



The Effectiveness of Safety Talk and Peer as Change Agent Methods on Clean and Healthy Living Behaviour (PHBS) Based on The Health Promotion Model for Workers in Construction Services

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Article Info

Article History:

Submitted 31 December 2022

Accepted 12 February 2024

Published 15 February 2024

Keywords:

safety talk, peer as change agent, PHBS, construction services

DOI

<https://doi.org/10.15294/jhe.v8i2.64259>

Abstract

Background: The work environment of construction service companies in Indonesia is still not implementing Clean and Healthy Living Behavior (PHBS). The study aimed to evaluate the effectiveness of health promotion on PHBS in construction workers.

Methods: This study used quasi-experimental with Pretest-Posttest Only Control Group Design. The sample consisted of 1 control group and 2 intervention groups, each with 63 samples taken using purposive sampling. The intervention was in the form of health promotion on PHBS with safety talk and peer as change agent methods for 21 days. Data analysis used Kolmogorov-Smirnov test for univariate analysis, Wilcoxon Signed Ranks Test and Mann Whitney for bivariate analysis, and Manova test for multivariate analysis.

Results: The results of the t-test showed a significant difference between PHBS with the health promotion model approach before the intervention between the safety talk and peer as change agent groups and the control group with a p value <0.05. The effectiveness test showed a difference in effectiveness between the safety talk method and peer as change agent on workers' PHBS with a health promotion model approach ($P < 0.05$).

Conclusion: The safety talk method is more effective in improving perceptions of benefits, barriers, self-ability, attitudes towards PHBS activities, interpersonal influences, situations, and commitment to PHBS action plans compared to the peer as change agent method. However, the peer as change agent method is more effective in improving worker behavior compared to the safety talk method.

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INTRODUCTION

The coverage of PHBS in Indonesia remains below expectations. According to basic health research conducted in 2007, 2013, and 2018, the coverage of PHBS in households has only increased by approximately 28%, from 11.2% in 2007 to 23.6% in 2013, and then to 39.1% in 2018 (Kementerian Kesehatan RI, 2013, 2019). The implementation of PHBS in the work environment is crucial for increasing labor productivity, reducing absenteeism, and preventing occupational diseases. The implementation of PHBS in the work environment is crucial for increasing labor productivity, reducing absenteeism, and preventing occupational diseases. Despite these, many companies still ignore the importance of implementing PHBS in the workplace (Flowrenza & Harianto, 2020; Hendrawan, 2020; Young et al., 2017).

PT. X is considered to have not implemented PHBS optimally, as indicated by the increasing trend of sick leaves. X is considered to have not implemented PHBS optimally, as indicated by the increasing trend of sick leaves. In February 2022, 44 workers were confirmed positive for COVID-19, while in the April-June 2022 period, common cold (respiratory tract disorder) accounted for 50% of illnesses, dengue fever accounted for 67%, and dyspepsia (digestive tract disorder) accounted for 27%. The trend of illness is believed to be caused by insufficient PHBS coverage.

Although the company has a PHBS program in place, some PHBS coverage in the workplace is still low or not routinely conducted. One of the causes is that workers' awareness of the importance of workplace PHBS is still lacking. They tend to focus only on achieving work targets and consider PHBS in the workplace as unimportant or troublesome (Awadhalla et al., 2018; Muraraneza & Mtshali, 2018; Purwanto et al., 2021). Thus, health promotion or counseling efforts are needed to increase workers' awareness of clean and healthy living behaviors as an effort to prevent disease and infection, which also has an impact on work productivity (Jommaroeng et al., 2020; Jones et al., 2017; Khosravi et al., 2018).

Various methods can be used in conducting health promotion or counseling,

including safety talk, which has been proven effective in shaping good risk factor prevention behavior (Flowrenza & Harianto, 2020; Gumelar & Ardyanto, 2018). Providing health promotion or counseling can also be done comprehensively by peers, known as peer education, to become agents of change in solving existing problems in the workplace. This technique has been shown to effectively create positive behavior change to prevent disease agent (Astari & Fitriyani, 2019; Ceylan & Koç, 2021; Khoradiyah et al., 2018; Khosravi et al., 2018).

The Health Promotion Model (HPM) was developed by Nola J. Pender which combines social cognitive theory and expectancy value theory which is made so that health promotion can run for a long period of time, even for life (Kosugi et al., 2020b, 2020a; McKenzie et al., 2022; Mohsenipoua et al., 2016; Nubani Husseini et al., 2022; Van den Broucke, 2020). Based on the background of the problem, the researcher will conduct research on the effectiveness of the safety talk method and peers as change agents on clean and healthy living behavior (PHBS) based on the health promotion model for workers in PT X construction services.

METHODS

The research used a quasi-experimental method with a pretest-posttest only control group design at PT X in Purwakarta and Karawang districts, Indonesia in November 2021. The study aimed to investigate the effects of health promotion interventions using safety talk and peer change agent methods on workers' perceived benefits of action, perceived barriers, self-efficacy, activity-related influences, interpersonal influences, situational influences, and commitment to action plans and behaviour. The research population consisted of 350 employees at PT X, with a sample of 187 employees selected using a purposive sampling technique.

The PHBS questionnaire was used as the research instrument, which had been validated and rehabilitated using the product moment correlation statistical test and alpha (Cronbach) > 0.6. Ethical approval for this research was obtained from the Ethics Committee of Diponegoro University Semarang, number 386/EA/KEPK-FKM/2022. Data analysis

included the Kolmogorov-Smirnov test for univariate analysis, Wilcoxon Signed Ranks Test and Mann Whitney for bivariate analysis, and Manova test for multivariate analysis.

RESULTS AND DISCUSSION

The average age of workers in the safety talk group was 32,30 years, in the peer as change agent group was 36,37 years, and in the control group was 35,22 years. All workers in the safety talk and peer as change agent groups were male, while in the control group, 81% were male and 19% were female. In the safety talk group, the majority of workers had a high school education (54%), followed by junior high school (25,4%), primary school (19,0%), and only 1,6% had no schooling. In the peer as change agent group, the majority had a high school education (60,3%), followed by elementary school (20,6%), junior high school (14,3%), and 4,8% who did not go to school. Whereas in the control group, the majority had high school education (39,7%), followed by undergraduate (27,0%), junior high school (14,3%), elementary school (11,1%), and 3,2% who did not go to school.

The results of this study showed that the average post-test scores on perceived benefits of action, perceived self-efficacy, activity-related influences, interpersonal influences, situational influences, commitment to action plans and behaviour were higher than the pre-test scores or increased. Whereas the perception of barriers to action has decreased or the post-test value is higher than the pre-test value.

Table 1 shows the results of statistical tests (using Mann-Whitney) which indicate a significant difference ($p < 0.05$) between PHBS with a health promotion model approach before intervention in both the safety talk and peer as change agent groups compared to the control group.

Based on the results of statistical tests (shown in Table 2) using Mann-Whitney, it was found that the variables of perceived benefits of action, self-efficacy, activity-related influences, commitment to action plans, behaviour showed significant differences at post-test between the safety talk group and the control group. While in the case of perceived barriers to action, interpersonal influence, and situational

influence, there was no significant difference at post-test between the safety talk group and the control group. Whereas in perceived benefits of action, perceived barriers to action, perceived self-efficacy, activity-related influences, commitment to action plans, behaviour showed significant differences at the time of the post-test between the peer as change agent group and the control group. While in interpersonal influence, situational influence, there was no significant difference at post-test between the peer as change agent group and the control group.

Based on Table 3, the Wilcoxon test in the safety talk and peer as change agent groups found that all variables have a P value < 0.005 , so it can be concluded that there is a significant difference between PHBS with a health promotion model approach before and after the health promotion intervention. While the Wilcoxon test in the control group, there is 1 variable, namely the commitment to the action plan, which has a P value > 0.005 , so it can be concluded that there is no significant difference between PHBS using the health promotion model approach during the pre-test and post-test.

Furthermore, to determine differences in the effectiveness of the application of safety talk and peer as change agent methods in clean and healthy living behaviour (PHBS) based on the health promotion model for workers in construction services using the manova test because more than 1 (one) dependent variable.

The results of multivariate tests in table 4 by the procedure of pillai's trace, wilks' lambda, hotelling trace, roy's largest root obtained a significance value of 0.025 (< 0.05) which means H_a is accepted so it can be concluded that there is a difference in effectiveness between the safety talk method and peer as change agent) on workers' PHBS with a health promotion model approach. For the output between subject effect, on the variables of perception of barriers (p value 0.326), self-ability (p value 0.363), activity-related Influences (p value 0.070), the influence of the situation (p value 0.513) and PHBS (p value 0.819) obtained significance results > 0.05 , meaning that H_a is rejected, meaning that there is no difference between

the value of perceived barriers, perceived self-efficacy, activity-related influences, situational influence, and PHBS between health promotion intervention groups with safety talk and peer as change agent methods.

Table 1. Differential Test of PHBS with Health Promotion Model Approach Before Intervention between Safety Talk Group, Peer as Change Agent with Control Group

PHBS with Health Promotion Model Approach	Mann-Whitney test results	
	Safety Talk	Peer as Change Agent Group
Perceived Benefits of Action	0,000	0,000
Perceived Barriers to Action	0,000	0,000
Perceived Self-efficacy (Self-ability)	0,000	0,000
Activity-related Influences	0,000	0,014
Interpersonal Influences	0,000	0,000
Situational Influences	0,000	0,000
Commitment to Action Plan	0,000	0,003
Clean and Healthy Living Behaviour (PHBS)	0,000	0,000

Table 2. Differential Test of PHBS with Health Promotion Model Approach after Intervention between Safety Talk Group, Peer as Change Agent and Control Group

PHBS with Health Promotion Model Approach	Mann-Whitney test results	
	Safety Talk	Peer as Change Agent Group
Perceived Benefits of Action	0,077	0,000
Perceived Barriers to Action	0,119	0,043
Perceived Self-efficacy (Self-ability)	0,023	0,002
Activity-related Influences	0,008	0,042
Interpersonal Influences	0,468	0,297
Situational Influences	0,196	0,053
Commitment to Action Plan	0,002	0,000
Clean and Healthy Living Behaviour (PHBS)	0,001	0,000

Table 3. Test of Differential Increase in Mean of PHBS with Health Promotion Model Approach After Intervention between Safety Talk Group, Peer as Change Agent with Control Group

PHBS with Health Promotion Model Approach	Wilcoxon test results		
	Safety Talk	Peer as Change Agent Group	Control Group
Perceived Benefits of Action	0,000	0,000	0,001
Perceived Barriers to Action	0,000	0,000	0,002
Perceived Self-efficacy (Self-ability)	0,000	0,000	0,000
Activity-related Influences	0,000	0,000	0,042
Interpersonal Influences	0,000	0,000	0,000
Situational Influences	0,000	0,000	0,000
Commitment to Action Plan	0,000	0,000	0,102
Clean and Healthy Living Behaviour (PHBS)	0,000	0,000	0,000

Table 4. The results of multivariate tests

		Multivariate Tests				
Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.850	83.143 ^b	8.000	117.000	.000
	Wilks' Lambda	.150	83.143 ^b	8.000	117.000	.000
	Hotelling's Trace	5.685	83.143 ^b	8.000	117.000	.000
	Roy's Largest Root	5.685	83.143 ^b	8.000	117.000	.000
CLASS	Pillai's Trace	.136	2.300 ^b	8.000	117.000	.025
	Wilks' Lambda	.864	2.300 ^b	8.000	117.000	.025
	Hotelling's Trace	.157	2.300 ^b	8.000	117.000	.025
	Roy's Largest Root	.157	2.300 ^b	8.000	117.000	.025

Table 5. The results of PHBS with Health Promotion Model Approach

PHBS with Health Promotion Model Approach	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power
Perceived Benefits of Action	430.865	1	430.865	5.272	.023	5.272	.625
Perceived Barriers to Action	190.675	1	190.675	.972	.326	.972	.165
Perceived Self-efficacy (Self-ability)	47.056	1	47.056	.835	.363	.835	.148
Activity-related Influences	190.675	1	190.675	3.347	.070	3.347	.443
Interpersonal Influences	200.643	1	200.643	4.413	.038	4.413	.550
Situational Influences	25.786	1	25.786	.431	.513	.431	.100
Commitment to Action Plan	373.722	1	373.722	5.544	.020	5.544	.647
Clean and Healthy Living Behaviour	.127	1	.127	.053	.819	.053	.056

For the variable perceived benefits (p value 0.023), interpersonal influence (p value 0.038), commitment to action plan of PHBS (p value 0.020), significance results <0.05 were obtained, which means that Ha is accepted, i.e. there is a difference between the value of perceived benefits, interpersonal influence, commitment to action plan of PHBS between health promotion intervention groups with safety talk and peer as change agent methods.

For the components of perceived benefits, perceived barriers, self-efficacy, activity-related influence, interpersonal influence, situational influence, commitment to action plan, the

average (mean) for Safety Talk is greater than the average (mean) for Peer as Change Agent, so it can be concluded that the Safety Talk method is more effective in increasing perceived benefits, perceived barriers, self-efficacy, commitment to action plan, interpersonal influence, situational influence, commitment to action plan than the Peer as Change Agent method..

While in the PHBS component itself the average (mean) on safety talk is lower than the average (mean) on peer as change agent, it can be concluded that the peer as change agent method is more effective in increasing workers' PHBS compared to the safety talk method.

DISCUSSION

The pre-test data shows that the value of Clean and Healthy Living Behaviours (PHBS) is still low among construction workers. The behaviour score shows that the components of perceived benefits, perceived barriers, self-efficacy, activity-related influences, interpersonal influences, situational influences, commitment to action plans, and clean and healthy behaviours (PHBS) are negative.

The results showed the effect of the Safety Talk method on clean and healthy living behaviours (PHBS) in construction workers. After the health promotion intervention with the safety talk method, it was found that the PHBS of the workers increased in a positive direction. Presenting PHBS material using the Safety Talk method also requires the respondents to be able to practice PHBS properly and correctly. This is due to the fact that this method emphasises individual teaching practices, where the respondents have to deposit the results of their understanding of the PHBS material together with the PHBS practices.

In addition, the results also showed the effect of the peer as change agent method on PHBS in construction workers. After the health promotion intervention using the peer as change agent method, it was found that the value of PHBS increased among construction workers. The increase in PHBS in the peer as change agent intervention group was followed by an increase in perceived benefits, perceived barriers, self-efficacy and attitudes towards PHBS-related behaviour (Chung et al., 2021; Hacker et al., 2021; Schaaf et al., 2020).

From the results of the effectiveness test, the safety talk method is more effective than the peer as change agent method in improving perceived benefits, perceived barriers, self-efficacy, attitudes/influence on PHBS activities, interpersonal influence, situational influence, and commitment to action plans for PHBS. However, the peer as change agent method is more effective in improving workers' PHBS than the safety talk method. Based on previous research, it was found that health promotion using the safety talk method was able to increase awareness of the importance of clean and healthy living behaviours among construction workers (Çitak & Deniz, 2009; Jommaroeng

et al., 2020; Jones et al., 2017; Khosravi et al., 2018). This finding is consistent with the results of our research, which showed that the safety talk method is effective in improving perceptions of benefits, barriers, self-efficacy and commitment to the PHBS action plan. This confirms that the use of the safety talk method can be an effective strategy for improving PHBS amongst construction workers.

CONCLUSIONS AND SUGGESTION

Health promotion interventions using safety talk and peer as change agent methods were successful in improving clean and healthy living behaviours (PHBS) amongst construction workers. Safety talk is effective in improving perceived benefits, perceived barriers, self-efficacy, attitudes, interpersonal influence, situational influence and commitment to PHBS. However, peers as change agents were more effective in increasing the overall level of PHBS. Nevertheless, there was no significant difference in the level of PHBS between the two methods.

The suggestions that can be given to PT Waskita Karya (Persero) Tbk, Jakarta Cikampek II South Toll Road Construction Project Package 3 Parent, are to implement health promotion using the safety talk method and peers as change agents to improve Clean and Healthy Living Behaviour (PHBS). It is also important to implement health promotion through role models so that it is easily accepted by the workers. For workers, it is recommended to improve PHBS through simple measures such as washing hands at important times and keeping the workplace clean, including killing mosquito larvae and buying food at places recommended by the company. For future researchers, it is recommended to conduct further research to evaluate and maintain the sustainability of PHBS in the workplace.

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