

Background

- Disease and Non-Battle Injuries (DNBIs) cause more casualties within the armed forces than combat injuries (Bebarta et al., 2018).
- Field Sanitation Teams (FST) were established in WWII to identify and mitigate DNBIs in field environments.
- Individual soldiers are trained in a one-week course that covers proper waste management, prevention of diseases spread by rodents and arthropods, noise hazards, and toxic industrial chemicals (Bebarta et al., 2018).
- A survey was developed to investigate soldiers' confidence level, attitude towards, and likelihood of implementation of the information gained from this one-week course.

Purpose of the Study

- To assess the effectiveness of the one-week Field Sanitation Teams training course in improving the confidence level, attitudes, and likelihood of implementation on preventative medicine measures among a sample of soldiers in the US Army by:
- Compare the pre- and post-course survey score differences on the confidence on knowledge, attitudes towards, likelihood implementation of preventative medicine measures.
- Determine if pre- and post-course survey score differences on the likelihood of preventative medicine measure implementation is influenced by rank or deployment status.

Significance of the Study

- Currently, there is no research on the effectiveness of the course in increasing confidence of preventative medicine measures, how this knowledge impacts the attitudes toward preventative medicine measures, and boundaries to putting effective preventative medicine practices in place in an austere field environment
- Data on existing methods for teaching short courses on preventative medicine are limited.
- Data on barriers to public health to try to understand if similar interventions used in civilian populations can used within the Army to increase preventative medicine effectiveness in austere environments

Materials and Methods

- The study population consisted of Army soldiers stationed in Germany attending the 40-hour Field Sanitation Course.
- The students were asked in person to complete the survey and sign the consent form at the beginning of the first day of class and at the end of the last day of class.
- Participation was anonymous and voluntary.
- Four of the courses surveyed were held on August 8-11, October 17-21, October 21-28, and November 28-December 2, 2022.
- The Statistical Package for Social Sciences (SPSS version 25, IBM, Armonk, NY) was used to analyze the data. Statistical significance was determined with a *p*-value of 0.05.

Results

- There were 53 total participants. Of those, the majority were male (75.5%) between 18-23 years old (56.6%), and with a high school diploma (84.9%).
- The lowest ranking participant was an E-2 and the highest was an E-7. Most participants were rank E-4 (43.40%), followed by E-5 rank (34.00%).
- The majority did not complete a deployment (73.60%).
- Fifty three soldiers completed pre- and post-course surveys and a significant difference ($p < 0.01$) was found in an increase from pre- to post-survey results for knowledge confidence.
- The mean pre-course knowledge confidence ($M = 2.93$; $SD = 0.72$) was lower than the mean post-course knowledge confidence ($M = 4.34$; $SD = 0.55$).
- The Paired T-test results were significant ($t(48) = -13.93$, $p < 0.001$), indicating that the mean pre-course knowledge confidence ($M = 2.91$, $SD = 0.73$) was significantly lower than post-course knowledge confidence ($M = 4.64$, $SD = 0.55$). (Table 1)
- The Wilcoxon signed rank test results indicate that median pre-course attitudes ($Me = 4.40$) was significantly higher than median post-course attitudes ($Me = 2.60$), $Z = -5.35$, $p < 0.001$. (Table 2)
- The results indicate that median pre-course likelihood of implementation ($Me = 4.20$) was significantly lower than median post-course likelihood of implementation ($Me = 4.60$), $Z = -3.79$, $p < 0.001$.

Table 1. Paired samples t-test results for knowledge confidence

Variable	n	M	SD	t	p
Pre-course knowledge confidence	49	2.91	.73		
Post-course knowledge confidence	49	4.64	.55	-13.93	< .001

Table 2. Wilcoxon signed rank test results for attitudes and likelihood of implementation

Variable	n	Me	Z	p
Pre attitudes towards preventative medicine measures	53	4.40		
Post attitudes towards preventative medicine measures	49	2.60	-5.35	< .001
Pre likelihood of preventative medicine measure implementation	53	4.20		
Post likelihood of preventative medicine measure implementation	47	4.60	-3.79	< .001

Table 3. Hierarchical regression analysis results for likelihood of implementation by deployment status and rank.

Model		Unstandardized Coefficients		Standardized Coefficients	t	p
		B	Std. Error	Beta		
1	(Constant)	-0.377	0.106		-3.542	0.001
	deployed with Army	-0.040	0.211	-0.028	-0.188	0.852
2	(Constant)	-0.595	0.474		-1.255	0.216
	deployed with Army	-0.101	0.249	-0.071	-0.404	0.688
	Rank	0.055	0.116	0.083	0.472	0.639

Dependent variable: Difference score for Likelihood of implementation

Results (cont'd)

- Hierarchical regression analysis (Table 3)
- In Model 1, $R^2 = 0.028$, only 2.80% of the variance in difference scores for likelihood of implementation was explained by deployment.
- Deployment was a non-significant negative predictor of difference scores for likelihood of implementation ($B = -0.040$, $p = 0.852$).
- In Model 2, adding the variable rank to the model did not significantly improve the model, $F(1, 44) = 0.223$, $p = 0.639$ ($\Delta R^2 = .005$).
- Deployment was a non-significant negative predictor of difference scores for likelihood of implementation ($B = -0.101$, $p = 0.688$).
- Rank was a non-significant positive predictor of difference score for likelihood of implementation ($B = 0.055$, $p = 0.639$).

Discussion Highlights

- Knowledge of preventative medicine measures facilitates implementation (Schor et al., 2019) and this was supported by the current study.
- The knowledge focus of the class could contribute to the largest increase in score being confidence in knowledge and likelihood of implementation while attitude showed little difference.
- The connection with the increase in knowledge and likelihood of implementation supported by this study is a good indicator that the course's focus on increasing knowledge can help limit DNBIs in austere environments.
- Future research should focus on how attitudes towards preventative medicine measures interacts with knowledge of and implementation of preventative medicine measures in austere environments
- Limitations of this study include small sample size and survey design.

Conclusion

- This study surveyed four Field Sanitation courses over five months on their knowledge confidence, attitudes, and likelihood of implementing preventative medicine measures in austere environments.
- The average scores showed a significant increase in knowledge and likelihood of implementation but no significant increase in attitude.
- Most soldiers who completed the survey had not deployed and were of a junior rank and the study observed that there was no significant difference in scores based on deployment status or rank.
- This study gives a good baseline for future research to investigate how increased knowledge could impact attitudes and the implementation of preventative medicine measures in austere environments.

References

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