perceptions of the benefits of psychological health interventions	119.29	147.14	136.34	7.790	2	0.020*
3rd	Impact of stigmatization and discrimination	108.27	148.11	153.04	24.729	2	0.000*
4th	Level of awareness on indicators of psychological health conditions	137.2	119.16	140.91	4.411	2	0.110
5th	Cost of implementing the intervention	112.63	134.25	162.64	21.954	2	0.000*
6th	Extent of management commitment and support	122.13	111.41	174.7	33.537	2	0.000*
7th	Availability of resources required for implementation	151.43	109.75	129.14	16.314	2	0.000*
8th	Time required for the implementation	101.81	161.72	147.17	38.781	2	0.000*

9th	Identification and assessment of potential risks	150.72	120.34	117.56	12.718	2	0.002*
10th	Flexibility of organizational structure and culture	137.55	111.36	149.73	11.721	2	0.003*
11th	Magnitude of the current workload and time pressure	144.68	108.57	141.52	13.637	2	0.001*
12th	Compatibility with organizational policy	128.28	124.64	148.8	5.026	2	0.081
13th	Policies and planning process to implement the system	145.17	114.05	134.14	9.231	2	0.010*
14th	Confidentiality and trust of the implementation process	133.25	144.36	117.02	5.664	2	0.059
15th	Continual monitoring and evaluation of workers well-being	140.76	114.1	141.23	8.238	2	0.016*
16th	Support from colleagues on employee's psychological health	129.94	145.43	121.11	4.802	2	0.091
17th	Tailoring of intervention to address specific needs	113.19	171.91	116.44	38.630	2	0.000*
18th	Education and training of key competent persons to handle PH issues at the workplace	120.89	169.28	107.09	37.766	2	0.000*

Note: * Statistically significant difference at $P < 0.05$

A Kruskal-Wallis H test was conducted to verify if the differences between the groups were statistically significant, setting the p-value at 0.05. Table 6 illustrates the test results, which suggest that there are some statistically significant differences in the rating by the three groups of respondents for almost all the proposed organizational preventive measures. Only 5 out of the 18 identified influential factors showed statistically insignificant differences in the rating by the groups, and these include; willingness of employees to cooperate with the intervention, level of awareness on indicators of psychological health conditions, compatibility with organizational policy, confidentiality and trust of the implementation process, and support from colleagues on employee's psychological health. This result depicts some level of agreement among the groups of respondents in the ratings of the factors as significant influencers of the effective implementation of psychological health interventions in the construction industry. For factors that showed significant differences, subsequent Mann-Whitney U tests were carried out to see which particular paired groups disagreed in the overall ratings. Table 7 presents the results from Mann-Whitney U on differences between construction professionals and construction trade workers.

Table 7: Results from Mann-Whitney U on differences between construction professionals and construction trade workers

Rank	Influential factors of effective implementation of psychological health interventions	MEAN RANK		Mann-Whitney U	Z	Asymp. Sig. (2-tailed)
		Construction Professionals	Construction Trade Workers			
1st	Willingness of employees to cooperate with the intervention	97.61	98.52	4604.5	-0.123	0.902
2nd	Perceptions of the benefits of psychological health interventions	89.21	109.87	3663	-2.756	0.006*
3rd	Impact of stigmatization and discrimination	85.46	114.92	3244	-4.144	0.000*
4th	Level of awareness on indicators of psychological health conditions	103.95	89.98	3982	-1.872	0.061
5th	Cost of implementing the intervention	91.28	107.07	3895	-2.176	0.030*
6th	Extent of management commitment and support	102.92	91.37	4097.5	-1.517	0.129
7th	Availability of resources required for implementation	111.32	80.02	3156	-4.096	0.000*
8th	Time required for the implementation	78.96	123.69	2515.5	-6.003	0.000*
9th	Identification and assessment of potential risks	108.13	84.33	3513	-3.192	0.001*
10th	Flexibility of organizational structure and culture	106.82	86.1	3660	-2.715	0.007*
11th	Magnitude of the current workload and time pressure	109.39	82.63	3372	-3.495	0.000*
12th	Compatibility with organizational policy	99.4	96.11	4491	-0.437	0.662

13th	Policies and planning process to implement the system	107.93	84.6	3536	-3.079	0.002*
14th	Confidentiality and trust of the implementation process	93.96	103.45	4196	-1.255	0.209
15th	Continual monitoring and evaluation of workers well-being	106.65	86.33	3679	-2.708	0.007*
16th	Support from colleagues on employee's psychological health	92.9	104.89	4076.5	-1.586	0.113
17th	Tailoring of intervention to address specific needs	79.54	122.92	2580	-5.746	0.000*
18th	Education and training of key competent persons to handle PH issues at the workplace	82.18	119.35	2876	-4.986	0.000*

Note: * Statistically significant difference at P < 0.0

Table 8 presents results from Mann-Whitney U on differences between construction professionals and regulatory personnel.

Table 8: Results from Mann-Whitney U on differences between construction professionals and regulatory personnel

Rank	Influential factors of effective implementation of psychological health interventions	MEAN RANK		Mann-Whitney U	Z	Asymp. Sig. (2-tailed)
		Construction Professionals	Construction Trade Workers			
1st	Willingness of employees to cooperate with the intervention	90.80	91.33	3841.5	-0.072	0.942
2nd	Perceptions of the benefits of psychological health interventions	86.58	98.17	3369	-1.573	0.116
3rd	Impact of stigmatization and discrimination	79.31	109.98	2554.5	-4.392	0.000*
4th	Level of awareness on indicators of psychological health conditions	89.75	93.02	3724.5	-0.441	0.660
5th	Cost of implementing the intervention	77.86	112.33	2392	-4.723	0.000*
6th	Extent of management commitment and support	75.71	115.81	2152	-5.522	0.000*
7th	Availability of resources required for implementation	96.61	81.90	3236	-1.972	0.049*
8th	Time required for the implementation	79.35	109.91	2559	-4.176	0.000*
9th	Identification and assessment of potential risks	99.08	77.88	2958.5	-2.814	0.005*
10th	Flexibility of organizational structure and culture	87.23	97.12	3442	-1.313	0.189
11th	Magnitude of the current workload and time pressure	91.79	89.72	3776	-0.285	-0.285
12th	Compatibility with organizational policy	85.38	100.13	3234	-1.975	0.048*
13th	Policies and planning process to implement the system	93.74	86.56	3557.5	-0.970	0.332
14th	Confidentiality and trust of the implementation process	95.79	83.23	3328	-1.723	0.085
15th	Continual monitoring and evaluation of workers well-being	90.61	91.64	3820	-0.138	0.890
16th	Support from colleagues on employee's psychological health	93.54	86.88	3579.5	-0.928	0.354
17th	Tailoring of intervention to address specific needs	90.15	92.38	3769	-0.321	0.748
18th	Education and training of key competent persons to handle PH issues at the workplace	95.21	84.16	3392	-1.716	0.086

Note: * Statistically significant difference at P < 0.05

Table 9 also presents results from Mann-Whitney U on differences between construction trade workers and regulatory personnel

Table 9: Results from Mann-Whitney U on differences between construction trade workers and labour personnel

Rank	Influential factors of effective implementation of psychological health interventions	MEAN RANK		Mann-Whitney U	Z	Asymp. Sig. (2-tailed)
		Construction Professionals	Construction Trade Workers			
1st	Willingness of employees to cooperate with the intervention	76.61	76.37	2854.5	-0.036	0.971
2nd	Perceptions of the benefits of psychological health interventions	79.27	73.17	2633.5	-0.929	0.353
3rd	Impact of stigmatization and discrimination	75.2	78.07	2755.5	-0.438	0.662
4th	Level of awareness on indicators of psychological health conditions	71.19	82.89	2422.5	-1.738	0.082
5th	Cost of implementing the intervention	69.18	85.3	2256	-2.415	0.016*
6th	Extent of management commitment and support	62.04	93.89	1663.5	-4.742	0.000*
7th	Availability of resources required for implementation	71.73	82.24	2467.5	-1.566	0.117
8th	Time required for the implementation	80.02	72.26	2571	-1.177	0.239
9th	Identification and assessment of potential risks	78.01	74.68	2738	-0.499	0.618
10th	Flexibility of organizational structure and culture	67.26	87.62	2096.5	-3.041	0.002*
11th	Magnitude of the current workload and time pressure	67.94	86.8	2153	-2.840	0.005*
12th	Compatibility with organizational policy	70.54	83.67	2368.5	-1.957	0.050*
13th	Policies and planning process to implement the system	71.45	82.58	2444	-1.711	0.087
14th	Confidentiality and trust of the implementation process	82.91	68.79	2331.5	-2.139	0.032*
15th	Continual monitoring and evaluation of workers well-being	69.77	84.59	2305	-2.269	0.023*
16th	Support from colleagues on employee's psychological health	82.54	69.23	2362	-2.021	0.043*
17th	Tailoring of intervention to address specific needs	90.99	59.07	1660.5	-4.780	0.000*
18th	Education and training of key competent persons to handle PH issues at the workplace	91.93	57.93	1582.5	-5.240	0.000*

Note: * Statistically significant difference at $P < 0.05$

A comparison of the results from the pair-wise analysis, showing the asymptotic significance values, has also been presented in Table 10

Table 10: Summary of the three pair of results from Mann-Whitney U Test compared

S/N	Influential factors of effective implementation of psychological health interventions	Mann-Whitney U Test (P-value of each pair)		
		Construction Professionals & Construction Trade Workers	Construction Professionals & Labour Personnel	Construction Trade Workers & Labour Personnel
1st	Willingness of employees to cooperate with the intervention	0.902	0.942	0.971
2nd	Perceptions of the benefits of psychological health interventions	0.006*	0.116	0.353
3rd	Impact of stigmatization and discrimination	0.000*	0.000*	0.662
4th	Level of awareness on indicators of psychological health conditions	0.061	0.660	0.082
5th	Cost of implementing the intervention	0.030*	0.000*	0.016*
6th	Extent of management commitment and support	0.129	0.000*	0.000*
7th	Availability of resources required for implementation	0.000*	0.049*	0.117
8th	Time required for the implementation	0.000*	0.000*	0.239
9th	Identification and assessment of potential risks	0.001*	0.005*	0.618
10th	Flexibility of organizational structure and culture	0.007*	0.189	0.002*
11th	Magnitude of the current workload and time pressure	0.000*	0.776	0.005*
12th	Compatibility with organizational policy	0.662	0.048*	0.050*
13th	Policies and planning process to implement the system	0.002*	0.332	0.087
14th	Confidentiality and trust of the implementation process	0.209	0.085	0.032*
15th	Continual monitoring and evaluation of workers well-being	0.007*	0.890	0.023*
16th	Support from colleagues on employee's psychological health	0.113	0.354	0.043*
17th	Tailoring of intervention to address specific needs	0.000*	0.748	0.000*
18th	Education and training of key competent persons to handle PH issues at the workplace	0.000*	0.086	0.000*

Note: * Statistically significant difference at $P < 0.05$

The analysis was extended to include a Mann-Whitney U test to identify the group that differed significantly from the other groups, in order to enable further interpretation of the outcomes. Table 10 summarises the results of the Mann-Whitney test from the three pairs of results obtained by combining two groups of the respondents, such as construction professionals versus construction trade workers, construction professionals versus labour personnel, and construction trade workers versus labour personnel. The results depict that the construction trade workers differed more significantly from the construction professionals and labour personnel in their rating of the level of influence of the factors on the effective implementation of psychological health interventions. This result could be due to the fact that the construction trade workers are the main subjects for the implementation of workplace interventions, and therefore have a better idea of the degree of the influence of the identified factors than do the other two groups. Nonetheless, this could also be attributed to opinion bias.

The identified factors from the qualitative study were rated by the three groups of respondents as very significant or significant influencers. Therefore, the difference between the three groups can be considered minor. Hence, it can be concluded that the results from the quantitative study show a very strong indication of the significance of the factors on the effective implementation of psychological health interventions in the construction industry. The results from the quantitative study, therefore, verify and confirm the findings from the qualitative interviews.

Discussion of findings

This study revealed factors associated with effective implementation of psychological health interventions that conformed with some previous findings from existing literature. For instance, similar factors were revealed in a study which included availability of financial resources, administrative support available for the implementation, time available to implement the intervention, availability of staff responsible for coordinating implementation in the organization [34]. Also revealed that the factors that can act as barriers or facilitators to the implementation of evidence-based practices included lack of resources, workload, other staff or management not supportive of the intervention, lack of authority to change existing practices and workplace culture resistant to changes [2]. Also revealed in an exploratory study conducted that the factors associated with the implementation of workplace wellness programs included financial matters, leadership support and labour management [15]. Added that factors that act as barriers to or facilitators of implementing complex workplace interventions included perceived benefits of participation, negotiation and flexibility of the implementation team, viability and intensity of intervention and individual workplace structures and cultures [22]. Similar factors were also revealed, which included allocations and incentives, organizational and cultural barriers to implementing efficient interventions, and systemic flaws of supply-driven

medical care versus demand driven health. The detailed description of the findings from this study has been provided in the following sections [24].

Willingness of employees to cooperate with the intervention

The willingness of employees to participate in psychological health programmes was revealed to be the most influential factor. The main reasons employees participate in any workplace health promotional measures can be concerns for their age, lifestyle, and health issues such as blood pressure, cholesterol level, weight, and digestive disorders. Older employees are more likely to participate in workplace health programmes than the younger ones due to the pressure of keeping up in the fast-paced working environment. Without the driving force or reasons as motivational factors, it might be difficult for employees to cooperate with the intervention programme willingly. Employees seek health improvements in efforts to curtail the negative effects of workplace stressors [11,21,52]. Investment in psychological health interventions to enhance employees' well-being can reassure the employees that their employer's concern is not only on profit-making but was on their health and well-being. Awareness of this commitment can compel the employees to participate in psychological health intervention programs. A good relationship between employers and their workers can also be a motivating factor for participating in intervention programs [24,53]. Increasing psychological health consciousness among employees can boost their morale and commitment to the workplace psychological health interventions, and thereby enhance the effectiveness of the implementation [4,21].

Perceptions on the benefits of the psychological health interventions

Perceptions of managers and employees on the benefits of the interventions can influence the extent of implementation of the psychological health interventions. The perceptions of long-term benefits rather than the benefits from the intervention itself can facilitate its implementation as it encourages engagement and foster buy-in of the intervention [21,22,29]. Perceived benefits associated with the intervention such as, managers desire to portray the company's image positively, fostering employees' loyalty, and workers desire to enhance their psychological health, can be influential factors to the level of successful implementation of the psychological health interventions in the construction industry. Managers' interest in ensuring successful implementation of the interventions is vital to facilitate access to the workers by releasing them from work activities to participate in psychological health programmes and provision of supportive initiatives that would increase psychological health consciousness in the workplace [21,55-54]. The perceived benefits can, therefore, be a driver for the organization's adoption and effective implementation of psychological health interventions as it promotes organizational support and increased workers' participation in the intervention initiatives.

Impact of stigmatization and discrimination

Stigma and discrimination associated with psychological ill-health can affect the level of acceptability of implementing psychological health interventions in the construction industry [26]. Stigma or discrimination can be one of the main reasons why people do not participate in psychological health interventive measures such as screening of employees for psychological health symptoms. Studies revealed that employees who had experienced a traumatic event at the workplace had it difficult to accept psychological health care, with the reasons that they do not want to be identified as requiring psychiatric help and also did not want to be seen going to a psychiatric hospital [4,21]. Similar concerns have been raised for low participation in psychological health screening programmes and attending psychiatric hospital settings for treatment. In order to address this concern, the specialized psychological health intervention program for workers experiencing psychological ill-health conditions can be set off-site in office buildings separate from the psychiatric hospital [27].

Level of awareness on indicators of psychological health conditions

Poor knowledge of the workers on occupational psychological health conditions can impact the extent of implementation of interventive measures. Employees with the knowledge of psychological health indicators can help improve their psychological health outcomes through changes in their responses to the risk factors. Awareness of psychological health issues can also be a motivational factor to facilitate the implementation of such interventions. Employees' knowledge of psychological health issues is a recognized core skill for effective implementation as they will be empowered to apply intervention principles. Conducting regular awareness programmes on psychological health would help employees to upgrade their knowledge on the issues [56-57].

Cost of implementing the intervention

A number of respondents also noted matters of a financial focus as very influential. The financial matters fall into two main subthemes: appropriate funding for workplace wellness programs, and the savings these wellness programs can bring [15,31]. One of the major barriers to the implementation of programs is the lack of appropriate funding for implementation, program maintenance, or incentives [10,11]. This concern was especially evident when discussing the matter with leaders of departments that have not implemented a program. Most of these leaders cited the issue of budget or lack of money as a major concern or barrier. Many organizations may face financial difficulties for employing an occupational health officer permanently [15]. Funding, trying to find the money always seems to be a barrier, especially initially early on. Planned budget allocation will be needed to incorporate psychological health promotional needs to the organization's expected budget [34].

Extent of management commitment and support

Support from management, especially supervisors, is another barrier to wellness program implementation frequently reported by the research participants interviewed. Due to the target-driven culture in the construction industry, supervisors can be reluctant to release workers to participate in psychological health programmes [33]. Though a disruption on the production line can lead to knock-on effects for overall level efficiencies of the organization's output, managers can adapt to the demands of the intervention for the duration of the designated period, which can be made up for. To ensure effective implementation of psychological health interventions in the workplace, management needs to reinforce their commitment to promoting employees' psychological health [2,4]. Management can demonstrate their support by releasing the workers from work activities for psychological health appointments and provide them with the necessary resources [15,26]. Stakeholder cohesiveness with regards to organizational support is essential to achieving successful implementation [10].

Availability of resources required for implementation

The emphasis here was on fast, easy access to resources required for the implementation of the intervention. While some professionals demonstrated increasingly positive attitudes towards psychological health interventions, they also reported difficulties in making available the essential resources required [2-5]. The necessary resources, including human, material, and capital resources for

the implementation of the psychological health intervention for the employees, must be provided as quickly and efficiently as when need [7,34]. Resources such as mental first aid need to be available, if not at the point of care, then at the very least in an easily accessible designated area within each department for unprecedented psychological health crisis at the workplace [2,6].

Time required for the implementation

The time required for the implementation is an important factor that can impede or facilitate the adoption of psychological health intervention in the construction industry [5,34]. Construction works are usually time-bound with deadline pressures, leaving workers with little time for rest or other recreational activities. Treatment for psychological health conditions can be heavily time-consuming if they are to be assessed, treated, and managed appropriately [8]. Measures can be taken to try and reduce the time component of the implementation, as this is an essential factor to increase the chance for effective implementation of the intervention at the workplace.

Identification and assessment of potential risks

The ability to identify and assess potential risks associated with employees' psychological health conditions is essential for effective implementation in the workplace. Knowledge of psychosocial health issues is necessary and can be obtained through the identification and assessment of the potential work-related factors [15]. Information provided on potential risks can be particularly helpful in mitigating the causes of psychological ill-health conditions among workers. Displays of information in the workplace and the daily email on psychological health matters can be considered effective. The design of the intervention for easy identification and assessment of risk factors can be perceived to be a key facilitator for the successful implementation of psychological health management in the construction industry [5,10].

Flexibility of organizational structure and culture

The organizational structure and culture can influence the extent of the adoption of psychological health interventions [26]. The hierarchical organizational structure with the complexity of decision-making processes can inhibit the adoption and effective implementation of psychological health intervention in the construction industry [4]. The culture of some construction industry may also be resistant to change and thus be a barrier to the implementation of the innovative ideas of psychological health prevention [10,24]. For effective implementation of a psychological health intervention in the construction industry, there is the need for supportive work culture and the breaking down of hierarchical organizational structures [2]. The flexibility of the organizational structure and culture to change is, therefore, essential for the effective implementation of any interventive measure. Flexibility management also gives employees the power of autonomy to make changes, thereby enhancing employees' level of commitment and job satisfaction, with a positive influence on their psychological health outcomes [11]. Several studies have revealed that low levels of autonomy and power over work issues make employees less valued, leading to psychological ill-being conditions such as anxiety and depression [2,13].

Magnitude of the current workload and time pressure

Workload is a barrier that has been extensively reported on and was one of the frequently identified barriers that inhibit workplace interventions in the construction industry [2,17]. The construction work environment is one that is heavily reliant on time. Construction employees are constantly under pressure from increased demands, which translates to staff being asked to deal with working overtime [16]. As a barrier to effective psychological health implementation, the workload is a problem as time-bound tasks need to come first and foremost over other personal needs [10]. This leaves construction workers with little or no extra time in their typical working day to utilize the available psychological health initiatives at the workplace. Even though employees are willing to participate in psychological health promotional programmes, little or no time can prevent them from fully engaging in the activities. Time pressure is, therefore, a critical barrier to the effective implementation of psychological health interventions in the construction industry [2,4].

Compatibility with organizational policy

The compatibility of the intervention with the organizational policy is essential to ensure the effective implementation of psychological health interventions in the construction industry [22]. It is critical for the proposed intervention to fit into existing organizational policy and adapt to the structure and practices of each worksite, to facilitate the effective adaptation of the intervention [10,11]. The implementation of an intervention might require employees' interactions and significant logistical planning, which might not be suitable for the target-driven culture and organizational policy of the construction industry [54]. However, the intervention can be well-designed to fit into organizational policy and practices to facilitate its adoption and implementation in the construction industry [33].

Policies and planning process to implement the system

There should be laid down policies and a detailed planning process to ensure smooth implementation of the intervention in the organization. Available policies and written plans for implementation provide the necessary guidelines and protocols which are to be followed [8]. Policies should also have input from staff working groups and reflect the needs and ideas of each working group, which can help align professional and organizational goals effectively [5]. Without proper enforcement of policies and the planning process, the implementation process of any new idea or intervention can be unnecessarily challenged. Workplace policies are usually formulated by management; however, workers can be a part of the decision-making process [26]. This will give the workers some degree of autonomy in participating in the intervention program, with some degree of flexibility within the recognized protocols and guidelines, without fear of reprisal. Organizational policies can help create a working environment that is open to innovation, revitalization, and positive change [7].

Confidentiality and trust of the implementation process

Concerns of confidentiality and trust can impede the effective implementation of psychological health interventions. The risk of "backlash" by employees in response to the choice of the intervention can hamper restrictions in its implementation, which may result from these anticipated and realized concerns of lack of confidentiality and trust. Respondents anticipated that the implementation of psychological health interventions in the workplace might create a sense of perceived helplessness among employees. Studies have reported that employees have resisted psychological health screening and other intervention measures in the workplace largely due to the presence of some of these unhealthy concerns. Lacks of confidentiality and trust can, therefore, impede the implementation of the intervention in the workplace as workers can be reluctant to reveal their psychological health status due to fear of losing one's job or reputation [21-24,33].

Continual monitoring and evaluation of workers well-being

Continual monitoring and evaluation of workers' well-being have an impact on the effectiveness of implementing psychological health interventions. Identification and monitoring of psychological health indicators have also been identified as a significant strategy in enhancing employees' psychological health [27]. With the continuous monitoring and evaluation of workers' psychological well-being, the management can easily establish benchmarks to control poor health and work functionality [34]. Besides, management can eliminate work-related psychological risk factors such as task overload by providing enough workforces for a particular task, so that the worker is not put under pressure with a workload that he cannot bear [54]. The selection of the right worker and the assignment of appropriate tasks can also be put into practice. Assigning an adequate number of workers to risky situations could minimize the number of workplace incidents and thereby promote a psychologically safe and healthy working environment [12]. A managerial tool that could, therefore, enhance the positive psychological health of employees is conducting periodic monitoring and evaluation of psychological health issues at the workplace.

Support from colleagues on employee's psychological health

Support from colleagues to push forward the agenda of ensuring all employees are psychologically safe and healthy can impact the level of implementation of psychological health interventions in the workplace. The lack of support from colleagues working in a culture bogged down in rigid and outdated protocols neither facilitates nor encourages the flow of new ideas [33]. Organizations should beware of creating a "culture of blame" that berates staff for trying to work flexibly within protocols, as this activity prevents the formation of new approaches to existing practices [53,55]. There also needs to desist the notion that a working group has all the knowledge and, therefore, does not recognize the expertise and contributions of the personnel of various working groups. Another factor influencing the effectiveness of interventions is the discrepancy between the professional objectives of the individual personnel and the organizational objectives, which can be more dictated by the political and financial agendas [11].

Tailoring of intervention to address specific needs

The sustainability of the intervention and the ability of the organization to tailor the intervention to meet the needs of their employees can facilitate its effective implementation [24]. The design of the intervention, therefore, impacts its implementation in the workplace. The anticipated employee resistance to change in response to the intervention can impede the implementation of the interventions [10]. The level of intensity of the intervention, therefore, affects the effectiveness of the implementation to some extent. For instance, high-intensity workplace interventions such as combined intervention for health and socio-economic benefits can be well received by the organization and the employees [34]. However, low-intensity workplace interventions such as educational and environmental awareness programmes which cannot meet employees' expectations can have its implementation impeded. There is, therefore, the need to tailor the intervention to address the specific needs of the construction employees.

Education and training of key competent persons to handle PH issues at the workplace

The implementation of effective policies and good occupational psychological health programmes are interrelated to improve workers' education and awareness of psychological health issues. Some organizations have policies to educate workers on psychological health interventions. It is necessary to send workers to follow periodic training programs to keep their knowledge of work psychology up to date [7-8]. However, providing training for key competent persons to handle psychological health issues at the workplace may be costly as well as impractical. On-the-job training would be a great solution for this, as it provides specialized training in the work environment. In addition, training in the course of employment will encourage the worker to stay with the organization as he may feel safer there than with other organizations. Besides, the implementation of programs in health psychology at the workplace is recommended by industry practitioners [5,18]. In the education and training programmes, the use of visual aids and materials such as multimedia presentations, printed posters, paper articles, and photos, can be provided to increase the awareness of workers on psychological health issues and promote healthy behaviour among employees [21,33]. Providing specialized training and education programmes for workers is another useful way to increase the chance for effective implementation of psychological health interventions in the construction.

Conclusion

This study presents potential factors that can influence the implementation of psychological health interventions in the construction industry. The 18 influential factors revealed in this study were first identified in a qualitative interview conducted with 53 respondents, and the findings were subsequently confirmed in a quantitative survey with 263 respondents. The respondents for both the qualitative and quantitative study included construction professionals, construction trade workers, and labour personnel from regulatory institutions as well as occupational health psychologists. The results from the quantitative study indicated that the 18 findings identified from the qualitative study as factors associated with effective implementation of psychological health intervention in the construction industry, were all statistically significant. Thus, from the overall sample, the level of influence of all the identified factors was rated as highly influential or very highly influential. The results also indicated that there were high agreement levels for all the influential factors among the respondents. Though a slight difference occurred between the construction trade workers group and the other groups, the construction professionals and labour personnel, however, showed a high level of agreement in their perceptions of the ratings of the influential factors.

The results also showed some differences in the ratings of the influential factors. The most influential factors ranked by the construction professionals, the construction trade workers, and the labour personnel were the willingness of employees to cooperate with the intervention, perceptions on the benefits of the psychological health interventions, and extent of management commitment, respectively. This study recommends that all the 18 findings can be addressed in any organization to increase the chance of success for the effective implementation of psychological health interventions to improve the psychological well-being of construction employees. Addressing factors associated with effective implementation of psychological health interventions can also bring about positive outcomes such as financial benefits for the company by reducing the number of absenteeism and increasing the productivity levels of employees. The proposed factors follow a proactive model of organizational change, which, as anticipated by the construction stakeholders, can avert most psychological health crises by shaping the causes rather than only reacting to its effects.

Limitation of Study and Future Research

The conduct of this study in a single geographical setting can be

considered as the limitation of this study. However, the findings from this study contribute significantly to knowledge and practice, as it adds to the literature on socio-psychological research in the construction industry. Occupational health psychology is also a new area in the study of labour issues within human resource management. For this reason, there are many potential gaps to fill. Studies on psychological health of construction employees in Ghana is also under-researched, and therefore warranted a research study in this geographical setting. Future research based on the study findings can meticulously investigate each factor in great detail, to establish a complete knowledge base pertinent to the region or developing countries in general.

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Data Availability Statement

All data generated or analyzed during the study are included in this article.

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