Journal of Indonesian Specialized Nutrition
e-ISSN: 3032-3878

The Impact of Nutrition Education in Workplace

Agus Salim[1*] Ray Wagiu Basrowi[2]

[1]Occupational Medicine Magister Program, Departement of Community Medicine, Faculty of Medicine, University Indonesia, Jakarta

[2]Health Collaborative Center (HCC), Jakarta, Indonesia

**Correspondence:* dokter.agussalim@gmail.com

***ABSTRACT*:** Workplace is one of the places that could affect wide range of health, functioning, and quality-of-life outcomes and risks. this study aims to review nutrition education among workers that result can be used as the evidence based for policymakers to start implementing health and nutrition education periodically. We conducted a search on the PubMed Central database in May 2024 to look at various publications and journals in 2010-2024 related to the nutritional education in the workplace using the keywords: nutrition education, workplace. Three studies were meet inclusion and exclusion criteria and further be reviewed. Three studies focused on nutrition education in the workplace. Positive outcomes were recorded for all workplace intervention, including increase in nutrition knowledge, self- efficacy, reduce risky behavior, and improved body mass index and blood biomarkers. Workplace may provide an optimal setting to reach a large proportion of the adult population thus could improve both nutrition education and practice as well as health status. Workplace education related to nutrition, in this paper all gives different positive outcomes.

Keywords- Nutritional Education, Workplace

INTRODUCTION

Workplace is one of the places that could affect wide range of health, functioning, and quality-of-life outcomes and risks (Schulte et al., 2015). Workplace as a priority environment to influence dietary behaviors given that individuals can spend up to two-thirds of their waking hours at work (WHO, 2013). Potential health problems among workers are work accident, occupational illness, non- communicable diseases and communicable diseases (Indonesia Ministry of Health, 2015). A good health status not only impact on individual but also for the workplace itself. Several strategies that could be

DOI: 10.46799/jisn.v1i4.21

used for improving workers' productivity including improving nutrition, sanitation, education, health promotion, healthy workplace, occupation-health and safety, and population health.

Indonesia's latest national survey in 2018 reported the highest non-communicable diseases among productive age was hypertension, followed by stroke, joint diseases, cancer, and diabetes. Moreover, 35.4% of adults reproductive age are overweight/obese (Indonesia Ministry of Health, 2018). Thus, building a preventive-based strategy to enhance workers' health and productivity is a crucial investment.

Workplace nutrition intervention had the highest positive effect on health behaviors as mentioned by The American Heart Association (Van Horn et al., 2016). AHA also describe a guideline of workplace nutrition intervention including the use of well-balanced meals (low-fat dairy products, low saturated fat and avoiding trans-fat, more fruits and vegetables, whole grains, seafood, lean meats and poultry, as well as salt alternatives. Continuing health education will improve the quality of workers by providing more knowledge and competencies (Bardosono et al., 2018). Hochart and Lang (2011), mentioned that nutrition education program in worksite able to increase work efficiency, lowering absenteeism and employees' healthcare cost. Hence upon, a behavior enhancing nutrition and health status of the workers should be implemented in every workplace. Further implication on the emergence of health and nutrition intervention in a workplace need to be assessed. To our knowledge, currently there are not many systematic reviews that focus on nutrition education in the workers, In results, not many companies or small to medium enterprises (SMEs) that having nutrition and health education as their primary policy. Thus, this study aims to review nutrition education among workers that result can be used as the evidence based for policymakers to start implementing health and nutrition education periodically,

RESEARCH METHODS

We conducted a search on the PubMed Central database in May 2024 to look at various publications and journals in 2010-2023 years related to the nutritional education in the workplace using the keywords: nutrition education, workplace. For searches using these keywords, more emphasis is placed on filtering the title and abstract of the research. Research journals that meet these criteria are then included as inclusion. Meanwhile, the exclusion criteria are various journals that do not meet the previous criteria.

DOI: 10.46799/jisn.v1i4.21

RESULTS AND DISCUSSION

Result

Three articles 7-9 discuss nutritional education in the workplace. The first article discusses effect of nutrition education at worksite program in male workers. The study suggest that continuing and systematic nutritional management programs should be developed and implemented for male workers at the worksites to maintain optimal health status. The second study conducted as a part of the workplace education program to improve nutritional practices and cardiometabolic status in industrial personnel. The third article assess the effectiveness and cost-effectiveness of complex dietary interventions focused on environmental dietary modification alone or in combination with nutrition education in large manufacturing workplace settings.

Table 1. Selected article overview

Article title	Study design	Population	Result
Kim et al.	Not stated	75 males	Significant decreases in body mass index ($p< 0.05$), fasting blood sugar ($p>0.01$), total cholesterol ($p<0.05$) and LDL-cholesterol $p<0.05$ after nutrition education
Hassani et al.	Randomized controlled field trial	104 employees with dyslipidemia	The education group significantly improved their nutritional knowledge ($p<0.001$), dietary intakes ($p<0.005$), serum FBS ($p<0.001$) and Hcy levels

DOI: 10.46799/jisn.v1i4.21

			(p<0.001) and anthropometric indices.
Geaney et al.	A cluster-controlled trial	Four large, purposively selected manufacturing workplaces	There were significant positive changes in intakes of saturated fat (p=0.013), salt (p=0.010) and nutrition knowledge (p=0.034) between baseline and follow-up in the combined intervention versus the control. Small but significant changes in BMI (-1.2 kg/m^2 (95% CI -2.385, -0.018, p=0.047) were observed in the combined intervention.

Discussion

The results of this review showed that the nutrition given in a workplace setting in the form of nutrition and health education gives a positive outcome. Several positive outcomes proved by several studies in this review including improved nutrition knowledge, improvement of anthropometric indices (decrease body mass index, body fat, wrist circumference, thigh circumference, calf circumference, mid-arm circumference, triceps skinfolds), improvement of biochemical indices (fasting blood sugar, HbA1C,

DOI: 10.46799/jisn.v1i4.21

total cholesterol level, LDL-cholesterol level, hemoglobin level), increase dietary diversity score (Kim et al., 2012; Geaney et al., 2013).

Most of the studies undergone in this review employed a small sample size, thus. One of this study that employed is large samples (Geaney et al., 2013). The success of one nutrition education is not only mainly due to the change of food environment by modifying fruits and vegetable availability but also combining with the advertisement of health food and involving workers in meal planning and management. To date, changing the workplace environment still offered a great potential for promoting healthy nutrition (Bandoni et al., 2011). It is again supported by the result of Gaeney et al. (2013), study among manufacturing workplaces that proved a positive outcome from environment modification after 9 months. Environmental dietary modification included five elements: i) menu modification: restriction of saturated fat, sugar and salt; ii) increase in fiber, fruit and vegetables; iii) price discounts for whole fresh fruit; iv) strategic positioning of healthier alternatives; and v) portion size control. Other environment intervention was repositioning certain healthy foods within the canteen i.e., confectionary products were replaced with healthy snacks (fresh fruit, dried fruit, natural nuts) by the cash registers. The environment modification combined with nutrition education focused on with aim focused on how they can make a healthy food choice within a modified workplace environment. Those study revealed a significant positive changes in intakes of saturated fat, salt and nutrition knowledge between baseline and follow-up in the combined intervention versus the control. Small but significant changes in BMI were also observed in the combined intervention. It is further described that improvement of fasting blood sugar after a nutrition intervention might be mediated by the higher intake of fiber and low glycemic index food, with overall control on energy intake and body weight (Salinardi et al., 2013). However, this study did not mention the pre and post education intake, thus we cannot conclude the causation between nutrition education intervention and blood glucose improvement.

Nutrition literacy and knowledge can promote healthier behaviors and approaches, especially in terms of nutritious food selection and preparation, healthy eating, access to health services, food security, as well as knowledge of traditional foods (Wahyuni et al., 2023). Our review found that nutrition education is now prove to improve both behavior and health such as practicing healthy eating (more fruits and vegetable, less saturated fat/high fat food), balancing food intake with activity level. This review proposed the development of research and science which prove both short and long-term benefit of nutrition education. In addition, another review suggests the success of nutrition education

DOI: 10.46799/jisn.v1i4.21

in the worksite should pay attention to appropriate design and theory, focus on <3 objectives; duration more than equal to 5 months; 11whereas in our study, 2 of 3 studies were done <5 months, but mostly have <3 objectives and all resulting in positive outcomes (Murimi et al., 2017).

Similar to our review, Robroek also conclude that a review related to worksite health promotion programmes is essential to developed a specific health programme based on each worksite needs. Nevertheless, an effort to increase workers participation need to be considered because of their low participations (Robroek et al., 2009). Another review that in line to our study suggest that diet-related workplace interventions have positive effects on workers' nutritional knowledge, food intake and health, increase productivity, reduced absenteeism and presenteeism (Jensen, 2011).

The strength in our study including the variety of health and nutrition intervention that resulting in positive health outcome ranged from anthropometric change to biochemical change and also most importantly, behavioral change. This systematic review can be used as the material to advocate nutrition and health interventions in the office. However, some limitations are also followed, include (1) risk of bias strategy was not present. (2) articles that were published in English, so that, there is a possibility that some recent and important findings published in languages other than English were left out.

A short- and long-term benefit of nutrition education in the workplace suggests the importance of its implementation specially to improve employees' productivity and reduce burden cost. Therefore, our review can be used by the company to start and tailored nutrition/health education. In the bigger level, it can be used for policy makers to develop regulations that require all companies to carry out nutrition / health education.

CONCLUSION

The results of this review describe the workplace nutrition education, the different contexts in which they are implemented. This review imply that workplace may provide an optimal setting to reach a large proportion of the adult population thus could improve both nutrition education and practice as well as health status. Workplace education related to nutrition, in this paper all gives different positive outcomes from knowledge and self-efficacy elevation, behavior change especially in increasing fruits and vegetable intake, reduce fat intake, starting a balanced nutrition habit, then decreased of lipid profile and body mass index. Moreover, workplace education could also address ergonomic related work problem considering the health problem that might arise among workers. Comparing different

DOI: 10.46799/jisn.v1i4.21

type of intervention studies, a combination of education-behavioral change program and work environment modification seems to results better outcome. Modify the future research by focusing on matching workers' needs in terms of nutrition and health behavior might be done to benefit the industry. Furthermore, assess the population with high-risk nutrition problem in the workplace might also needed to focusing the nutrition intervention program.

REFERENCES

Bandoni, D. H., Sarno, F., & Jaime, P. C. (2011). Impact of an intervention on the availability and consumption of fruits and vegetables in the workplace. *Public health nutrition*, *14*(6), 975-981.

Bardosono, S., Hildayani, R., Chandra, D. N., Basrowi, R. W., & Wibowo, Y. (2018). The knowledge retention after continuing health education among midwives in Indonesia. *Medical Journal of Indonesia*, *27*(2), 128â-33

Geaney, F., Kelly, C., Di Marrazzo, J. S., Harrington, J. M., Fitzgerald, A. P., Greiner, B. A., & Perry, I. J. (2016). The effect of complex workplace dietary interventions on employees' dietary intakes, nutrition knowledge and health status: a cluster controlled trial. *Preventive medicine*, *89*, 76-83.

Hassani, B., Amani, R., Haghighizadeh, M. H., & Araban, M. (2020). A priority oriented nutrition education program to improve nutritional and cardiometabolic status in the workplace: a randomized field trial. *Journal of Occupational Medicine and Toxicology*, *15*, 1-9.

Hochart, C., & Lang, M. (2011). Impact of a comprehensive worksite wellness program on health risk, utilization, and health care costs. *Population health management*, *14*(3), 111-116.

Indonesia Ministry of Health. 2015 Occupational health situation. [cited 2020 March 10]. Available from: www.kemkes.go.id.

Indonesia Ministry of Health. 2018 National health survey/Laporan Nasional Riskesdas 2018. [cited 2020 March 15]. Available from: http://kesmas.kemkes.go.id/assets/upload/dir_519d41d8cd98f00/files/Hasil-riskesdas-2018_1274.pdf.

Jensen, J. D. (2011). Can worksite nutritional interventions improve productivity and firm profitability? A literature review. *Perspectives in Public Health*, *131*(4), 184-192.

Kim, H. J., Hong, J. I., Mok, H. J., & Lee, K. M. (2012). Effect of workplace-visiting nutrition education on anthropometric and clinical measures in male workers. *Clinical nutrition research*, *1*(1), 49-57.

DOI: 10.46799/jisn.v1i4.21

Murimi, M. W., Kanyi, M., Mupfudze, T., Amin, M. R., Mbogori, T., & Aldubayan, K. (2017). Factors influencing efficacy of nutrition education interventions: a systematic review. *Journal of nutrition education and behavior*, *49*(2), 142-165.

Robroek, S. J., Van Lenthe, F. J., Van Empelen, P., & Burdorf, A. (2009). Determinants of participation in worksite health promotion programmes: a systematic review. *International Journal of Behavioral Nutrition and Physical Activity*, *6*, 1-12.

Salinardi, T. C., Batra, P., Roberts, S. B., Urban, L. E., Robinson, L. M., Pittas, A. G., ... & Das, S. K. (2013). Lifestyle intervention reduces body weight and improves cardiometabolic risk factors in worksites. *The American journal of clinical nutrition*, *97*(4), 667-676.

Schulte, P. A., Guerin, R. J., Schill, A. L., Bhattacharya, A., Cunningham, T. R., Pandalai, S. P., ... & Stephenson, C. M. (2015). Considerations for incorporating "well-being" in public policy for workers and workplaces. *American journal of public health*, *105*(8), e31-e44.

Van Horn, L., Carson, J. A. S., Appel, L. J., Burke, L. E., Economos, C., Karmally, W., ... & Kris-Etherton, P. (2016). Recommended dietary pattern to achieve adherence to the American Heart Association/American College of Cardiology (AHA/ACC) guidelines: a scientific statement from the American Heart Association. *Circulation*, *134*(22), e505-e529.

Wahyuni, F. C., Karomah, U., Basrowi, R. W., Sitorus, N. L., & Lestari, L. A. (2023). The Relationship between Nutrition Literacy and Nutrition Knowledge with the Incidence of Stunting: A Scoping Review. *Amerta Nutrition*, *7.*

World Health Organization (2013). Global action plan for the prevention and control of noncommunicable disease 2013-2020. [cited 2020 March 3]. Available from: www.who.int/iris/bitstream/10665/94384/1/9789241506236_eng.pdf .

DOI: 10.46799/jisn.v1i4.21