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The long-term impact of maritime piracy on seafarers' behavioral health and work decisions

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ABSTRACT

More than 6000 seafarers have been held hostage by pirates in the last ten years. There is a small but developing body of research showing that these seafarers may face lasting challenges in recovery. However, current studies on this question have been limited by a lack of comparison groups, a lack of statistical power, and other methodological challenges. This study contributes to this body of research through a survey of 101 former hostages and 363 seafarers not known to be exposed to piracy from India, the Philippines, and Ukraine. Using clinically validated scales for tracking lasting impact, this research finds that 25.77% of former hostages show symptoms consistent with PTSD, and that hostage experiences and other maritime traumas can have impacts on seafarer wellbeing and decisions about their career through the impact these traumas have on post-traumatic stress symptoms.

1. Introduction

A developing body of research has suggested that seafarers may suffer lasting distress following pirate attacks or being held hostage [16,4,45]. Existing research on post-traumatic stress suggests that this distress may come with significant impacts on work performance and other social costs [37]. To date there has been no study of sufficiently large size to effectively estimate the risk of lasting distress in seafarer hostages, identify predictors of resilience or distress following pirate attack, or specifically examine the impacts on seafarer workplace behavior. The current study is intended to fill this gap in the literature and accomplish three primary objectives. First, to explore the rates of lasting distress in seafarers held hostage by pirates through the use of validated psychological scales. Secondly, to identify predictors of resilience or risk in the face of piracy to assist in the development of policies that promote effective prevention of distress. Finally, to identify whether seafarers exposed to piracy showed any measurable impacts in workplace behavior or their decisions to continue working as a seafarer as a result of piracy.

2. Existing research linking maritime piracy and seafarers' health

A large number of seafarers have been exposed to pirate attack. The IMB reports that since 2006 more there have been more than 3000 pirate attacks [18,19]. This estimate is likely to be an underestimation: in the case of West Africa, the IMB has suggested that only one third of attacks are reported [6], and dataset of attacks built from public data found that indeed only 42% of the attacks found were in IMB reports ([22], note 88).

There is a developing body of research showing that piracy can have a significant impact on seafarers. Transiting the high-risk area can cause stress and worry in seafarers. Attacks expose seafarers to risk of death or injury and can be terrifying. When seafarers are held hostage for ransom, abuse is frequent and often severe [17]. There is good evidence that these kinds of stress can have lasting impacts on psychological health and wellbeing. A 2016 analysis of the experience of Filipino former hostages (Simon & Fernandez, 2016) showed high rates of conditions found to predict lasting problems including subjective fear and distress and loss of control over their lives [12,13]. Experiences causing these reactions have been linked to a number of negative psychological impacts including Post-Traumatic Stress Disorder (PTSD) [10], depression [24,34], substance abuse [7], and poorer physical health and wellbeing [15,32]. Current research on the mental health impacts of piracy has documented some of these effects in some seafarers. Antonio Ziello has documented diagnosable PTSD in three of four Italian seafarers held by pirates that he interviewed, as well as other impacts [45]. Interviews with seven Bulgarian seafarers held hostage showed significant emotional impact twenty days after release [4], but short-term

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Table 1
Sample demographics.

	Country	N	Age mean and SD	Age range	Pct male	Years in industry mean and SD
Not held hostage	India	103	29.46 (7.16)	20–62	100%	5.66 (4.97)
	Philippines	144	39.49 (11.51)	21–68	99%	11.92 (9.22)
	Ukraine	127	34.85 (11.02)	20–80	87%	10.33 (10.31)
Held hostage	India	44	37.41 (11.73)	23–60	100%	11.49 (10.64)
	Philippines	31	40.34 (11.66)	21–61	100%	14.03 (10.24)
	Ukraine	26	42.88 (11.82)	25–65	96%	17.94 (11.30)

impacts of traumatic events are fairly common and not necessarily predictive of long-term impact [44]. Two descriptive studies have shown varying kinds of lasting emotional disruption after return from piracy without directly assessing clinical mental health [16,27]. In addition, two previous articles based on data collected as a part of the current research project have documented the phenomenology of Filipino seafarers' thinking about the impact of piracy on their overall emotional wellbeing [35] and the difficulty that affected seafarers in the Philippines had accessing mental health supports [2].

There is therefore good evidence that piracy leads to some impacts in seafarers, but the scope and risk factors associated with this impact is less clear. The nature of the seafaring profession may impact seafarers' vulnerability to developing post-traumatic impacts from piracy in both positive and negative ways. On the more positive side, there is an increasing proliferation of pre-departure training aimed specifically at giving seafarers skills to manage pirate attacks. This training may provide seafarers with a sense of control and efficacy when reacting to a pirate attack, elements which have been debated as potentially important predictors of recovery following a traumatic event [13,20]. On the more negative side, one predictor of increased risk of lasting impact from a traumatic event is previous exposure to other traumatic events [9]. Seafaring is risky, and there is good evidence that seafarers have fairly high rates of exposure to traumatic events aboard ship [23,31]. This may sensitize seafarers to more lasting distress following attack.

It is also possible that in addition to behavioral health, there may be related impacts on seafarer work decisions. There is strong evidence that psychological distress will lead to reduced workplace efficiency, performance, and employment [3,36,37]. In the case of seafarers, the contract-driven nature of seafarer work means that seafarers have many opportunities to make decisions about whether to continue to pursue work at sea. Past research has documented a decision to leave seafaring in some seafarers held hostage by pirates [17], but to date there has been no large-scale examination of how frequent this is or the scale of the impact of piracy on seafarer work behavior.

Collectively, then, the research on piracy and seafarer wellbeing suggests that there are some lasting impacts of piracy. The frequency of such impact, the relative predictors of resilience or vulnerability, and the associated impacts on seafarer work decisions have not been studied in detail. The current study is an attempt to close this gap.

3. Methods

This study was designed to identify the lasting impact of piracy on seafarers through a comparison of former hostages with a group of seafarers not known to be exposed to piracy. Independent variables assessed included demographic variables, prior exposure to trauma and piracy, and exposure to pre-departure training on piracy. Dependent variables included measures of psychological distress and workplace decision making.

3.1. Participants

Participants were recruited from the Philippines, Ukraine, and India. As of 2003, these three countries collectively provided 40.8% of seafarers for merchant shipping, with the majority of that coming from the Philippines [14]. In each of these three countries, a list of returned hostages provided by partner organizations was contacted by phone and email and asked to participate. Average participation rate for former hostages was 44.9%. Non-hostage participants were approached through partnerships with manning and training agencies or training centers, seafarer welfare centers, and unions. Seafarers were approached through a mixture of emails sent through the contact lists of these organizations and convenience sampling of seafarers physically present at the locations. Initial targets were for 150 non-affected seafarers and 50 affected seafarers, but in no country were those targets reached before participation rates dropped. Power calculations were executed for the collected sample sizes, and found per-sample power estimates of $\pi = 0.958$ for Ukraine, .993 for India, and 0.979 for the Philippines at the $p < 0.05$ level. This was deemed acceptably high, and data collection was stopped at this point (Table 1).

3.2. Independent variables

Independent variables assessed were age, gender, religiosity, years in the maritime industry, exposure to prior traumatic events aboard ship, exposure to pre-departure training on piracy, and exposure to piracy. Exposure to prior traumatic events aboard ship was assessed using the event categories identified by Menon [23]. Exposure to pre-departure training was assessed by the item "Have you received any pre-departure training on piracy?" and (if they answered yes) "How helpful did you think this training was?" answered on a scale of 1–5. Exposure to different forms of pirate attack was assessed by asking participants to indicate which of eight different types of experiences they may have had. See Table 3 below.

3.3. Dependent variables

Dependent variables included post-traumatic stress symptoms, depression, and overall wellbeing. Post-traumatic stress (PTS) was assessed with the Posttraumatic Stress Checklist-Civilian scale (PCL-C, [42]), depressive symptoms with the Center for Epidemiological Studies Depression scale (CES-D, [29]), and overall wellbeing using the Duke Health Profile (DUKE, [26]). In addition, three items about the overall impact of piracy on work decisions were asked: "When considering whether to take a job or not, how much do you think about the risk of piracy?" answered on a Likert scale running from 1 to 5, and "Have you ever turned down a job because of the risk of piracy?" and "Have you ever specifically looked for a higher-risk job to get higher pay?" answered yes/no.

The PCL-C was modified to ask specifically about piracy instead of a generic traumatic event, and was scored both as a sum-score for PTS symptom severity and for the presence of PTSD. The study was launched before the release of the DSM-V, and the version of the PCL-C used was validated on the basis of DSM-IV criteria. Hence, probable PTSD was coded when respondents met DSM-IV criteria [5] and had a sum score of 44 on the scale [39]. There is no cross-cultural consensus on appropriate cutoffs for coding probable depression from the CES-D [11,21,41], so CES-D was scored as a sum score for depressive symptoms. The Duke Health Profile was scored according to scoring instructions with one modification: partner agencies working on this project recommended removing two items relating to physical ability